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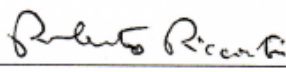
LOCAL SYSTEMS OF PRODUCTION IN LATE MODERN AND CONTEMPORARY EUROPE:

THE CASE OF FIREARMS PRODUCTION IN GARDONE VAL TROMPIA


IN A HISTORICAL-COMPARATIVE PERSPECTIVE

SECS-P/12 – Economic History

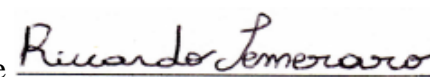
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*Local Systems of Production in Late Modern and Contemporary Europe:  
the Case of Firearms Production in Gardone Val Trompia in a Historical-Comparative Perspective*  
Riccardo Semeraro  
Doctoral Thesis  
Verona – June 12<sup>th</sup>, 2017

*To Martina*

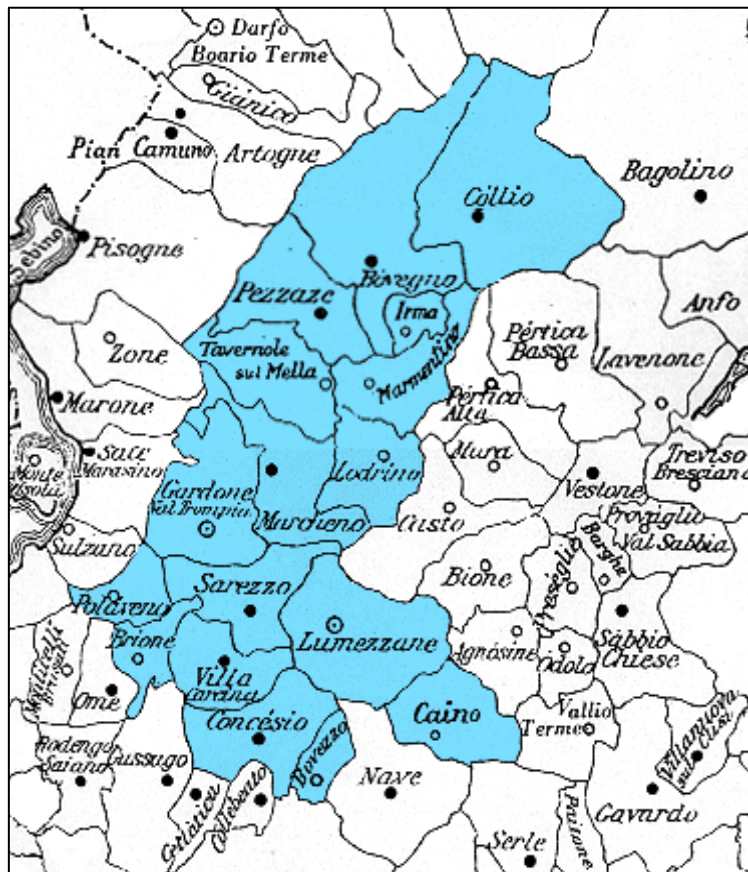


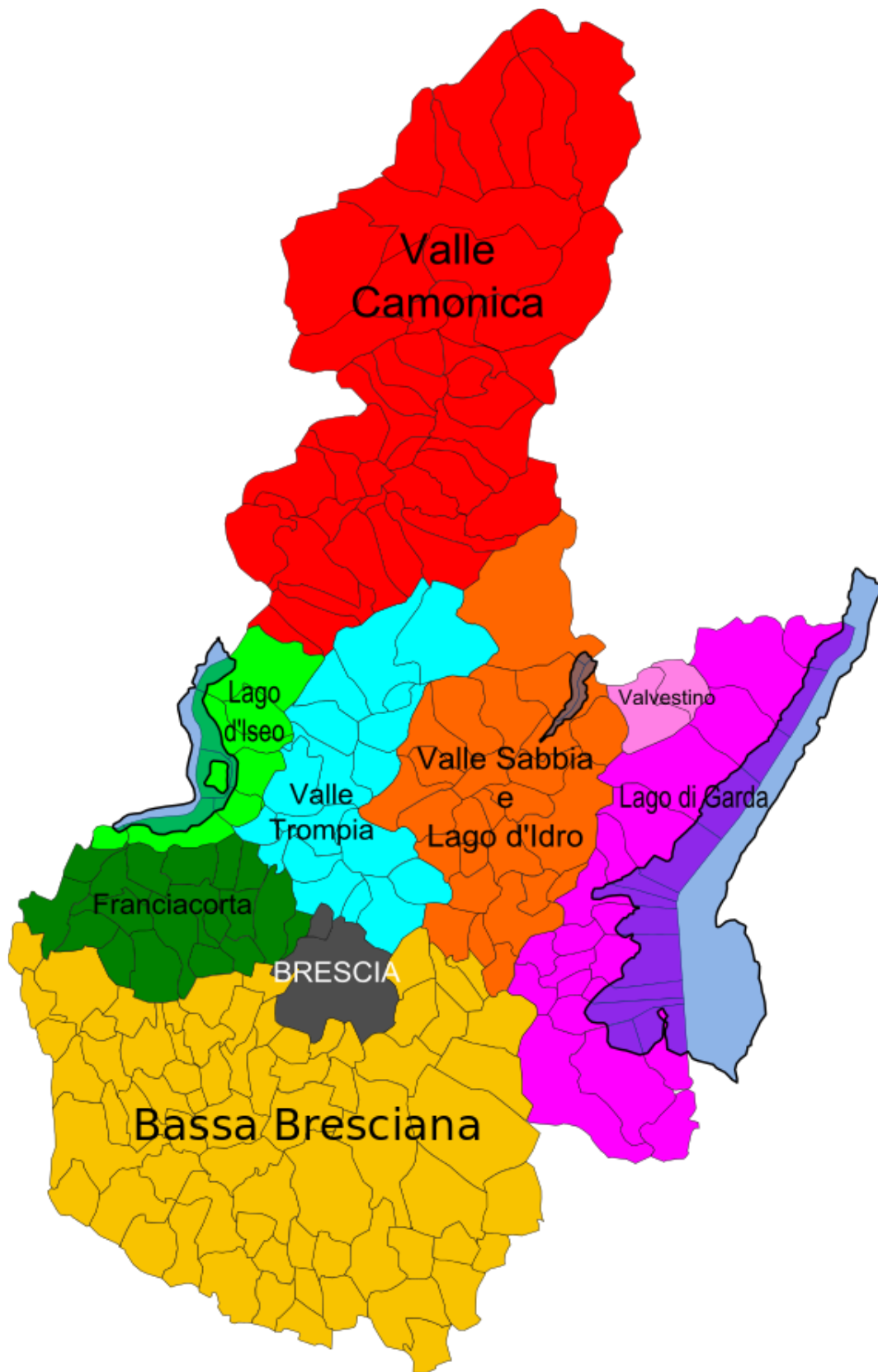
## Contents

<u>Preface</u>	p. 9
<u>Paper 1</u>	
<i>Industrial Districts in a Historical Perspective: a Literature Review</i>	p. 17
<u>Paper 2</u>	
<i>Social Capital Accumulation and Local Systems of Production: the Firearms Industry in Brescia in a Long-term Perspective</i>	p. 37
<u>Paper 3</u>	
<i>The Revenge of the Masters: the Gun Making Industrial District in Gardone Val Trompia</i>	p. 55
<u>Paper 4</u>	
<i>Giants in Lilliput: State Intervention and Large Firms in European Small Arms Districts (1850-1914)</i>	p. 105
<u>Appendices</u>	
<i>1. The Italian Production of Civilian Firearms (1920-2009)</i>	p. 151
<i>2. Workforce in the Firearms Industry (Province of Brescia, 1951-1981)</i>	p. 159
<i>3. Firms of the Industrial District (Gardone-Marcheno-Sarezzo, 1961)</i>	p. 169
<i>4. Data and Information regarding the Capacities of Plants (1952)</i>	p. 195
<i>5. Interviews with Entrepreneurs of the Industrial District</i>	p. 217

5.1 Interview with Pierangelo Pedersoli	p. 219
5.2 Interview with Cristina Abbiatico	p. 233
5.3 Interview with Giuseppe Pirlo	p. 247
5.4 Interview with Luigi Zanardini	p. 253
6. Gun Making Forges and Workshops in Val Trompia (1860)	p. 257
7. Gun Barrel Production in Gardone V.T. (1861)	p. 263
8. Firearms Industry in the Province of Brescia (1910)	p. 267
<u>References</u>	p. 277

Picture 1 - Map of Val Trompia





Picture 2 - Map of the province of Brescia





## Preface

The dissertation “European Local Systems of Production in Late Modern and Contemporary Europe: the Case of Firearms Production in Gardone Val Trompia in a Historical-Comparative Perspective” aims to provide a contribution to the reconstruction of the events that characterized the specialization in the production of firearms in Val Trompia and the remaining Brescia area. To do this, this thesis focuses on three macro areas of study, referring to them and, hopefully, adding to them. The first area of study is that of industrial districts, with its theoretical grounding and vast corpus of empirical studies (Becattini 2004; Becattini et al. 2009); the second is the local economic historiography<sup>1</sup>, with particular reference to the territory of Brescia (Tacolini and Gregorini 2013; Gregorini 2011); the last area is the historiography of firearms production, considered in its economic, social and technological aspects (Parker 1996; Labanca and Poggi 2009; Barbiroli 2012; Aa.Vv. 2014; Carman 2016).

The dissertation is the result of intense research work carried out not only in the major libraries of Lombardy and some important archives, such as Archivio di Stato di Brescia and Archivio Centrale dello Stato di Roma, but also in local document centers, such as the historical archives of the Brescia Chamber of Commerce and of numerous institutions and municipalities in Val Trompia. In addition to the original documents, several local and nationwide periodicals were consulted, as well as electronic resources, such as scientific articles published online and interviews registered at Archivio di Etnografia e Storia Locale of Regione

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<sup>1</sup> As explained by Giovanni Gregorini (2012, p. 5; 2010), «the economic and social history of the last twenty years has tried to recover the dimension of local systems development as an interpretative – as well as descriptive - tool for the typical features of the process of Italian national growth in the Late Modern and Contemporary periods. This is particularly true both in terms of a general reflection on local development and for the leading actors in the development, with a particular focus on so-called intermediate institutions. Today this line of research is entwined and has brought to light interpretative models of the history of the Italian peninsula aimed at identifying several different provincial pathways to industrialization (Zaninelli 2007; Amatori 2004)» (translation from Italian).

Lombardia, and four semi-structured interviews carried out by the author with expert firearms entrepreneurs from Val Trompia.

The work is presented in the form of a collection of essays and consists of four macro sections: this preface, the four papers, eight appendices and the bibliographical and archival references. The second part, the core of the work, is in turn divided into two further sections: the first with two bibliographical and historiographical essays, and the second with two empirical essays. The essays are based on an analytical historical study which presupposes that phenomena are determined and shaped by specific conditions of space and time (Parker 1999; Morck and Yeung 2011). For the experimental essays, research was carried out following the critical-historical method (Tosh 1984; Cipolla 1988). While researching in the archives mentioned above, useful sources were identified to support the research by outlining reciprocal functional connections, guaranteeing a thorough historical reconstruction. The documents were submitted to careful critical analysis, from the point of view of their reliability and intrinsic accuracy. Lastly, it was of paramount importance to attempt to deepen the understanding of the general context of these references, in order to create an overall picture of the reality under investigation. The study of local and national historiographical literature was fundamental for this phase of the research.

The first essay is a review of the existing literature on industrial districts and, more generally, production systems based on a network of small and medium-sized enterprises. Its objective is to highlight the main areas of research on the topic in question that stemmed from economic history. It begins with the definitions of industrial district, local production system and cluster, moves on to an explanation of these definitions based on their underlying economic concepts and then contextualizes them within the wider debate about the role of small and medium-sized enterprises. In particular, the essay explains how economic historians have focused on the roots, the evolution processes and adaptive skills of industrial districts. It shows that the origin and development of the industrial districts are processes in which multiple factors connected with the past and the inhabitants of the area are at play, as well as factors related to the modern world and market challenges. Through the analysis of several case studies, scholars have identified

some recurrent factors, and have come to some general conclusions: specifically, the importance of guilds, factories, local banks and several intermediate institutions. These are the result of and engines for the process of social capital accumulation necessary to the formation and transformation of the district.

The second paper includes a further review of the literature. It is a historiographical essay through which we introduce the case study analyzed in the dissertation, i.e. the production of small firearms in the province of Brescia, focused on Gardone Val Trompia. The paper adopts a long-term perspective which, in light of the concepts and research themes analyzed in the first essay, retraces the origins and development of the production specialization in question.

The article shows how important the guild and the factory system were in the history of Val Trompia and its firearms manufacture. It is possible to divide this history, with all due caution, into five macro-phases. The first, from 1433 to 1796, coincides with rule by the Venetian Republic in the current territory of the province of Brescia. Due to its favorable factor endowment, i.e. iron ore, water and wood, Val Trompia had already begun to specialize in the manufacturing of iron, melee weapons and armor. However, it was especially with the wars of the second half of the 16<sup>th</sup> century, that Val Trompia really nurtured its vocation for firearms. During this long first period, the local production system, based on craft production and taking place in small specialist workshops, took the shape of what Braudel (1977) calls *fabrique disséminée*. This phase was characterized by a particularly intense battle between craftsmen and merchant-entrepreneurs for the control of production. The clash paved the way for weapons manufacturing guilds, which played a primary role in the institutionalization of professions and working practices, fostering the transmission of knowledge over the following centuries.

The second period appears to have been a moment of transition. When Brescia was occupied by the *Armée d'Italie* in 1796, ending the Venetian supremacy, a new phase began in which first the French, then the Austrians, attempted to modernize, the firearms production process, adopting different strategies. The poor results led to the decline of the Brescia-Gardone production hub which lost ground to North-European competitors. Nevertheless, certain elements that emerged for the first time on the local scene should not be neglected: the French built an arsenal, while

under the Austrians some merchant families acquired greater importance, among them Franzini, Paris and, above all, Beretta. These two elements were important in the new context of the Kingdom of Italy, for the recovery of the production system during the third phase. Between 1861 and 1914, the intervention of the State in military commissions through the Regia Fabbrica Erariale and the initiative of a few private citizens, including the Beretta family, launched strategies based on industrial concentration and the large-scale production of hunting firearms, which helped the production specialization to recover after the period of decline.

The fourth phase is from 1914 to 1945, characterized by the impact of the two world wars, very marked in the small weapons sector. Of course, military firearms became the focus of attention again. During the conflicts, factories were militarized and the ones that had already started to concentrate productive factors were able to benefit most.

The fifth and last macro phase, known as the Golden Age, began with the end of the Second World War. When military firearms commissions came to an end, the Fabbrica Erariale was drastically downsized and leading private factories also found themselves with too large a workforce. As a consequence, when demand for civilian weapons picked up, the skills consolidated by the workforce in large industrial plants were in place and a network of small and medium-sized enterprises blossomed.

The second paper ends by highlighting some specific aspects of firearms production in Brescia, worthy of further in-depth analysis, which can be found in the two empirical essays drawing on material from the archives.

The third paper notes the lack of a detailed analysis of the local system in the second half of the 20<sup>th</sup> century. Several scholars have indicated that firearms production developed around Gardone as an industrial district, but its precise geographical borders have never been established. In addition, its internal structure and the relations between enterprises, as well as the role played by intermediate institutions, are all investigations that have yet to be made.

Two databases were used for the research. The first contains data regarding the labor force employed in firearms production in the territory of Brescia in the years 1951, 1961, 1971 and 1981: these were used to calculate for each town in the

province the indices of geographical concentration and production specialization in the sector. The second database includes all the companies involved in the production of firearms in 1961 in the territories of Gardone, Marcheno and Sarezzo which, through the first database and an analysis of commuters, are identified as the core of the local production system. A great deal of information is included (number of workers, main activity, production site, etc.) providing a picture of the structure of the production specialization and, in light of the sources for the developments of the social context and its institutions, an excellent idea of the central area of Val Trompia as a genuine industrial district.

The fourth paper considers another gap in the literature: there is no study of the contribution from the State and the factory system to the evolution of the local production in the second half of the 19<sup>th</sup> century. This study adopts a comparative perspective viewing Brescia-Gardone against the background of other firearm production systems in Belgium, France, England and Spain. At the same time (around 1850), the American System of Manufacturing started to spread throughout Europe following the intervention of various national governments. The study highlights the difficulties in attempting to overcome traditional European production methods and the decisive role played by public authorities, forward-looking entrepreneurs and their factories. This radically and mostly irreversibly changed both the approach to markets and the intra-district relations of firearms companies and of their local production systems.

As stated above, a few appendices are included along with a section dedicated to bibliographical and archival references. There are eight appendices which include the sources and data that proved to be particularly interesting for this research but which could not be directly included in the essays. Specifically, the appendices contain:

1. the transcription of the quantitative data related to firearms tests carried out at the National Proof House in Gardone Val Trompia in the period between 1920-2009;
2. the database containing the data of the industry and services census for the years 1951, 1961, 1971, 1981 regarding employment in the firearms sector in the province of Brescia;

3. the database of firearms enterprises in Gardone Val Trompia, Marcheno and Sarezzo in the year 1961;
4. questionnaires submitted by the Brescia Chamber of Commerce and Associazione Industriali Bresciani on the skills and potential of the main industrial plants for the production of firearms in the province of Brescia in 1952;
5. semi-structured interviews with entrepreneurs of the local production system carried out in the field;
6. summary tables (processed by the author) containing data regarding the Val Trompia gun making industry in 1860;
7. the prospectus containing data on the gun making industry of Gardone Val Trompia in 1861;
8. data and information regarding the firearms industry in the province of Brescia collected by the local Chamber of Commerce in 1910.

The appendices are introduced by brief notes in which a few essential pieces of information are provided regarding contents and original sources. For all appendices, except no. 6 and the databases, the original language was maintained since they include transcriptions of documents.

This dissertation sheds light on the crucial phases in the history of the local production system of Gardone Val Trompia, focusing on the production specialization and, above all, its transformations. The development of the district, which experienced its heyday during the second half of the 20<sup>th</sup> century, was driven by a few firms who led the way in the industrialization process. These companies distinguished themselves not only by innovating the production system, precisely when the local system was fragile due to external and internal causes, but also led to the consolidation of technical skills and the understanding of the social and industrial relations, decisive in the post-war period. What emerges is not a static reality, but a dynamic and constantly evolving one; it is a reality finding a balance between the persistence of historical and local elements and innovative ones, with a social organization rife with consolidated values, but also willing to accept new market challenges. This reality was characterized by profound integration between production specialization and the local community, rooted in the history of the local

production culture, worthy of in-depth investigation, from a not purely economic point of view but also a sociological and anthropological perspective (Becattini 2015).





# **Industrial Districts in a Historical Perspective: a Literature Review**

## *Paper 1*

**Keywords:** industrial district, local system of production, cluster, economic history, guild, factory system, institution.

### **Abstract**

During the last century, many expressions were coined to describe what Marshall used to call an “industrial district”. These multiple definitions are the product of a long, international, multidisciplinary debate. The debate developed around a concept rediscovered by Becattini and a group of Italian scholars searching, at the time, for new coordinates and paradigms to describe the economy and industrial development in their country. Fundamental to this branch of research was the contribution of economic and business historians who sought to investigate the origins of districts following the (neo)Marshallian paradigm or through new concepts. This paper discusses the development and trajectories of the literature regarding industrial districts observed from an historical perspective. It begins with the cardinal theoretical statements of Marshall, Becattini and Porter and the contextualization of the debate over the districts in the broader framework of small and medium-sized enterprises. Finally, the paper focuses on the efforts of historians to add elements of novelty to this branch of research. Two aspects emerge: 1) a massive body of theory based on case studies that somehow seems to fail to entirely capture reality; 2) the need to pay significant attention to institutions and governance mechanisms in the districts.

## Introduction

Industrial districts are a crucial part of the economy in many countries. Albeit with different configurations, they are found both in advanced capitalist democracies<sup>1</sup> – France, Germany, Japan, Scandinavian countries, Spain, the United States, the United Kingdom – and developing countries<sup>2</sup> – Brazil, China, Mexico and India. However, Italy has indisputably been the stage of their success, as well as the point of reference for international debate among scholars (Piore and Sabel 1984; Becattini 1987a, 1998; Goodman and Bamford 1989; Pyke et al. 1990; Fortis and Quadrio Curzio 2006; Galossi and Palmieri 2008).

The origins of the concept date back to the economist Alfred Marshall: in *Principles of Economics* (1890) he discusses the development and features of industrial districts. In particular, he emphasizes two aspects: firstly, the concentration of specialized industries in certain localities giving rise to particular business relationships in those specific environments; secondly, the “extraordinariness” and relevance of the socio-cultural aspects of the industrial districts. In the original formulation, Marshall considers the district as a region of numerous locally owned firms that decide local production and investments. Scale economies are marginal, most of the time trade is mostly between buyers and sellers on the basis of long-term contracts or commitments. Relations and cooperation with firms outside the district are minimal. According to Marshall, what is particularly

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<sup>1</sup> To understand the importance of the industrial districts in national contexts, significant contributions have been made by both social scientists and business historians. For the case of the “fabriques collectives” in France see the contributions by Cotterau (1986), Raveyre and Saglio (1984), Saglio (1997) and Tosatti (1999). In the German case a fundamental point of reference is Herigel (1996). For Japan and its “sanchi” or “jiba sangyo” see Friedman (1988), Abe (1992, 1999) and Okamoto (2009). In the Scandinavian setting industrial districts, despite their importance, are not widespread (Johannisson 2009): most of them are located in Denmark on the Jutland Peninsula; for this case see the works of Kristensen (1992) and Kristensen and Sabel (1997). For a complete mapping of Spain and UK see Boix and Galletto (2004, 2006) and De Propriis (2005); interesting details regarding Spain are given by Ybarra (2009) and the case studies presented during session A2 of the 9<sup>th</sup> congress of the Asociación Española de Historia Económica (Catalán et al. 2008). The U.S. and their local systems of production are described by Hall and Markusen (1985), Saxenian (1994), Scranton (1997), and Porter (1998). For comparative studies regarding the European context see: Crouch et al. (2004), Miranda (2005) and Catalán et al. (2011).

<sup>2</sup> In the case of developing countries the number of contributions decreases, but for developing countries such as Brazil, China, Mexico and India significant works include Schmitz (1995), Rabellotti (1993), Cawthorne (1995), Parilli and Garcia (2009), Tewari (2009), Wang and Mei (2009) and Posthuma (2009).

relevant and extraordinary about the industrial district model is the so-called industrial atmosphere. Workers and entrepreneurs are part of a homogeneous community characterized by a cooperative-competitive spirit based on a strong commitment to the district (not to the single firm), an internal and highly flexible local labor market, frequent contacts between suppliers and buyers along a highly-fragmented supply chain. In other words, the access to information and competences is locally determined and fruitful for competitive advantages not individually achievable by the entrepreneur (Marshall 1890).

Becattini (1978, 1979) recovered the concept at the end of the 1970s when recession hit the world and the decline of the Fordist production model was at the center of the stage. In particular, the notion was resurrected to better understand regional paths of industrial takeoff in certain Italian regions characterized by the onset of local entrepreneurship and of specialized small and medium-sized enterprises (SMEs)<sup>3</sup>. This kind of phenomenon first emerged and was analyzed in so-called Third Italy, the central and northeastern parts of the country<sup>4</sup>. Becattini's contribution was fundamental and was soon enhanced by multidisciplinary perspectives: a large and fruitful debate took place, first in the Italian academic world and then at the international level. Therefore, the conception formalized by Marshall, based on external economies and the industrial atmosphere, gained greater traction. In the "Italian literature" the Marshallian district became a naturally and historically bounded place, characterized by the presence of a community of people and a production apparatus with a deep interrelation (Becattini 1990). Furthermore, four precise requisites were introduced for its identification: the presence of a) a system of common values relating to the work ethic; b) a large variety of forms of work; c) "pure" entrepreneurs, whose major motivation was the enterprise as a "life project"; d) the ability to break down the production process into precise spatial and temporal phases (Giannetti and Vasta 2012 p.123).

As already mentioned, these fundamental and synthetic ideas are the product of an intense debate comprising the contributions of many scholars from different

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<sup>3</sup> Regarding dimensional classes see European Commission (2003).

<sup>4</sup> For a discussion about the "miracle" of the Third Italy see Bagnasco (1977, 1979) and Moroni (2008).

fields – political economy, sociology, industrial organization, economic geography, economic history etc.<sup>5</sup>. Recently, some scholars have even sought to trace its intellectual origins, analyzing the most cited papers (Cruz and Teixeira 2010; Martínez-Fernández et al. 2012; Lazzeretti et al. 2014), highlighting emerging topics and lines of inquiry (Oliver et al. 2014). The present work gives a comprehensive review of the ideas and evidence provided by historians. Historians have largely discussed where, when and why the districts were born. In other words, they have tried to investigate the origins of what Bagnasco called “local systems of production”. The objective of the following pages consists in contextualizing such contributions and understanding their particularities and limits.

### **Theoretical foundations**

The cornerstone of the debate on industrial districts is *Principles of Economics*, written by the economist Alfred Marshall. In 1890, , in the section dedicated to industrial organization (Chapter 4), the British scholar first distinguished two types of economies of scale: 1) internal, derived from a better exploitation of the resources inside the firm; 2) external, depending on overall industry development. Examples of the first type are the efficiencies achieved through new machinery, raw material savings, improvements in the division of labor and in management. On the other hand, external economies of scale are those related to processes of concentration of similar activities in specific geographical areas. This paper deals with the second type.

According to Marshall, at the very basis of the processes of industrial concentration it is possible to identify a number of simple and important reasons related to the natural environment and resources (such as particularities of the climate and soil, the accessibility and presence of mineral deposits), but also to the emergence of a strong demand for a certain product. Once the industry is established in a specific area, the process of concentration can continue thanks to three

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<sup>5</sup> See Becattini (1979), Bellandi (1987) and Maccabelli (1997) for an extensive discussion regarding the multidisciplinary nature of the topic.

advantages determined by the proximity of the firms. 1) Technological spillovers: they are related to the quasi-public nature of knowledge and innovation; no matter how sophisticated a system of patents is, knowledge cannot be totally codified and competitors always try to copy, acquire and even improve the technological innovations. 2) Subsidiary industries: when concentration in an industry occurs, the firms able to supply its machinery and inputs appear, making procurement easier and cheaper. 3) The development of a skilled labor force: in the area where a large number of firms in the same industry are concentrated, the workers acquire the specific expertise and capabilities entrepreneurs look for; in other words, an enterprise is more likely to find qualified labor force (also at a cheaper cost) if it is located in a concentrated area. These three types of external factor and their combined effects are the fundamental elements of what is commonly called a *Marshallian district*.

In order to analyze the second turning point in the theoretical debate on districts, the Italian case and the broader discussion regarding small and medium-sized enterprises (SMEs) must be considered. The analysis of the role of SMEs acquired importance in the last three decades of the 20<sup>th</sup> century; in fact, after the Oil Crisis SMEs emerged as a pervasive and fundamental organizational form on the basis of two phenomena. The first one was the decentralization of production by big businesses for flexibility reasons. The second was the effect of the closure of many plants, prompting many workers to become entrepreneurs on the basis of the skills acquired in previous years (Brusco 1989b; Solinas 1994; De Cecco 2000, 2001a, 2001b; Berta 2001).

However, the presence of SMEs is not something exclusive to the last decades of the 20<sup>th</sup> century: in the Seventies, what really changes is the consideration of their existence and role. It is possible to identify three main streams of literature among the many positions taken by the scientific community. The first one sees small-sized firms as an inefficient and residual form of enterprise. Their existence is determined by economic backwardness or cyclical phases of economic expansion allowing the entry of firms under the minimum efficient size (Ciocca et al. 1973; De Cecco 2000; Perez 2002). This kind of position is well described in the words of Giulio Sapelli (1995, pp. 79-80): «Everybody knows there is a large number of

scholars who have studied industrial districts. I do not have a particular liking for this stream of literature since it was able to transform the problem of small and medium enterprises into a sort of fairy tale. Now that the SME system seems to work, the “small is beautiful” myth has its day of glory. However, if we look at the market change produced by globalization [...], we discover that this conception of the SME world does not work at all. In fact, we cannot forget one of the biggest problems of companies of this size: the opposition to progress in a dynamic competitive environment with increasingly fierce challenges. Instead we should pay more attention to what big businesses have done and what medium enterprises are starting to do»<sup>6</sup>.

Researchers who have tried to understand the permanence of SMEs and interpreted their presence in a “negative” way include Vera Lutz (1962), and Augusto Graziani (1972). The former describes the segmentation of the labor market. According to her, this segmentation determines the persistence of small firms in traditional sectors where low wages are exploited without increasing capital intensity. Graziani focuses the attention on the increase in exports and, more generally, on the productivity of sectors primarily devoted to foreign markets. According to him, this produces the equilibrium between the balance of payments and industrial development, but is not able to overcome inefficiencies in naturally or politically protected industries. As a consequence, there is a distortion in consumption with falling prices for “luxury” goods and strong price rigidity for necessary goods in a not-standardized-market.

The second line of thought considers the permanence of small firms as the result of their ability to construct and position themselves in particular technological or market niches that allow them to survive even without growth. Significant emphasis is put on the technological aspect; in fact, authors tend to underline the different characteristics of the technologies adopted and their adaptability to the size classes. In relation to these topics, large businesses are considered models for the exploitation of technologies based on economies of scale, whereas small firms are seen as optimal to exploit technologies for achieving flexibility and adaptability (Audretsch 1995, 1997).

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<sup>6</sup> Translation from Italian.

However, the attention devoted exclusively to technology was soon seen as too restrictive (Piore and Sabel 1987; Landes 1987) and a third stream of research emerged, placing at center stage the agglomeration of SMEs. It associates the enduring capacity of small firm with the ability to construct local systems of production using technologies in a flexible manner (Sabel and Zeitlin 1987, 1997; Brusco and Paba 1997; Scranton 1997). Three major concepts were formulated (on the basis of the Marshall's contribution) for these enterprises, related to each other through the production phases of homogeneous products, with paradigms able to explain regional development paths after the Golden Age of the Bel Paese (Zeitlin 1992).

In 1979, after a series of “preparatory” publications<sup>7</sup>, Giacomo Becattini suggested abandoning the concept of sector in favor of the one of industrial district as fundamental unit of investigation of industrial economics. In Becattini, in addition to the three Marshallian external factors, there are two new elements. First of all, the Italian scholar emphasizes the predominance of small enterprises at the heart of the characteristic flexibility of district dynamics; secondly, he identifies the sociocultural factors related to traditions, politics and institutions in the location of the district (Becattini 1979a, 1979b). His definition of an industrial district is (Becattini 2004, p. 19):

«a social-territorial entity which is characterized by the active presence of both a community of people and a population of firms in one naturally and historically bounded place».

Becattini's contribution represented the dawn of the so-called *Neo-Marshallian district*: a few years went by before the discussion of the requisites and implications of the concentration of SMEs gained new insights. Sebastiano Brusco also contributed to the debate on flexibility. While Becattini (2000a) studied the textile and clothing industry of Prato<sup>8</sup>, Brusco (1982) focused his attention on Emilia-Romagna. The Modena economist analyzed the decentralization of manufacturing that characterized, in particular, the local engineering industry in the Seventies.

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<sup>7</sup> See the contributions related to the scientific activity of Irpet (1969; Becattini 1975) and one by Forte (1971).

<sup>8</sup> In this case study Becattini identifies the fundamental features of his conception of the district: SME flexibility, sharecropping traditions and the role of the local communist party.

Three factors were crucial: 1) newly adopted machinery suitable for small-scale production, 2) the strength of Trade Unions and 3) the emergence of broad demand due to the increase in incomes during the Golden Age. According to Brusco, decentralization in Emilia-Romagna was a result of extensive cooperation between firms and the political-institutional framework able to create useful instruments for procurement, access to credit and the creation of profitable commercial networks.

An Italian sociologist, Arnaldo Bagnasco (1988), also played a crucial role in the ongoing debate. His contribution (focused on the Third Italy<sup>9</sup>) does not use the classic term “district” but opts for the neologism “local system of production”. Like his two colleagues, he stresses the importance of small enterprises, as well as the concepts of flexibility and outsourcing, crucial to cut labor costs. Due to his background, he provides details of the political and cultural sides of the debate. In addition to the communist tradition identified by Becattini and Bagnasco in Tuscany and Emilia-Romagna respectively, he describes the catholic milieu characterizing other north-eastern regions in Italy. In Bagnasco’s treatise both communist cooperatives and Catholic associations are seen as the result of ancient and traditional cultural heritages adapted to the needs of the present situation.

On the basis of this review of the three major points of view, compared to the Marshallian conception, the *Italian district* is characterized by two additional elements: 1) the flexibility directly related to the predominance of small-sized firms in the local economy and 2) cooperative attitudes associated with specific cultural, political and institutional heritages (Catlán et al. 2011, p. 17). For sure, crucial is the notion of industrial atmosphere as already expressed by Marshall and as reformulated by Becattini (1987b, p. 8) as follows: «It is not simply an organizational form of the production process of a particular category of goods, but a social environment where human relations, inside and outside production sites [...] and the inclinations towards work, savings, risk etc. have a particular nature»<sup>10</sup>.

This “particular nature” is even more central to the historical debate in which scholars broaden the discussion analyzing the district’s process of creation, its long-term nature (Guenzi 1997) and its implications for institutional and local

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<sup>9</sup> See note 4.

<sup>10</sup> Translation from Italian.



development<sup>11</sup> (Belfanti 1999a; Guenzi 1999; Provasi 2002; Grandi 2007). The following survey of the literature focuses on the processes of economic and social transformation underlying industrial districts: what was the crucial element called industrial atmosphere? Can we identify a precise framework for industrial districts and their development process?

To complete this short review of the theoretical concepts related to manufacturing concentrations, the second important interpretation of external economies as formulated by Marshall needs mentioning. This contribution was from the renowned Harvard professor Michael Porter (1990), the father of the concept of *cluster*. To understand more, it may be useful to read his very own words (Porter 1998, p. 78):

«Clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition. They include, for example, suppliers of specialized inputs such as components, machinery, and services, and providers of specialized infrastructure. Clusters also often extend downstream to channels and customers and laterally to manufacturers of complementary products and to companies in industries related by skills, technologies, or common inputs. Finally, many clusters include governmental and other institutions – such as universities, standards-setting agencies, think tanks, vocational training providers, and trade associations – that provide specialized training, education, information, research, and technical support. [...] Clusters represent a kind of new spatial organizational form in between arm's-length markets on the one hand and hierarchies, or vertical integration, on the other. A cluster, then, is an alternative way of organizing the value chain. Compared with market transactions among dispersed and random buyers and sellers, the proximity of companies and institutions in one location – and the repeated exchanges among them – fosters better coordination and trust. Thus

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<sup>11</sup> Regarding the relationship “industrial districts-local development” see the seminal contribution of Brusco (1982). See also Garofoli (1994), Bellandi and Russo (1994), Becattini (2000b, 2009), Becattini et al. (2001, 2003), Bellandi (2003), Sforzi (2005) and Brusco (2008).

clusters mitigate the problems inherent in arm's-length relationships without imposing the inflexibilities of vertical integration or the management challenges of creating and maintaining formal linkages such as networks, alliances, and partnerships. A cluster of independent and informally linked companies and institutions represents a robust organizational form that offers advantages in efficiency, effectiveness, and flexibility».

Porter's concept has the final aim of formulating a broader microeconomic theory able to explain national competitiveness in the global economy context. From the quotation, it is possible to identify 7 characteristic features which actually are the competitive advantages of the cluster: 1) access to inputs (machinery, components, financial services, etc.) and a highly qualified labor force; 2) access to information and know-how; 3) the complementarity of the activities; 4) access to institutions and public goods; 5) the decrease of supervision costs inside the enterprise; 6) innovation; 7) the creation of new enterprises.

Compared to the Marshallian conception a few new elements emerge, the most relevant novelty being the focus on public goods and the impact of infrastructure on geographical concentrations. However, when compared to the Italian model, there appear to be 3 major discrepancies. Firstly, the Harvard professor does not abandon the concept of industry. He aims to provide a better framing of the old concept of industry within the new context of a globalized world. Secondly, Porter does not restrict the field of applicability of the cluster to SMEs, but also considers cases where large companies like Boeing (Seattle), Ford, GM and Chrysler (Detroit) are included. Last but not least, unlike the Italian district, clusters are more heterogeneous in terms of production activities; indeed the service sector is not excluded from his consideration of the composition of a business structure (Catalán et al. 2011, pp. 21-23).

Nowadays many definitions of cluster coexist with several applications to different socio-economic contexts. The debate on clusters has been influenced by the discussion of industrial districts: both concern localization factors and their impact on competitiveness, as well as the effects of agglomeration on economic

performance. Several authors<sup>12</sup> have specified that an industrial district is a particular kind of more general category of cluster, whilst others<sup>13</sup> have used the two concepts interchangeably (Lazzeretti et al. 2014).

### **A fluid concept**

Scholars - both social scientists and historians - have debated the conceptual frameworks provided by Marshall, Bagnasco and Becattini<sup>14</sup>. In particular, an extensive debate has dealt with the boundaries of such definitions<sup>15</sup>. Not all researchers agree on what constitutes the borders of a district. Above all, today, in a period of rapid and continuous change, many see the traditional formalizations as too restrictive<sup>16</sup>. This aversion has led to a proliferation of models in an attempt to capture the huge quantity of empirical cases<sup>17</sup> (Zeitlin 2007).

For historians studying local systems of production (no matter whether following the neo-Marshallian conception or searching for new paradigms) it has mainly meant going back to the origins of these regional aggregations. Sabel and Zeitlin (1985) were the first to do so. In England, they studied the manufacture of arms in Birmingham and cutlery in Sheffield; in Germany, they focused on Solingen and its knife producers; in France, they analyzed the production of trimmings in St. Etienne, silk in Lyon and of wool cloth in Roubaix. Municipal governance, strong paternalism and the centrality of the family were the backbones

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<sup>12</sup> For example: Markusen (1996), Gordon and McCann (2000), Porter and Ketels (2009).

<sup>13</sup> For example: Schmitz (1995), Tallman et al. (2004), Bell (2005).

<sup>14</sup> For cases of (neo-)Marshallian districts see Sheffield (Sabel and Zeitlin 1985), Cholet (Minguet 1992; Lescure 2002), the Arve Valley (Judet 2006), Bergisches Land (Boch 1997).

<sup>15</sup> For an extensive discussion of the “industrial district paradigm” see Belfanti and Maccabelli (1997).

<sup>16</sup> For historians looking for new typologies see Wilson and Popp (2003) and in particular Zeitlin (1992). The former distinguish between districts, clusters, and regional business networks on the basis of the geographical scale and the linkage between firms and industries. The latter proposes the formalization of the characteristics of the Marshallian district into empirical scalar variables in such a way that they could be used to depict several hybrid cases defined in terms of their relation to the classic model.

<sup>17</sup> Examples are: “commercial service districts” such as Lille-Roubaix-Tourcoing, “technological districts” such as Silicon Valley, “logistic districts” such as Duisburg and Venlo and “financial districts” like the City of London. Furthermore, Panicia (2002) shows that just a small number of Italian districts actually belong to the traditional model.

of these districts and were the roots of all the “centralized” instruments and mechanisms able to ensure competitiveness and long-term development. Examples were unemployment subsidies designed to prevent the dispersal of human capital, the procurement of fundamental resources for the life of the district, the supervision of prices and salaries to prevent counter-productive competition, the creation of professional training schools and institutions providing assistance (Sabel and Zeitlin 1985, 1997).

All of this is reminiscent of the pre-industrial guild (Farr 1997; Akoorie 2011)<sup>18</sup>. The relationship between the industrial district and the craft guild is a subject that has been widely debated by historians<sup>19</sup>. Recently, Alberto Guenzi (2014) has also focused his attention on it. Through a comparative work based on four case studies related to the production of cutlery (the industrial districts of Sheffield, Solingen, Thiers and Pavlovo), the Italian scholar has investigated the relationship between the district and the guild in different geographical areas. Taking his cue from the Marshallian concepts of “industrial atmosphere”, “strong division of labor” and “social-professional flexibility”, the author stresses the importance of the system of professional training in the transmission of high-level handwork<sup>20</sup>, both in the guild and in the district. Furthermore, in line with Zeitlin’s call (2007) for a broader and smoother conception of the district and its evolutionary paths, Guenzi goes beyond “simple” factors of localization. He points to the obstacles faced and the subsequent actions taken by the protagonists of the cases in question. The author suggests that despite substantial similarities in terms of products, markets and production organization, there are no predetermined models. Each district can and must find its own solutions and paths. These results confirm Grandi (2007) and Magagnoli

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<sup>18</sup> Craft guilds have been considered negatively from the eighteenth century onwards; however, more recent scholarship has led to a re-evaluation of their effects. For details on this debate and the role of guilds in the pre-industrial economy see: Lucassen et al. (2009) and Epstein and Prak (2010).

<sup>19</sup> Belfanti (1996, 1999b) analyzes the case of the Lumezzane industrial district, located in the north of Brescia, famous for the production of firearms since the 16<sup>th</sup> century. and partially converted to civilian products in the following centuries. In the 18<sup>th</sup> century, local blacksmiths created a guild able to defend their interests by reinforcing their negotiating power with merchants. Research by Veyrassat (1997) and Fallet and Cortat (2001) reconstructs the case of Neuchâtel (Switzerland) and its watch-making district. The guild system is evoked once again when considering the system adopted to train young workers. In France Olivier (2004) describes a similar scenario for the district of Morez. For further details see also Deakin (2006) and Guenzi (2010).

<sup>20</sup> Regarding apprenticeships and the transmission of working knowledge and skills through guilds see Epstein (1998). For the relationship between guilds and the circulation of technical knowledge during the Early Modern Age see Belfanti (2007).

(2007) and are a serious blow to the concept of the district life cycle as a rigid sequence of phases historically marking the dynamics and evolution of the manufacturing system<sup>21</sup>.

One recurrent element that emerges from an analysis of the origins and evolutionary paths of local systems of production is the rural milieu<sup>22</sup>. For example, some districts grew from the experience of sharecropping families. With the skills they acquired, members of these families were able to trigger a process of wide dissemination of SMEs outside municipal areas. Such was the case in many Italian regions, including Tuscany, Emilia Romagna and Marche, with a long history of sharecropping, the initial nucleus of Third Italy (Becattini 1986; Bagnasco 1988; Paci 1992). Very often these cases need to be considered in conjunction with the model of proto-industrialization known as the putting-out system. Despite the well-known effects of proletarianization produced by this model, several cases of entrepreneurial virtuosity in rural areas can be traced back to it (Mendels 1972; Kriedte et al. 1977). Examples are the districts of Carpi and Cicognara. The former produced hats from the 16<sup>th</sup> century on. Manufacturing was substantially outsourced beyond the city walls to farmers who wanted to supplement their income. During World War II, the market of the particular hats produced in Carpi fell into decline; however, the existing commercial and production organization and the experience acquired were not wasted: they were converted and adapted to the production of knitwear (Mengoli 1993; Cicognetti and Pezzini 1992, 1994; Rinaldi 2000). Cicognara, in the province of Mantua, followed a similar path. During the 18<sup>th</sup> and 19<sup>th</sup> centuries a proto-industry active in hemp manufacturing flourished, and at the beginning of the 20<sup>th</sup> century this laid the foundation for the successful local production of sorghum brooms, largely based on work at home with some forms of seasonal labor. After World War II the district overcame hardship by the establishment of numerous SMEs and the introduction of new raw materials and products. Synthetic fiber brooms, brushes and their marketing through a large commercial network became the core business (Denti 1982; Ghinzelli 1991).

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<sup>21</sup> Carminucci and Casucci (1997), Klepper (1997), Belussi et al. (2008) Lazzeretti and Capone (2014) are all examples of studies that seek to apply enterprise life cycle theory to industrial districts.

<sup>22</sup> In support of a hybrid conception of the district, Belfanti (2009) provides an extensive review of the literature on the role of guilds and the proto-industrialization model for the creation of industrial districts.

Again, tight models and neat distinctions seem reductive<sup>23</sup>. Indeed, after distinguishing between the two paradigms of the guild and rural areas, Belfanti (2009) cites empirical cases with the characteristics of both typologies. For example, he considers the district of Carpi a result of the rural milieu, and stresses the strong relationship with the hatmaker's guild of Modena. On the other hand, he considers the district of Morez an example of the guild-based model, whilst recalling Olivier's insistence (2004) on the rural matrix of this local production system. Other hybrids mentioned are the Geronzone Valley in the Lecco Area (Merzario 1989; Colli 1997, 1999) and the well-known "cottage industry" of shoemakers in the Italian Marche region (Sabbatucci Severini 1989). These districts developed by establishing a craft community utterly distinct from the surrounding rural setting.

Belfanti (1997, 2009) also underlines the importance of two other factors in the creation and development of local production systems: the presence of a local bank and the factory. He explains that mostly banks were the result of local initiatives and were therefore embedded in the local socio-economic system. They were crucial because they gave financial instruments to entrepreneurs on the basis of trust and because they facilitated the establishment of institutions and informal rules important for the industrial atmosphere<sup>24</sup>. In relation to factories, Belfanti recalls the contributions by Brusco (1989b) and Solinas (1994) that highlight their importance for professional training and to stimulate demand whilst sustaining many satellite activities. In other words, the presence of a large factory sets in motion processes of externalization and the consolidation of technical skills that trigger new entrepreneurial experiences. Among the examples cited by Belfanti (1997) are the cases of Castelfoffredo and Lumezzane. In Castelfoffredo (Belfanti 1995) the flourishing of the hosiery factories was financed by the local Cassa Rurale and made possible by the workers of a German factory who reinvested their expertise when a large company was wound up. In Lumezzane (Belfanti 1996) large corporations like FIAT, Arsenale di Gardone and Eredi Gnutti played a crucial role in providing a large number of small subcontractors with work and in guiding the

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<sup>23</sup> Such a model was taken to extremes and applied in Lombardy (Corner 1993).

<sup>24</sup> Regarding this point see also Conti and Ferri (1997).

process of industrial conversion after the Second World War, when many workers established new entrepreneurial activities.

The fact that economic historians have found evidence of several types of triggering factors and no standardized lines of development does not mean the debate on industrial districts and how they were created should remain the prey of irreparable relativism. Taking their cue from the studies of Arrighetti and Seravalli (1999), Italian economic historians have focused on the contribution of central and intermediate institutions to the evolutionary path of the districts. The approach is described by Grandi (2007 p. 68-70):

«Institutions sustain the production system: they are part of the district community and can be seen in the indeterminate, and in certain respects mysterious, complex of values, implicit rules, and widespread skills many authors recognize as characteristic features of the district. This approach provides a new interpretative tool to analyze industrial districts. The combination of the intervention of central and intermediate institutions at least partially determined the development paths of industrial sectors and significantly influenced the nature and differentiation of industrial districts. However, nothing is set in stone and intermediate institutions are particularly able over time to change the provision of public goods, in some cases anticipating the demand of local enterprises. There seem to be steps, crucial moments, during which institutions can do more and if so they create the conditions for the (re)launch of the process of development». Such a perspective «may be linked to a broader debate regarding the so-called ‘original social capital, interpreted as a heritage of social relations, knowledge and trust which have become embedded over time’<sup>25</sup>. [...] There may be a synthesis between this point of view and one centered on the action of intermediate institutions since an efficient local institutional architecture, which is coordinated and flexible, is possible only in local communities where there has been a sufficient accumulation of original social capital. However, the inverse is also possible, i.e. a solid institutional

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<sup>25</sup> See Belfanti and Onger (2002 p. 252)

structure may channel a portion of the wealth produced in a certain area into the accumulation of social capital. This way, the growth process might lead more easily to widespread and prolonged development»<sup>26</sup>.

In 1999, following this logic, Guenzi proposed an interesting interpretative framework based on four dimensions, intended to capture the intangible nature of the industrial atmosphere and able to compare the differences between the evolutionary paths of local systems. Guenzi (1999 p. 88) says that such institutional dimensions should provide an understanding of «the confused and inextricable picture of the local economic and social system»<sup>27</sup>. Four kinds of fundamental institutions are identified and observed for the chair production district of Friuli Venezia Giulia: vocational education, business associations, local banks and local authorities.

In 2007, this framework was employed by Grandi to analyze nine case studies: the districts of Prato, Fermano, Maniago, Cadore, Sassuolo, Valpolicella, Suzzara, Cera-Bovolone and Viadana. In the introduction to his work, Grandi analyzes the characteristics of the four institutions: 1) Vocational schools have a dual impact on economic development: they provide firms with qualified personnel and produce so-called dynamic economies of scale that, in conjunction with processes of learning by doing, can lead to innovations and productivity gains. 2) Business associations are based on the crucial element of trust and may be top-down or bottom-up associations; the former are local branches of regional or national organizations outside the district community, whereas the latter emerge from the initiative of local actors and generally are intended to promote common rules and objectives for the community of firms<sup>28</sup>. 3) Local banks are crucial for the financing of the necessary infrastructure and for building trust. 4) Local authorities, like municipalities, intervene in the allocation of resources, as well as in the coordination and promotion of public and private initiatives to positively influence

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<sup>26</sup> Translation from Italian.

<sup>27</sup> Translation from Italian.

<sup>28</sup> Grandi explains that three theoretical approaches should be jointly adopted to study business associations: “the strictly economic”, which highlights the vertical relationship between association and entrepreneur; “the cooperative” that focuses on the relationship between members; “the historical”, which concerns the temporal evolution of the association in conjunction with its social context.



local development; in particular, they stimulate the growth of the district through the creation of facilities and the spatial planning (Grandi 2007).

This branch of research includes the contribution of Belfanti and Onger (2002) in a work edited by Provasi (2002)<sup>29</sup>. The two scholars base their essay on the concepts of economic institution (EI), relevant economic institution (REI)<sup>30</sup>, basic institution and intermediate institution, contextualized in the cases of Vigevano, Montebelluna, Sassuolo and Casarano to define the specific roles of different types of institutions in the history of the districts. The scholars conclude that:

«the evolutionary path of industrial districts is the result of a close interaction between inputs and the opportunities proposed/imposed by the market (or the EIs) and the institutional structure produced by local society (REIs). The success – or failure – of a local system of production in terms of economic performance depends mainly on the synchronization between the dynamics brought about by the EIs and the regulation and, above all, coordination produced by the REIs. Effective synchronization can be achieved in different ways varying significantly according to the context. [...] In other words, the role and the actions of institutions change according to the phases of the life cycle of the local production system. In this perspective, it was deemed useful to adopt the distinction [...] between basic social institutions – which we define as “original social capital” – and

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<sup>29</sup> The book contains a multidisciplinary work (economics, sociology and history) that focuses on the role of institutions with respect to local systems of production. The approach adopted consists in «starting from a richer and more articulated perspective of the main actor and the social institutions than the one adopted in the alternative interpretations of the same phenomena, specifically in the new institutional economics of Williamson and followers/disciples. [...] More heuristically useful, albeit more complex to ground theoretically and apply to empirical analysis, is an interpretative framework that combines the vision of an actor guided by cognitive rationality in the pursuit of defining the world and their own strategies, in which preferences and opportunities (and beliefs regarding the former and the latter) are subject to positional and dispositional conditionings. There should also be an interpretation of the institutions that does not limit them to the mere extrinsically regulative aspects of the actors' conveniences, albeit important ones, but rather includes even the constitutive dimension that shapes perceptions, value orientations, expectations, motivation and beliefs of the actors themselves. It is a framework in which the rapport among actors, institutions and environment is not set as a closed system such as that of stimulus-reaction, but an evolving process whose results are often undetermined. In addition to the problems of coordination and cooperation, a crucial role in this framework is also played by the variety of the “material” available to the selection process, and these varieties may provide room for adapting and learning, as well as failing and surviving inefficiencies/deficits» (translation from Italian: Bordogna 2002 pp. XVII-XIX).

<sup>30</sup> For details regarding EIs and REIs see Parri (2000, 2002).

intermediate institutions, that is to say the most sophisticated and advanced institutional forms, able to synchronize with the mature phases of the district. The range of possibilities varies within two negative extremes. On one side, situations with an insufficient accumulation of original social capital, characterized by a lack of trust and an excess of individualism, make top-level institutions weak. On the other side, hypertrophic development of the original social capital, fostering a context where redundancy and the pervasiveness of basic institutions impede the creation of a more developed institutional setting. In light of the numerous case studies examined, we also need to say that the existence of a well-structured institutional framework does not itself guarantee real operational effectiveness for its constituent bodies and their ability to interact with economic dynamics. The matter, so often raised, regarding the different speeds of economic and institutional change seems to be quite important: institutions tend to react slowly to rapid economic transformations. [...] The evolution of the institutional setting of local production systems is the result of a path-dependent dynamic that must face challenges and inputs from the market: the result of such a process can vary [...] from case to case. If in this tangle of local situations, each with its own particularities – the major assets of industrial districts – one common feature can be identified, it consists in the fact that the path to success comprises both the straight road of EIs and the tortuous evolutionary path of REIs»<sup>31</sup> (Belfanti and Onger 2002 pp. 263-264).

## **Conclusion**

This paper surveys the contributions of economic and business historians to the literature on local production systems. First of all the fundamental theoretical postulates of Marshall, Becattini, Brusco, Bagnasco and Porter are presented, with

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<sup>31</sup> Translation from Italian.

an explanation of the concepts of industrial atmosphere, geographical externalities and flexibility of production. The literature is contextualized within the broader debate on SMEs by analyzing the three lines of thought that have emerged so far. Finally, the analysis addresses its core objective based on the studies of economic historians, which is the search for the roots and origins of the district. The importance of guilds and rural proto-industrialization, as well as the role of factories and local banks are discussed in the literature the paper surveys.

The first element of interest that emerges from the analysis is the presence of particular and overlapping traits in each paradigm identified. On the one hand, some general conclusions can be drawn but, on the other, they need to be integrated with additional factors as new contexts arise. The second element is that several historians have paid particular attention to institutions. Guilds, centralized factories and local banks were triggering factors, but also served as coordination and to check opportunistic behavior, increasing the cooperation among actors in the district. Several scholars have investigated the role of institutions following the contribution of Arrighetti and Seravalli (1999) by contextualizing their implications in the debate regarding original social capital. In particular, Guenzi and Grandi adopted a precise framework based on four dimensions able to capture their participation to the so-called industrial atmosphere.



# **Social Capital Accumulation and Local Systems of Production: the Firearms Industry in Brescia in a Long-Term Perspective**

*Paper 2*

**Keywords:** firearms, guild, factory system, local system of production, origins, social capital, Brescia, Gardone Val Trompia.

## **Abstract**

This paper gives a comprehensive literature review of the gun industry in Valle Trompia. To carry out the analysis, the case is contextualized within the debate on industrial districts. Adopting a long-term perspective, the study reinterprets and explains the successes and vicissitudes of this production specialization in light of the contributions and generalizations provided by economic historians to the debate regarding the evolutionary paths of industrial districts. The essay focuses on location factors, guilds and the factory in order to analyze the multiple elements that crucially influenced the social capital accumulation in the local production system and the ability of the latter to adapt to the new challenges of the market. The aim is to highlight deficiencies and possible future developments for this interesting case.

## Introduction

«At the feet of Your Excellency, most worthy representative of the Public Majesty, the craftsmen of Gardone bow down. Born among the mountains, suckled on iron, raised in the smithies, from all of which they draw the sustenance that maintains them, bronzed by the endless heat of the fires, they can earn their living only by laboring with heavy hammers on the anvils. If this work is lacking, then they are deprived of life itself» (Giovanni Antonio Beretta, April 20<sup>th</sup>, 1683)<sup>1</sup>.

This quotation from one of the many representatives of the world's oldest industrial dynasty is evidence of the strong ties and identification of the inhabitants of Val Trompia<sup>2</sup> with the gun making industry. In this area, since the 15<sup>th</sup> century, the production of barrels and components, and their assembly, has been more than simply a way to make a living. The earliest historical document on this activity in Val Trompia is a dispatch dated 21 April 1459 sent by the Senate of the Venetian Republic to the Rectors of Brescia: an order to the local master gunsmiths for «fifty bombards for the galleys, ten breech-loading rampart guns with two breech chambers each, twenty-five wall-pieces, fifty guns and fifty thousand iron-tipped crossbow quarrels»<sup>3</sup>. Since the Early Modern Period the development of this industry had its point of reference in Gardone Val Trompia with a highly-fragmented structure in the production process based on a pronounced phase specialization rooted in a guild system (Belfanti 1998). Along the centuries, the local production of civilian and military firearms has undergone periods of great

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<sup>1</sup> Quotation taken from Morin and Held (1980, p. 122); for the original source see Archivio di Stato di Venezia (ASV), *Senato, Dispacci Rettori Brescia*, Filza 91, *ad diem*. Original version: «Ai piedi di Vostra Eccellenza, dignitissimo Rappresentante della publica Maestà, s'humilia la Maestranza di Gardone. Questa, che nata fra monti, nudrita tra il ferro, allevata nelle fucine, da queste pure ricava quel sostenimento che la mantiene, e soltanto che a forza di pesanti martelli travagliando sopra le incudini, abbronzita dal continuo calor de gli accesi carboni, vaglia per campar la vita. Se questo questo lavorerio gli manca, gli manca per conseguenza la vita stessa».

<sup>2</sup> Val Trompia is a valley (slightly more than 50 km long) in the province of Brescia, northern Italy. It consists of the valleys of the river Mella and its tributaries, north of the city of Brescia. It is situated between Val Camonica, Val Sabbia and Lake Iseo (see Pictures 1 and 2, pp. 6 and 7).

<sup>3</sup> Quotation taken from Morin and Held (1980, p. 24); for the original source see ASV, *Senato, Deliberazioni Terra*, Reg. 4, Fol. 104r. Original version: «Facere debent bombardas quinquafinta a galea, decem a reparo cum duabus caudis pro qualibet, spingardas XXV, sclopetos quinquaginta et quinquaginta millaria ferrorum veretonorum».

prestige and utter neglect<sup>4</sup>, alternating phases characterized by warring merchants and masters fighting for the control of the system of private and State orders (Morin and Held 1980).

The particular organization of production in Gardone - famous throughout the world through the export of barrels, rifles and their components - has led several scholars (Tombola 2000; Del Barba 2008; Fontana, 2009) to the concept of the industrial district as the description of this local system. In our opinion, Becattini's framework (1979, 2004) is useful when trying to disentangle and interpret the web of relationships and the long process of accumulation of know-how characterizing this area and its industrial change. Adopting a long-term perspective, the aim of this study is to describe the birth and evolution of this industrial district, analyzing the multiple key social and economic factors that crucially influenced its continuing ability to adapt to the new challenges of the market.

This will entail giving a comprehensive review of the literature on Val Trompia and its arms industry. Existing studies are considered in a long-term perspective where the characterizing evolutionary factors of the local system are analyzed in the light of contributions by economic historians to the roots and developments of industrial districts. This perspective has a long-established tradition in the scientific literature (Belfanti and Maccabelli 1997; Guenzi 2009) and its relevance was recently noted in a special issue of the journal *Investigaciones Regionales – Journal of Regional Research* (Sforzi 2015, pp. 22-23).

The paper is structured as follows: after this introduction setting out the premises, aims and methodology of the study, the second section reviews the contributions of economic historians to roots and evolutionary paths of industrial districts, the third and fourth sections analyze the role of preindustrial forms of work organizations and the factory in the case of Gardone and the final section summarizes the paper, pointing out what is missing in the literature.

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<sup>4</sup> As highlighted by all scholars of the gun making industry in Brescia, the reason for the success of the firearms produced in this area has always been the master craftsmanship of the local gunsmiths. The result of their work is a product of the highest quality, a unique object painstakingly crafted down to the smallest detail – almost an art form. The high degree of product recognition is discussed at length in three major publications, by Gaibi (1968), Morin (1980) and Belinda (1990).

## **Roots and evolutionary paths of industrial districts**

The concept of industrial district dates back to Alfred Marshall (1890) who described and analyzed specialist British agglomerations of small and medium-sized enterprises (SMEs). In the 1980s, the theoretical framework was revived and extended by the Italian scholars Giacomo Becattini (1979, 2004), Sebastiano Brusco (1982, 1989a, 1990) and Arnaldo Bagnasco (1988) «to capture the extraordinary efflorescence of similar industrial complexes across the central and northeastern regions of their own country. Economist, geographers, sociologists, political scientists, and business scholars quickly discovered a broad array of analogous local and regional production systems scattered across Western Europe, North America and East Asia. [...] Many of these districts specialized in light, labor-intensive industries like clothing, textiles, shoes, jewelry, and furniture, but a substantial portion could also be found in more technologically demanding and capital-intensive sectors such as metalworking, machine tools, ceramics, plastics, aerospace, electronics, film and other entertainment/communications media» (Zeitlin 2007, pp. 219-220).

These geographical agglomerations distinguished themselves for excellent results in terms of «economic performance, as measured by new firm formation, employment, and exports; their capacity for endogenous development; and their ability to sustain high relative wages and labor standards in the face of international competition. No less remarkable, however, were the districts' flexibility in adapting to changing markets and demand patterns; their capacity for generating and diffusing technological competition and cooperation among local actors» (Zeitlin 2007, p. 220). Thanks to these results and features, industrial districts became a significant alternative to the Fordist model and attracted the attention of numerous economic historians who began to investigate their historical roots.

Sabel and Zeitlin (1985) were among the first to focus on this model of industrial development, highlighting three features of the institutional set-up at the basis of the competitiveness of the district: «a local/municipal governance of the productive system, a paternalistic vision of industrial development and a network of family-run businesses. Such a set-up ensured the stability of the productive system itself,



guaranteeing its sustainability both in social and economic terms by disbursing unemployment subsidies with the aim of avoiding dispersion of the human capital of the district, supervising prices and salaries with the intent of warding off damage due to excess competition, building or funding highly-indivisible resources available to the whole production community, safeguarding the brand that identified the typical products of the district, creating professional training schools, and activating a chain of bodies that could supply assistance». However, «these are practices that are anything but innovative, although renewed and revised in the light of changed contexts – as they see, to be direct descendants of that organizational culture that had grown up in urban Europe around the institutions which for centuries, albeit with alternating fortunes – had represented the prevalent form of regulation of craft activity: that is, the craft guild» (Belfanti 2009, pp. 10-11). On this basis, the search for the roots of guilds or continuity between the craft culture of guilds and industrial districts became a hot research topic for economic historians, triggering a series of case studies<sup>5</sup>.

Another factor which stands out as a significant element in the history of industrial districts (at least in central Italy) is the model of protoindustrialization. Very often, areas of SME agglomeration had a history of sharecropping and so-called putting-out system. «According to the literature this common origin implies certain skills and, in most cases, the belonging to a particular kind of institution, namely the “enlarged family”. According to Bagnasco (1977) the experience as sharecroppers taught them to develop an organizational ability within the family structure, together with an extreme flexibility and adaptability in terms of working time and variability of income. The importance of the enlarged family for the small entrepreneur of the Italian industrial district can be related at least to two different aspects. First it is necessary to refer to the need for a flexible labor force to organize and manage (abilities to be seen as opportunities), and second the possibility for the entrepreneur to reinvest all the income in the firm, without having to share it regularly into salaries. The diffusion of the agricultural labor organized and shared in the family-organization helped to create a flexible workforce “whose skills and motivations were very well suited to the development of small business” (Triglia

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<sup>5</sup> On this topic see Guenzi (1997, 2009).

1992). In fact, the presence of a high number of members of different ages, which developed different skills, provides the entrepreneurs with the labor force and necessary working abilities» (Tappi 2001, pp. 9-10)<sup>6</sup>.

To conclude, the third element was the factory. As explained by Belfanti (2009, p. 15), «artisans and pluriactive peasants – rather than proto-industrial peasants – were the actors who created forms of local development based on small businesses, but in many cases the presence of a factory, even though limited to a certain phase of the history of the territory, had a decisive role. The centralized industrial settlement played a fundamental role in the acquisition of technical competence and professional ability on the part of the local workforce: such an apprenticeship constituted a vital passage in the history of local development». In other words, factories were incubators for SMEs generally with concrete effects after their closure or downsizing. Such traumatic events forced jobless workers to reinvest their technical skills in small new entrepreneurial activities. A typical example is the case of Castel Goffredo where numerous small or minuscule businesses emerged after WWII due to the closure of an important hosiery factory.

The following pages describe and analyze the history of the local system of production of mid Val Trompia highlighting aspects either confirming or contradicting the work of economic historians.

### **The guild and putting-out system in the background**

«All kinds of guns are made, muskets with all their mounts, crossbows, cannon balls, weapons of every kind, as well as tools of tempered steel, and all kinds of cutlery, farm implements, and nails. Every year the said valley produces XXV thousand shotguns that are fetched off by merchants into foreign lands. Iron ore abounds in this valley, because all the mountains are full of it and out of fifty pits, or shaft mines, they dig enough to keep XV refining furnaces busy»<sup>7</sup>.

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<sup>6</sup> More details in Belfanti (1997).

<sup>7</sup> Quotation taken from Morin and Held (1980, p. 20); for the original source see ASV, *Collegio, Relazioni*, b. 37, fol. 35rv. Original version: «Si fanno schioppi d'ogni sorte, Moschetti con tutti i suoi fornimenti, balestre, balle d'Artigliaria, arme di tutte le sorte, stromenti da fuoco, et di qualunque sorte da taglio et da Agricoltura, et chioderie. Si traggono di detta Valle ogni anno XXV

As stated in the first section, the vocation for gun making in Val Trompia was first recorded in the mid-15<sup>th</sup> century. Instead, the quotation above is from a letter from the Podestà Paolo Partua to the Senate of the Venetian Republic in 1562 and describes the first localization factors giving rise to this specialization. Because of the unlikelihood of developing agriculture and thanks to the abundance of iron ore, wood and water, the valley specialized in the production of ferrous items from the Middle Ages if not earlier. In 1341, the first statute for the exploitation of mining sites was promulgated in Bovegno: it focused on property and the use of facilities dedicated to mining, as well as on the legal recognition of the workforce. The raw material extracted from the upper zone was sent to Gardone Val Trompia and other villages in the central valley where it was worked in furnaces to produce different types of tools, in particular blades, armor and spearheads known as *Dardi Gardoni* (Simoni 2010, pp. 17-20; Camparoni 1805, pp. 74-80). In 1406, the so-called Privilegio Malatestiano, named after the ruler of Rimini whose control of the area interrupted the domination of the Visconti family, gave stability to the production of armor and weapons, no longer a seasonal activity. Under Venetian rule (1433-1797) the contents of the Privilegio were substantially confirmed in the *Statuto di Valtrompia* comprising 23 chapters<sup>8</sup>.

Scholars identify the wars of the second half of the 16<sup>th</sup> century as triggering factors for local specialization in gun manufacturing<sup>9</sup>. During the conflicts, firearms were used on a large scale for the first time and iron replaced bronze for the production of cannons based on the local know-how in processing the mineral (Morin and Held 1980, p. 180; Tombola 2000; Del Barba 2008, p. 13).

It is worth noting that since the end of the 15<sup>th</sup> century the organization of the iron manufacturing assumed the configuration of the disseminated manufacturing:

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mila schioppi che sono condotti da mercanti in stati alieni. È copiosa questa Valle in vena da ferro, perché tutti questi monti ne sono pieni, et se ne cavano più di cinquanta busi, overamente fori di continuo, talmente che ne forniscono XV forni».

<sup>8</sup> Iron ore is almost pure spathic siderite, poor in phosphorous and rich in manganese, which is easy to work and excellent to forge. The history of this valley is doubly linked to the extraordinary quantity of this natural resource in its upper mountains. Despite extensive scholarly debate, it is still difficult to date the beginning of the local mining activity. For a lengthy discussion of mines, the local iron and steel industry, as well as the endowment factor in the valley see Brocchi (1808), Rosa (1977), Bonardi (1930), Tucci (1970), Bonetti and Rizzinelli (1982), Bernardi (2003), Simoni (2010). For an anastatic copy of the *Statuto* see: Anon. (1976).

<sup>9</sup> For a general review of the adoption of firearms for military purposes in this period see Parker (1996, pp. 16-24).

about sixty thousand people were employed in the sector, with smelting furnaces managed by companies and associations of co-owners for financial and organizational reasons (Montanari 1982, p. 175). However, for the purpose of this study, what is most worthy of note is that this type of production organization was strengthened when gun making became the core business. As described by Marco Belfanti (1998, pp. 269-270) «the firearms production cycle resembled a long chain rooted along the Mella river and in the city of Brescia. In this chain each craftsman held a specific task<sup>10</sup>, although some phases of the manufacture required more sophisticated techniques and more complex tools than others. At the apex of the craft hierarchy there were the masters who forged the gun barrel, who in general owned a forge able to exploit water power. [...] While the various phases of gun barrel production were exclusively located in Gardone Val Trompia (the forges, the plants and the workshops being distributed in fact over the territory of that small town)<sup>11</sup> the manufacture of the firing mechanism was, instead, the prerogative of other villages in the valley. For example, a large number of the inhabitants of Marcheno, Sarezzo and Lumezzane were employed in the construction of gunlocks to be mounted on firearms. [...] In other places along the valley, scattered forges and cottage industry, organized under a putting-out system, produced bayonets, firing rods, powder horn, munitions and other accessories for firearms. Finally, in the city itself, there were the craft workshops whose principal task was to serve the “good taste” of wealthy clients: it was in fact thanks to the artistic ability and to the loving attention to detail paid by engravers and etchers that butts and gun barrels were made more precious for these civilian clients».

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<sup>10</sup> This long chain of craftsmen is described in detail by Gaibi (1964) and Belfanti (1998, pp. 268-269): 1) *bollitori*: the masters of the barrels based in Gardone, the head of the chain, responsible for forging, the most important part of the manufacturing process; 2) *trivellatori*: they smoothed down the inside of the barrel; 3) *livellatori*: grinders using drills and filing the inside of the barrel; 4) *fondellieri*: who ‘ended’ the barrel with large screws to close the breech; 5) *molatori*: responsible for the external surfaces of the barrel; 6) *brunitori*: burnishers; 7) *fornitori*: applied the sights and appliances for the firing mechanism; 8) *azzalinieri*: for the production of locks, especially flint gunlocks; 9) *incassatori*: makers of wooden blocks; 10) *ferradori*: producers of iron parts to fix the butt to the other components of the gun; 10) *lissadori*: had the task to inlay and polish the wood 11) *camuzzadori*: engravers of the metal parts.

<sup>11</sup> On this topic see Rossi (1981).

A second aspect of firearms production in the valley was the long and fierce battle between craftsmen and merchants (Morin and Held 1980)<sup>12</sup>. Towards the end of the 16<sup>th</sup> century the territories of the Serenissima Republic were involved in a social and economic revolution which had begun in northern and central Europe more than a century earlier. Craft production was hit by the rise of the merchant class which gradually reduced the craftsman-producer to a salaried workman. Marketing of the products, procurement of raw materials and the associated credit were monopolized more and more by merchants who aimed to make labor as cheap and as maneuverable as possible, without distinguishing between a workshop's master-artisan owner and assistant journey-men. In the case in question, the conflict between the two groups was particularly fierce and long due to the resistance of the masters and, in particular, because of their strategic role. Well aware of the importance of the craftsmen's know-how, the Venetian Republic tried to solve the problem and protect this patrimony from the chronic negative effects on the firearms sector<sup>13</sup>. The measures adopted led to the creation of a "centralized

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<sup>12</sup> The volume by Morin and Held (1980) is a seminal work that led the way to subsequent contributions. Despite focussing on the history of the most famous family of Gardone (Beretta), it includes and analyzes the developments of a firm in the broader context. In order to explain the path followed by the world's oldest industrial dynasty, Morin reconstructs the crucial relationships of the gunsmiths of Val Trompia with the Venetian authority that controlled the area throughout the Modern Age. Not only does the scholar analyze the impact of the government, he also sheds light on the most important aspects of this particular local system of production: the production and workforce organization, the conflictual relationships between gunsmiths and merchants and the export of products are all described in detail and seen in conjunction with the achievements of the Beretta family. Evidence of the importance of the volume by Morin and Held are essays by Rossi (1981) and Belfanti (1998). The two historians take the cue from *Beretta. La Dinastia Industriale più Antica al Mondo* to investigate two specific topics. Rossi notes the lack of statistical analysis able to outline the structure of the sector and of precise details on the organization of work, and describes the geographical distribution of production units and the functions of the *fondaco*. He provides the results of systematic research into the forges in Gardone Val Trompia and their owners. Based on the *Estimi* of Gardone for the period 1657-1810, the work describes the types of forges by verifying the report by Da Lezze (podestà of Brescia) and giving significant details on the relationships between craftsmen and "pure entrepreneurs", the concentration of capital, technology, military procurement and natural disasters. Belfanti reviews production in the entire valley and focusses on the role of guilds. Rossi criticizes the study by Morin and Held for its failure to use sources in Brescia archives and for its over-simplification due to its monographic cut. He also points out that the reference to employment law and to the Da Lezze report – two crucial sources for the seminal work – involves bias; according to Rossi, the former was adopted in times of crisis and the latter was written in a non-representative early period. Belfanti, on the other hand, thinks the seventeenth century Da Lezze report is not only accurate but also true of the following century. This is supported by a reference made by Frumento (1985) to a manuscript by Giuseppe Franzini (1801) where the firearms production cycle is described exactly as the podestà had previously described it.

<sup>13</sup> To be more precise, the measures adopted by the central government in Venice were somewhat contradictory. The Serenissima wished to preserve the know-how of the masters of Gardone, but at the same time was sensitive to the needs of other craftsmen and wanted to control firearms exports

warehouse” during the 16<sup>th</sup> century and support for the creation of craft guilds during the 17<sup>th</sup> and the 18<sup>th</sup> centuries.

In 1588, the warehouse was established and subcontracted to a merchant, who was required to acquire a large stock of gun barrels for cash (partially lent without interest by Venice) in order to market them as he saw fit. Furthermore, this merchant also distributed iron at regulated prices. The indirect intervention of the State was intended to break the monopoly the merchant class was establishing (Montanari 1982, p. 169).

In 1619, the *Corpo delle maestranze di canne* was founded in Gardone and joined by all gun barrel makers. The guild, soon followed by others created by manufacturers in Brescia and Lumezzane, fought fiercely in defense of craftsmen’s privileges and a fair distribution of orders. In particular, a rigid system of affiliation was imposed based on family ties and non-natives were excluded from the profession. Specific rules were adopted for the quality and organization of production, and craftsmen were not allowed to move to other countries (Montanari 1982, pp.175-176).

However, these strategies, aimed at safeguarding the economic independence of craftsmen<sup>14</sup>, were little by little overcome by the countermeasures of the merchants. First of all, using their political influence, they took control of the warehouse; secondly, in 1726, they created the *Società de padroni de fuoghi della terra di Gardone* in response to the emergence of the guilds and obtained the monopoly on sales of gun barrels from the Venetian administration. In other words, despite the institutionalization and rationalization of gunsmithing that tightened the relationship with the local community, the new merchant class gradually prevailed through its ability to influence political power and its control over capital goods. Belfanti (1998, p. 282) dates the end of the conflict to 1784, when «an agreement stipulated that the group of merchants should guarantee the craftsmen “constant work for the decade to come on ten thousand gun barrels per annum”. Finally, the workforce saw a concrete prospect of regular orders, but, in exchange for such

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to foreign kingdoms. One of the first and most negative effects on the local gun industry was the ban on exporting unstocked barrels. After the loss of market opportunities, gunsmiths began to move to other countries, spreading their art to other territories (Morin and Held 1980, pp. 55-56).

<sup>14</sup> Especially through the maintenance of their principles of “moral economy” based on an equitable division of orders.

assurances, they had to accept the merchants' conditions of a reduction in the rates of pay».

### **The role of the factory**

The turning point in the relationship between master craftsmen and merchants described by Belfanti was followed by another significant event laying the foundations for a new era in the history of this local specialization. In 1796, the *Armée d'Italie* occupied Brescia ending the dominance of the Venetian Republic and in 1807 the French decided to establish an arsenal to exploit the skills of the valley in gunsmithing, distributing State orders among the exponents of the merchant class. The introduction of a large production unit and a coordinating factor like the arsenal, in conjunction with the growing power of the family owners of the forges, was the first step in the subsequent contribution of the “factory element” to the local production system (Montanari 1981; 1983a; 1999)<sup>15</sup>.

After the difficult period of Austrian domination (Guizzetti 1995) which tried to gradually dismantle local production by closing the Arsenal and minimizing State orders, a new era began with the establishment of the Kingdom of Italy. The reopening of the State plant, and the gradual introduction of the innovations of the second industrial revolution, caused a definitive break with the old Early Modern system. This turning point, particularly evident at the beginning of the new century, could be seen at three levels<sup>16</sup>.

First, the ability of the valley to attract State orders. The reopening of the arsenal in 1859 was just the first piece in the complex puzzle of public procurement, crucial to the recovery of firearms production. Lobbying by different local actors in the following years was even more important. At the beginning of the 1870s, the State plant was enlarged and modernized through the direct intervention of the local municipality; furthermore, entrepreneurs achieved important results by exploiting

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<sup>15</sup> On the role of the arsenals in military procurement see Degli Esposti (2009).

<sup>16</sup> About the 19<sup>th</sup> century and the advent of industrialization in Val Trompia see Boccingher (2008); details regarding the local production of firearms in this century can be found in Zanardelli (1857, pp. 89-101).

strong ties with Giuseppe Zanardelli<sup>17</sup>, a famous politician who had his constituency in the area (Montanari 1985; 2002). Due to these efforts, the arsenal of Gardone obtained a strategic position in the overall framework of public procurement. It became an important element for the development of the production specialization at least until the second half of the following century, and the center for the distribution of commissions in the valley (Filandro 1930; Aa. Vv. 1982, p. 10).

The second new factor was the end of the age-old relationship with the upper valley and its mines. Substantial improvements in the wire drawing of metal and the introduction of electricity created new procurement systems for the raw materials needed for the production of firearms. In the second half of the 19<sup>th</sup> century, when the local steel industry was undergoing restructuring, the local iron and charcoal resources were gradually replaced by imported semi-finished steel products and coke. Several gun producers tackled the power problem by investing in hydroelectricity, first replacing water wheels with turbines, then fitting electrical generators to transform mechanical energy into electricity. This became systemic over the following years when a consortium was set up for the management of the water of the Mella river (Del Barba 2008, pp. 36-43; Bonetti 2004)<sup>18</sup>.

Finally, the third big change was the decision to invest in the mass production of civilian firearms. This strategic move was first made by Fabbrica d'Armi Pietro Beretta (hereafter FAPB)<sup>19</sup>, the first step in the process of emancipation from military procurements for the local production system. Followed by the other

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<sup>17</sup> See Chiarini (2004) for a biography of Giuseppe Zanardelli.

<sup>18</sup> It is worth noting that in Gardone Val Trompia the first plant for public lighting was established by the Arsenal in 1889. For more details on the iron, steel and mechanical engineering industries in the province of Brescia at the turn of the century see Camera di Commercio ed Arti della Provincia di Brescia (1870, p. 52), Aa. Vv. (1872, pp. 300-303) and Gnaga (1905, pp. 127-156). See Mocarrelli (1997) for a long-term perspective on ironworking in the area.

<sup>19</sup> For the Beretta industrial dynasty see Morin and Held (1980), Onger and Paris (2012). For details on Morin and Held (1980) see note n.12. The study by Onger and Paris traces the fundamental features of the career of Giuseppe Beretta. The son of Pietro, father of Ugo and brother of Carlo, Giuseppe stands out as a crucial figure not only in the history of the Fabbrica d'Armi Pietro Beretta but in the entire economy of the province. On the basis of the documents in several important archives and a few interviews, Onger and Paris describe the most important challenges (new products, diversification, export and internationalization, generational change) faced by this industrialist and his family contextualizing them in the development of the local system of production. On FAPB also see Wilson (2001) and Bruni et al. (1997); on the recent years of the Beretta Holding Group see Tombola (2007b). Further details about the life of Giuseppe Beretta can be found in Zanotti (2010).



producers in the valley, Beretta decided to start the mass production of civilian firearms when hunting and target-shooting were becoming widespread sports activities. Soon, firms fell into two groups: large companies and small craft workshops. The former were able to compete in both the markets of military and civilian products; the latter specialized in the manufacturing of high quality firearms for private customers or in the supply of parts for the champions of the sector (Onger and Paris 2012, pp. 31-32)<sup>20</sup>.

In this framework, subcontracting and its interrelated network of SMEs did not disappear, however the leading role was taken by three companies: FAPB, Glisenti and Bernardelli (Facchini 1980, p. 13-14). These family firms pursued a strategy focused on the concentration of factors of production and growth, becoming leaders on the social as well as industrial level. For example, Glisenti had a strong relationship with Giuseppe Zanardelli and through its political ties became the major contractor of State procurements in the area (Onger 2009)<sup>21</sup>. FAPB was at the frontline of lobbying by gun producers to ask for tariff reductions and for the establishment of a National Proof House<sup>22</sup>. The Beretta family clearly adopted a paternalistic approach as shown by numerous initiatives in favor of its workers, Gardone and the community. They included the construction of a hotel, a theatre and kindergarten, and a fundamental role in social housing through the establishment of the Cooperativa Triumplina Casa del Popolo, as well as the opening of a holiday home and a factory shop for employees (Onger and Paris 2012, pp. 47-55). Società Anonima Vincenzo Bernardelli strengthened the ties with the parish of Gardone and became prominent figure in the provincial Catholic area. Pietro Bernardelli wanted his company to be the catholic alternative<sup>23</sup> for the

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<sup>20</sup> These specializations were also highlighted by Segreto (1997, p. 23) in his study of the Italian armaments industry in the period 1861-1940. As in the rest of Europe, the arsenal took on a central position for raw materials procurement and military firearm testing; moreover, the sector could count on one group of private companies almost exclusively specializing in the military field and on another set up by firms active in civilian production and the supply of semi-finished and specific products for military orders.

<sup>21</sup> For the Glisenti family and its different entrepreneurial initiatives see Montanari (1983b), Aa. Vv. (2004) and Varini and Onger (2005).

<sup>22</sup> Regarding the National Proof House see Morone (1930), Bernardelli (1990), Tombola (2007a), Pagani and Camarlinghi (2010).

<sup>23</sup> To understand this strategy, we have to refer to the so called “Third Way” proposed by Leo XIII in the Encyclical *Rerum Novarum* (May 15<sup>th</sup>, 1891) and the successive moderate turn called for by Pius XI in conjunction with a corporatist conception of economy and society in the Encyclical *Quadragesimo Anno* (May 15<sup>th</sup>, 1931).

management of industrial relations, which at the time were dominated by Pietro Beretta, the leading liberal (Del Barba 2008, pp. 67-104).

Despite the process of catching up started with the Italian Unification, in the first half of the 20<sup>th</sup> century the local firearms production fell on hard times. The superiority of foreign competitors<sup>24</sup> determined by national economic events and poor levels of investment, together with the consequences of the Great Depression, were the principal threats for local producers. Military procurements were, once again, crucial and their relevance became almost the only source of survival source in the years of the two world wars<sup>25</sup>. The production system underwent immense growth during the wars only to dramatically fall off at their end. In periods characterized by an arms race, the Arsenal and large plants were important for the entire valley and its forges, channelling State procurements and increasing the workforce (Belfanti 2009, p. 16).

In 1939, the State factory could count on a workforce of 2,200 units, FAPB on 2,000 and Bernardelli on 1,000: this was just the beginning of a period lasting throughout the war, when military firearms, the internalization of the production process and reduction of the craft entrepreneurial network were the main features of the local system. Details regarding this period and the social and economic environment in Gardone are available in the form of direct testimony by two Beretta workers: Guido Baglioni (2012) and Gian Battista Sabatti (Cucchini 2005)<sup>26</sup>, important eye-witness accounts of the years that prepared the way for the decades of the Golden Age, when the district experienced its heyday.

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<sup>24</sup> In the 1920s, the high production costs represented the biggest problem for the Italian gun industry. The local manufacturers obtained the increase of the tariff on foreign products; however, the revaluation of the Lira, as well as legal and tax regulations frustrated this protectionist strategy (Camera di Commercio ed Industria di Brescia 1922; Onger and Paris 2012, pp. 51-53). About foreign competitors see Roffia (1997b). In Europe other cases like Gardone Val Trompia are: Liège in Belgium (Anon. 1965; Gaier 1985; Francotte and Gaier 1989; Gadisseur and Druart 2005), Saint-Étienne in France (Forissier 2005; Viret 2007; Bacher et al. 2014), Eibar in Spain (Goñi Mendizabal 2007; 2008; 2009a; 2009b; 2010; Catalán et al. 2014) and Birmingham in the UK (Dunham 1955; Fries 1975; Bailey and Douglas 1978; White and Trudgeon 1983; Lumley 1989; Behagg 1998; Williams 2004).

<sup>25</sup> Regarding WWI and the role of the provincial firearms industry see Zane (2015). Anon. (1910, pp. 24-28; 1924, pp. 19-24) provide statistics for the local system in the periods of peace of the first half of the 20<sup>th</sup> century.

<sup>26</sup> An interview with Gian Battista Sabatti is also available in Archivio di Etnografia e Storia Sociale (AESS). It was carried out by De Virgiliis Ruggero (director), Fausti Carla (researcher) and Trani Daniele (cameraman) on November 26, 2004.

Baglioni and Sabatti describe Gardone as a town entirely based on the mechanical engineering sector. In addition to the gun industry, another large company, Redaelli, was active in the sector of ironworks and wire drawing<sup>27</sup>. Local inhabitants saw these factories as their natural employment destinations, providing them with a secure future and safe social environment, and encouraged the younger generation to find a job in the field of firearms. Added to this was the high regard for the work and its value. Laziness and absenteeism were the object of strong social disapproval, in favor of self-sacrifice, effort, technical precision and professional prestige. In other words, employment had a crucial influence on the individual, the family, social relationships and the broader social climate, comprising almost the sole element of identity for the individual and the reputation of the family. The large factories mentioned above created the social milieu<sup>28</sup>.

Workers, almost all men, fell into two groups: the skilled and unskilled. The first group, which could count on technical skills acquired in the local vocational school<sup>29</sup> and honed by long apprenticeships, was fully involved in the life of the factory and saw its own future as one and the same as that of the plant. The second group carried out more menial tasks, dependent on the first. The factory was a sort of training ground for technical and social skills featuring skilled workers. This is not of secondary importance: after WWII several workers employed in these factories became the backbone of the emerging craft business network<sup>30</sup>. As shown in other case studies (Belfanti 2009), not only were large factories the hotbed for know-how and new actors in the local system<sup>31</sup>, but also incubators for the SMEs that spread after their closure or reconversion.

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<sup>27</sup> For Redaelli see Anon. (1930).

<sup>28</sup> On this point see also Abbiatico (1984), a rather famous entrepreneur from Inzino. In addition to a couple of important books on firearms engraving (Abbiatico 1976; 1980), he collected into one volume information and memoirs concerning other entrepreneurs in the sector and, more generally, people of the valley. He stresses the sense of duty and commitment to work, clearly a distinctive feature of the second half of the 20<sup>th</sup> century as well; the author describes whole families employed in the same factory whose private and social lives were determined by the life of the factory.

<sup>29</sup> On the local vocational school see Abbiatico (1984, pp. 65-69) and Maranta and Sotgiu (2010).

<sup>30</sup> For a clearer idea see the curricula of numerous entrepreneurs reconstructed by Abbiatico (1984). Regarding WWII in Gardone, its factories and the resistance movement see Anon. (1987; 1988).

<sup>31</sup> Once again see Abbiatico (1984, pp. 148-149, 155-162), who describes a working group set up in the 1920s by FAPB in the field of engraving, a group that influenced the following generation of engravers.

At the end of the Second World War, the large firms faced a lack of State orders and the consequent unavoidable return to civilian production. Their first response was to cut staff or, in the worst cases, close plants. The newly unemployed set up a series of small workshops. Numerous unemployed gunsmiths and laborers reinvested their skills in family businesses with success in the niche market of high-quality hunting shotguns or the manufacturing of specific parts (Tombola 2000)<sup>32</sup>.

In the 60s and 70s, in the period Becattini (2000a) considers crucial for the resurgence of industrial districts, Gardone Val Trompia underwent immense growth based on its continuing gun making tradition. When other other countries were experiencing phenomena of concentration and vertical integration, Val Trompia was able to regain its age-old prestige through a system based on a myriad of family-run craft businesses with strong phase specialization. This is shown by the data and observations of Piccoli (1981) in *Il settore delle armi civili. Scelte di sviluppo e riconversione*. In a section dedicated to the area of Gardone, he says that 99% of the regional production of light weapons and more than 90% of the national production was from Val Trompia. In the area, more than 60% of employment and 85-90% of local units belonged to what Belfanti (1998) calls - with reference to the Early Modern Period - the chain of skills for the production of firearms.

The large network of SMEs, focused around two historical firms, Beretta (Onger and Paris 2012) and Bernardelli (Del Barba 2008), drew on deeply rooted and widespread technical skills able to win over foreign markets and on a social milieu where informal and formal institutions fostered an atmosphere of competition and cooperation (Fontana 2009).

## **Conclusion**

This paper provides a comprehensive literature review for the gun making industry in Val Trompia, centered on the municipality of Gardone Val Trompia. The survey follows the general conclusions of economic historians regarding the

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<sup>32</sup> For the province of Brescia during the postwar period and second half of the 20<sup>th</sup> century see: Gregorini and Taccolini (2015); Taccolini (2013).

roots and evolutionary paths of industrial districts, i.e. a long-term perspective was adopted to analyze and explain the development of this famous local production specialization.

Contributions by Morin and Held (1980), Montanari (1982) and Belfanti (1998) highlight two aspects that have been long debated in economic historiography regarding the Early Modern Period. The first is the guild, the second the intervention of coordinating agents, recalling Becattini's *impannatori*, who took control of the production process and created a large salaried workforce by capital and know-how accumulation and concentration. The historical reconstruction of the local "proto-district" identifies as the essential areas Gardone Val Trompia, Marcheno, Lumezzane, Sarezzo, the villages of Inzino and Magno and the city of Brescia. The district remained almost unchanged until after Italian Unification despite the hard times of the first sixty years of the 19<sup>th</sup> century under foreign domination.

After the establishment of the Kingdom of Italy and the advent of the industrial revolution, factories became incubators of new technical skills and, in the postwar period, of new entrepreneurial activities. Between the 19<sup>th</sup> and 20<sup>th</sup> centuries, supported by a vocational school and a National Proof House, factories made the strategic decision to invest in the mass production of civilian firearms and rationalized the manufacturing process. In this context, despite the loss of competitiveness compared to foreign gun makers, the local community could continue to identify itself with the profession of gunsmithing and to mold the spirit of self-sacrifice that was to characterize the valley and its entrepreneurial vitality during the Golden Age.

Based on the review the following ideas emerged for further studies related to three major gaps in the literature:

- 1) closer analysis of the development of the production system in the second half of the 20<sup>th</sup> century, in particular during the Golden Age. Studies so far have focused on the main events in the small arms industry in the area; however, none rigorously analyze the concentration of SMEs in the light of the framework of Becattini (2004). In our opinion, two aspects are especially worthy of further investigation: a) the definition of more precise geographical

boundaries for the industrial district, often not distinguished from or seen as subordinated to Lumezzane; b) analysis of the new production chain and the relationship of integration between firms.

- 2) the historiography regarding local intermediate institutions includes articles and books but none provide detailed insights on their contribution to the development of the local productive chorality<sup>33</sup>. Three topics need further investigation: a) the role of the local vocational school in the production of human capital<sup>34</sup>; b) the intervention of the municipality in favor of the enlargement of the Arsenal in the second half of the 19<sup>th</sup> century<sup>35</sup>; c) the role played by the local business association in solving the problems faced by local producers during the 70s and its contribution to the subsequent transformation of the district<sup>36</sup>.
- 3) comparative analysis of the case of Gardone in light of the numerous similar cases scattered around Europe: Birmingham, Liège, Saint-Étienne, Eibar, all examples of areas specializing in gun making and characterized by a concentration of small and medium-sized enterprises. Attention should focus on the last decades of the 19<sup>th</sup> century and the first of the 20<sup>th</sup> in order to understand how Gardone Val Trompia tried to catch up with the rest of Europe after the negative period of the Austrian domination. In particular, the suggested research should focus on two important actors with a crucial role in the then district dynamics: the state and the large corporation. Their role should also be considered with regard to the mechanization of production processes.

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<sup>33</sup> Regarding the concept of productive chorality see Becattini (2015).

<sup>34</sup> The archive of the vocational school is held by the local Mountain Community in Gardone Val Trompia (Comunità Montana di Valle Trompia): <http://www.cm.valletrompia.it/cittadino/cultura-e-istruzione/sistema-archivistico> (last accessed on December 30, 2016).

<sup>35</sup> An initial study on the topic was carried out in a graduation thesis (Guizzetti 1995).

<sup>36</sup> In particular, it may be interesting to analyze how the business association was the vehicle by which new resources were sought outside the district and a new balance was found, following the process of internationalization pursued by Beretta.

# **The Revenge of the Masters: the Gun Making Industrial District in Gardone Val Trompia**

## *Paper 3*

**Keywords:** industrial district, phase specialization, institutions, gun making, firearms, Gardone Val Trompia, Brescia, Golden Age.

### **Abstract**

The Brescia gun making industry has roots that can be traced back to the Early Modern Age and the Venetian Republic. In the second half of the 20<sup>th</sup> century, in particular during the Golden Age, it underwent a period of extraordinary growth. This growth was driven by civilian firearms, especially long-barreled firearms, exported by local producers all over the world. The industry was concentrated around the town of Gardone Val Trompia which, together with its surrounding municipalities, comprised a local production system characterized by flexibility and adaptability. This work analyzes the historical and geographical boundaries, internal structure and intermediate institutions of this production system to verify whether it constituted an industrial district.

## Introduction

«You come today among us, to a community that lives exclusively off its work, highly-qualified and honed by centuries of experience and commitment, and if the living conditions here are on the whole better than in other centers, it is due to the ability of our workers, the initiative of our entrepreneurs and hundreds of craftsmen, and the rich tradition of our vocational schools»<sup>1</sup>.

In 1966, with these words the mayor Angelo Grazioli presented the municipality of Gardone Val Trompia to the Italian Prime Minister, Aldo Moro. Grazioli was clearly referring to the gun industry when emphasizing the crucial role of work in the life of his community. Despite the serious problems faced by the local production specialization at the end of WWII, the municipality of Gardone was able to participate in the Italian Golden Age through its long tradition in the field of firearms. Through the umpteenth restructuring process in its history, the production specialization survived and reconfigure itself into a network composed by the oldest large production units and countless craft businesses. The presence of many small and medium-sized enterprises (SMEs), together with a production organization based on subcontracting, phase specialization and work at home, led several scholars to depict the central Val Trompia as an industrial district (Tombola 2000; Del Barba 2008; Fontana, 2009). However, the structure of this production system has remained largely unexplored: its geographical boundaries, the phase specialization and the interrelated subcontracting practices, as well as the role of institutional actors, are some of the major aspects that call for further study. Hence this paper aims to observe the gun industry in Val Trompia in the light of the theoretical concepts relating to the definition of the industrial district as a «social-territorial entity which is characterized by the active presence of both a community of people and a population of firms in one naturally and historically bounded place»

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<sup>1</sup> Welcome address by Angelo Grazioli, Mayor of Gardone Val Trompia, to Aldo Moro, President of the Council of Ministers of the Italian Republic, on an official visit to the municipality (Aa. Vv. 1988, p. 57). Translation from Italian: «Ella è venuto oggi in mezzo a noi, ad una comunità che vive esclusivamente del proprio lavoro, di un lavoro altamente qualificato e affinato da un'esperienza e da un impegno secolari, e se qui le condizioni di vita sono nel complesso più positive che non in altri centri, va precisato che ciò è dovuto alla capacità delle nostre maestranze, alla iniziativa dei nostri imprenditori e delle nostre centinaia di artigiani, alle ricche tradizioni delle nostre scuole professionali».



(Becattini 2004, p. 19). In other words, this research wants to provide evidence of the existence of an industrial district in the central Val Trompia during the second half of the 20<sup>th</sup> century, focusing particularly on the Golden Age<sup>2</sup>.

The paper is structured as follows: after this introduction presenting the premises and aim of the study, six sections and a concluding paragraph compose the body of the article, for a total of eight sections. The second section provides details of the methodology and sources used in the work. The third introduces the fundamental concepts of the industrial district framework guiding the following analysis. The fourth sketches out the historical and geographical coordinates of the long process of accumulation of social capital that took place in Val Trompia during the centuries. The fifth describes products and markets of the local producers and gives some information on other European firearms industries. The sixth provides a detailed description of the production process focusing on phase specialization, work from home and the role of the family. The penultimate section presents the formal and informal institutions variously connected to the gun making industry and completes the analysis of the “productive chorality” (Becattini 2015). Finally, the concluding paragraph summarizes the main steps and findings of the paper as well as identify some limitations and possible future developments of this study.

## **Methodology and sources**

In order to achieve the above-mentioned objective, the paper is based on a historical narrative study under the perspective that phenomena are shaped by specific environmental conditions concerning location and time (Parker 1999; Morck and Yeung 2011). This perspective has a long-established tradition in the literature of industrial districts (Belfanti and Maccabelli 1997; Zeitlin 2007; Belfanti 2009; Guenzi 2009) and its relevance was remarked in a recent special issue of the journal *Investigaciones Regionales – Journal of Regional Research* (Sforzi 2015, pp. 22-23). Moreover, we adopt a «case study approach that is very

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<sup>2</sup> The so-called Third Italy and its local systems of production experienced their days of glory during the Golden Age (Bagansco 1977). For a periodization of the evolutionary paths of the IDs see Guenzi (2007) and Bellandi and De Propris (2015).

useful for shedding light on how industrial districts function and particularly on the rules governing the relationships among firms and people» (Paniccia 2003, p. 271). Such an approach requires the support of several methods and empirical sources to gather and construct empirical material in order to offer a holistic understanding of the phenomenon in question (Yin 1989; Eisenhardt 1989).

To analyze the production system, the original questionnaires and summary charts of the industry and services censuses carried out by Istat in 1951<sup>3</sup> and 1961<sup>4</sup> were used. Data and information regarding the gun industry found in these sources, preserved in Archivio Storico della Camera di Commercio di Brescia, were used to build two databases. In the first<sup>5</sup> they were employed in conjunction with official statistics by Istat to calculate the indices of geographical concentration<sup>6</sup> and production specialization<sup>7</sup> in order to carry out the initial analysis of the local system boundaries in the 1951-1981 period (Giacomini et al. 2013)<sup>8</sup>. The second

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<sup>3</sup> For documents concerning the 1951 census in the province of Brescia see Archivio Storico della Camera di Commercio di Brescia (ASCCBS hereafter), Carteggio 1943-1963 – Categorie XXII-XXXII, bb. 854-878; in the present work for the database: Ibidem, bb. 867-868.

<sup>4</sup> For documents concerning the 1961 census in the province of Brescia see Ibidem, bb. 890-991; in the present work for the database: Ibidem, bb. 902-911, 913-914, 919, 928, 934, 938, 940, 944, 947, 949, 954-955, 958-959, 963, 969, 973, 980, 989.

<sup>5</sup> See Appendix 2 (p. 159).

<sup>6</sup> Geographical concentration: this provides information about the ratio and relative importance of each municipality on the regional workforce within the sector in question. It is obtained by dividing the number of people employed in the gun industry in a given municipality by the number of those employed in the same industry in the entire region.

<sup>7</sup> Production specialization: this shows the degree of specialization of a given area with respect to an industry that has significant relevance in the economic activities of the same area. In other words, it is possible to identify areas characterized by the prevalence of a specific type of production. This index (IPS) is calculated as follows:

$$IPS = \frac{\left(\frac{A_{ij}}{A_{iv}}\right)}{\left(\frac{A_{vj}}{A_{\infty}}\right)}$$

Where:  $A_{ij}$ = number of employees in the  $i$ -th municipality in the  $j$ -th sector;  $A_{iv}$ = number of employees in the  $i$ -th municipality in the manufacturing industry;  $A_{vj}$ = number of employees in the region in the  $j$ -th sector;  $A_{\infty}$ = number of employees in the region in the manufacturing sector. Given the nature of its structure, the index presents a lower bound equal to zero, but not an upper bound. Such index, despite some distortions, represents a simple method for the analysis of the sectorial specialization of a given territory compared to the average of a much wider area which includes it. When the value obtained is higher than 1, there is a specialization in the sector. For greater comparability of data, they can be normalized by creating a range of values between -1 and +1 as follows:

$$IPS_N = \frac{IPS - 1}{IPS} + 1$$

<sup>8</sup> Data regarding manufacturing and the mechanical engineering sectors were taken from official statistics. Those for the gun industry were taken from archives for the years 1951 and 1961 and from official statistics for 1971 and 1981. For 1951 summary tables of the census are available (see note

database<sup>9</sup> lists all the firms active in the gun industry located in the territories of the municipality of Gardone Val Trompia, Marcheno and Sarezzo in 1961<sup>10</sup>. This database allows to reconstruct the internal structure of the production system as it sheds light on a large number of its features: phase specialization, year of incorporation of the firms, participation of the entrepreneur in production activities, the involvement of relatives and parents, production sites, level of mechanization, order system and legal forms adopted by the firms.

To carry out the historical reconstruction, four further archives were consulted: Archivio del Consorzio Armaioli Italiani, based in Gardone, Archivio Storico and Archivio di Deposito del Comune di Gardone Val Trompia, and Archivio Centrale dello Stato in Rome.

The documents in the latter were used together with records in the archive of the Brescia Chamber of Commerce, to reconstruct the context and challenges faced by the gun industry in the postwar period. Specifically, documents from the Chamber of Commerce are a survey carried out by the same institution for the Italian Ministry of Defense and a report of the local entrepreneurs' association sent to the Ministry of Industry and Commerce; documents in the Archivio Centrale dello Stato were produced by the section "Armi" of Sottocommissione Alta Italia<sup>11</sup>.

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3). For 1961 it was necessary to go through all the questionnaires filled in by each firm of all municipalities in the province (see note 4). Note that for the first two censuses (1951, 1961) original documents were used because the official statistics of Istat do not include such refined data.

<sup>9</sup> See Appendix 3 (p. 169).

<sup>10</sup> There are discrepancies between the data for 1961 in the two databases. This is because the first database includes only enterprises classified by the census as belonging to the gun making sector, whereas the second includes other activities not exclusively related to this industry that, due to census classification, were included in specific categories. The latter, more in-depth, analysis was carried out by studying the questionnaires filled in by each company one by one (see note 8) and it was particularly important to obtain a more comprehensive picture of so-called subsidiary activities.

<sup>11</sup> Immediately after the Liberation, by ordinance Rear Admiral Ellery W. Stone, on behalf of the Supreme Allied Commander, set up the Consiglio Industriale Alta Italia (CIAI) with the aim of starting the reconversion of Northern Italian firms to civilian production. CIAI was suppressed on 28 February 1946 when the Allied Military Government returned the control of Italian territories to the Italian government. The responsibilities of CIAI for the entire country were given to Commissione Centrale Industria, created by Legal Decree 211 dated 12 March 1946 with advisory functions for industrial issues. It was active until 1949. By means of Ministerial Decree 6 June 1946, the Minister of Industry and Trade established the rules of the commission and created 4 subcommittees: for Northern Italy, based in Milan; for Central Italy and Sardinia, based in Rome; for Southern Italy, based in Naples; for Sicily, based in Palermo. The subcommittee in the North was called Sottocommissione Alta Italia and included several sections, each dedicated to a specific industry. The section for the mechanical engineering industry had 21 sectors for which experts were asked to write regular reports. "Sector Z" was for small arms production: Giuseppe Beretta,

These dossiers collected information regarding the strategic sector of gun manufacturing at a difficult time, and describe the critical areas and potential of the industry.

The sources in the Consortium and Council archives were useful to trace the role of institutions and organizations in the area, operating as facilitators and representatives of the gunsmiths. In particular, the records in the Consortium headquarters shed light on the vicissitudes of the production specialization in the 1970s<sup>12</sup>.

Finally, oral sources were also used, specifically 4 semi-structured interviews with local system entrepreneurs (Sala 2010; Miller and Glassner 2016): Cristina Abbiatico, Pierangelo Pedersoli, Giuseppe Pirlo and Luigi Zanardini<sup>13</sup>. Finally, both quantitative and qualitative information relating to firearms production were found in the literature and in newspaper articles on the topic.

### **State of the art: the Marshallian district and Gardone Val Trompia**

Alfred Marshall was the first economist who highlighted the potential advantages of the division of labor in small and medium-sized enterprises (SMEs) through their participation in the production process according to a model of phase specialization. He first theorized a differentiation between internal and external economies of scale. The British scholar saw the second type in conjunction with geographical concentration: firms tend to be set up in geographically and historically bounded areas because of factors of localization and in order to pursue advantages related to their proximity. In particular, there are three types of this kind of advantage: technological spillover, subsidiary industries and a “constant market for skill”<sup>14</sup> (Catalán et al. 2011). All are linked to the concept of “industrial atmosphere” according to which «where large masses of people are working at the

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Vincenzo Bernardelli and Enrico Masi, representatives of the most important firms (Fabbrica d'Armi Pietro Beretta, Bernardelli Vincenzo and Breda respectively), were the experts.

<sup>12</sup> Records in all the archives are inventoried, except for the Consorzio Armaioli Italiani.

<sup>13</sup> For further details regarding the interviews and their transcriptions see Appendix 5 (p. 217).

<sup>14</sup> Continuous development and availability of skills: employers have access to various skills and employees are more likely to find a range of firms that are able and need to use their skills.

same kind of trade, they educate one another. The skill and the taste required for their work are in the air, and children breathe them as they grow up» (Marshall and Paley Marshall 1879, p. 53).

These are milestones of economic theory and represent the roots of the concept of industrial district. However, as recently pointed out by Fabio Sforzi (2015 p. 12), «the *Principles of Economics* (Marshall 1890) and *Industry and Trade* (Marshall 1919), as well as *The Economics of Industry* (Marshall and Paley Marshall 1879), do not provide a definition of industrial district neither as a “unit of investigation” nor as a “socio-economic notion”. [...] The industrial district definition remained, so to speak, “in search of an author” until Giacomo Becattini proposed a new interpretation of Marshall’s work». This new interpretation, outlining a fresh theoretical approach to industrial change, was formulated by the Italian scholar in two seminal papers: *Il concetto di industria e la teoria del valore* (Becattini 1962) and *Invito a una rilettura di Marshall* (Becattini 1975b). In the first, the industrial district was conceptualized as a “unit of investigation” of industrial economics, whereas in the second it was conceptualized as a “model of production”. To say it with Sforzi (2015, p. 13): «the place of living (the Marshallian “economic nation”) as the unit of investigation for understanding the economic change that the integration between a “community of people” and a “population of firms”, supported by a given “system of values”, engenders through an industrial organization which fosters the accumulation, free circulation, sharing and increase of knowledge among entrepreneurs and workers (the Marshallian “external economies”))».

The above-mentioned system of values is the expression of an ethic of work and activity, of the family, of reciprocity, and change. It is passed on and developed through generations and is simultaneously cause and effect of a system of informal and formal institutions and rules involving the family, the market, the firm, the education system, the local administration, as well as many other public and private, economic and political, cultural and charitable, religious and artistic bodies (Becattini 2004, p. 20)<sup>15</sup>. In other words, Becattini places side by side Marshall’s

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<sup>15</sup> For an extensive discussion of institutions and their role in the industrial district see Grandi (2007).

idea of “industrial atmosphere” with what he calls the “sense of belonging”, the tendency of the “community of people” to identify itself with the district and the production system.

The community of people and firms, through the systems of values and rules that rely at the very basis of their configuration and interactions, can count on the intrinsic tendency of the district to reallocate human resources. This feature is a fundamental element of a district’s productivity and competitiveness: it enables the district to retain the know-how of workers and to disseminate it among the population of firms<sup>16</sup>. From this perspective, the set of mechanisms and rules which determines the internal competition of the district and a sort of solidarity among local rivals should also be considered. In particular, Becattini (2004, pp. 27-28) looks at the internal market of the goods and services most frequently exchanged in the district (especially phase products and specialist services) providing new opportunities to actors in the system by increasing its flexibility. As a result, not only can workers find a new job more easily, but entrepreneurs can start up again after failure.

The concept of “population of firms” does not mean a haphazard group of businesses of different types. Each specializes in one or more phase in the production process characterizing the district. As explained by Becattini (2004, p. 21), «the district is an instance of a localized realization of the process of division of labor, which is neither diluted in the general market, nor concentrated in one or just a few firm. Localization stands here for something different from an accidental concentration in one place of production processes which have been attracted there by pre-existing localization factors. Rather, the firms become rooted in the territory, and this result cannot be conceptualized independently of its historical development». The population is dominated by one industrial branch in the broadest sense. Here Becattini (2004, p. 22) points to Marshall’s (1919) concepts of “main industry” and “auxiliary industry”: a district does not include only a single type of activity, but also subsidiary industries that take care of the incidental requirements of the main one. No definite statements can be made regarding the size of the

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<sup>16</sup> Employees had a strong tendency to start up their own businesses becoming self-employed (Becattini 2000).

production units: large firms cannot be excluded, but where multiple phases are involved, naturally the optimal technical size is fairly small.

In addition to skilled workers and phase entrepreneurs, the district includes so-called “*impannatori*”, as well as people working at home and in part-time jobs. The “*impannatori*” are special actors «who coordinate the chain of production, from design, ordering of raw materials, work specification to weaver, finishing and checking, and final delivery to the customer, arranging finance for independent subcontracting firms (Jaikumar and Upton 1993). Some “*impannatori*” are purely entrepreneurs with no physical assets; other undertake some activities in-house – hybrids of the pure “*impannatori*” and a vertically integrated firm» (Bijaoui 2015). Home and part-time workers, according to Becattini (2004, p. 25), represent crucial ties between the production activity and the daily life of the district: they are fundamental factors in the process of identification of the community with the industrial branch as they are the link between the system of firms and the families. Furthermore, their presence, together with phase entrepreneurs, is the primary source of one of the most important characteristics of the district: its adaptability. In short, they allow a quick and simple reorganization of production according to market changes by adjustments in the time budget of individuals and families and continuously stimulating the recruits of small entrepreneurs.

Gardone and its gun industry have been repeatedly defined as an example of Marshallian district. In particular, three studies directly address the issue. After a historical review of local firearms production and its localization factors, Carlo Tombola (2000) reconstructs the demographic map of the provincial firms in the 1990s. Del Barba (2008) deals with the history of one of the most important firms in the local system, Vincenzo Bernardelli S.p.A. (hereafter Bernardelli), describing its vicissitudes within the broader context of the valley, especially with reference to labor disputes in the gun industry. Fontana (2009) reconstructs the history and social features of Gardone in conjunction with the industrial specializations of Lumezzane and Nave<sup>17</sup>. These contributions provide significant insight into the

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<sup>17</sup> Particularly important, albeit conceived as a contribution to the history of Beretta, is the work by Morin and Held (1980). In their monograph the two historians provide crucial details about the development of the organization of the local gun industry down the centuries (especially in the Modern Age) and the closely-related process of accumulation of social capital.

case of central Val Trompia, although several aspects call for further study. In particular, although not exclusively, this paper focuses on three: 1) the historical and geographical boundaries of the district; 2) phase specialization; 3) the role of local institutions.

Following the above works it verifies the applicability of the district framework to Gardone, examining the geographical concentration of SMEs specializing in one or more phases of the production process, phenomena of vertical and horizontal subcontracting, the existence of intermediate institutions and, most importantly, the cultural background comprising common values, a sense of belonging and a cooperative-competitive spirit.

## **Historically and geographically bounded**

### *The roots*

The gun industry in Val Trompia has ancient roots. Many authors have traced the history of this production specialization, based on the factor endowment of the area, rich in iron ore, wood and water. Firearms manufacturing in this portion of the province of Brescia grew out of the prosperous mining and iron industries that flourished in the area from the Middle Ages if not before. This activity was soon organized according to a scheme based on strong fragmentation of the production process, putting-out system and strong family ties. The network of workshops active in the field with different skills and duties was centered on Gardone Val Trompia and spread to the territories of Sarezzo, Marcheno, Inzino, Magno and Lumezzane and, following the Mella river, reached the city of Brescia (Belfanti 1998)<sup>18</sup>.

As explained by Morin and Held (1980), since the 17<sup>th</sup> century, as in the rest of Europe, Val Trompia saw the rise of a new category in its social and economic life: merchants. With their economic and political power, they sought to take the lead in the production chain breaking the age-old rules of solidarity on which craftsmen

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<sup>18</sup> Each town specialized in one phase of the production process; the center was Gardone where gun-barrel manufacturing (the most important and difficult phase) took place providing local craftsmen with the skills and ability to coordinate the entire process.



organized their activity and imposing low prices through subcontracting. The reaction of the gunsmiths was to set up guilds to defend their interests gathering and giving an institutional shape to the different producers of firearm components. Such a move was aimed at granting some form of coordination in order to increase the bargaining power of the craftsmen.

The guilds did not stop the merchants and the know-how in gun manufacturing was seriously threatened by the opportunistic choices of the Austrians, who dominated the area from 1814 to 1859. However, the local specialization survived. First it was revived by the reopening of the Arsenal after Italian Unification, then it gradually caught up with the rest of Europe thanks to Glisenti, Beretta and Bernardelli, big firms able to cope with the market challenges of the first half of the 20<sup>th</sup> century through political connections, investments in the mass production of civilian firearms and alternating externalization and internalization strategies. As a consequence, in the central Val Trompia and in the city of Brescia, the number of forges and small workshops increased and diminished according to the needs of war, periods of peace and the introduction of Fordist innovations (Montanari 1982; 1983a; 2002; Onger and Paris 2012)<sup>19</sup>.

### *The postwar period*

At the end of WWII, the problem of restructuring the production process was back again. On 25 April 1945, the province of Brescia was in a dramatic situation: both agriculture and industry faced significant problems. In the secondary sector, the most urgent matters were the destruction of portions of plants and the process of reconversion, particularly difficult and intense for the local gun industry (Gregorini 2008). In the period 1935-45, large firearms firms and the State arsenal grew in terms of labor force and production capacity based on military orders of which they had a sort of monopoly on the basis of their size, organization and technological features (Baglioni 2012). As a consequence, when Italy was finally

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<sup>19</sup> Regarding the role of guilds and large factories in the process of the accumulation of social capital required to create an industrial district see Belfanti (2009).

free of Nazi occupation and the province could no longer count on military orders the situation collapsed<sup>20</sup>.

In the provincial territory, where all national small arms producers were located, 5 enterprises had 7 production units: Breda, Fabbrica d'Armi Pietro Beretta (hereafter FAPB or Beretta), Bernardelli, Fabbrica Nazionale Armi and Franchi. There were also a few craft companies like Gitti Umberto & C., Fabbrica Armi Anelotti & Gualla and Faverzani Pietro<sup>21</sup>. The plants most damaged by the bombings were in the provincial capital; those of Breda and Beretta lost respectively 70% and 10% of their production capacity. In 1946, the local gun making industry accounted for 6,500 employees with 40/50% actually surplus to needs<sup>22</sup>. To survive local firms had three alternatives: 1) shift to the production of civilian firearms<sup>23</sup>; 2) diversify production<sup>24</sup>; 3) heavily reduce the workforce<sup>25</sup>. With regard for the latter, in 1948 in Val Trompia, the situation deteriorated when the company OM (automotive sector), which took over the former arsenal after its closure by the Nazis in 1943, decided to leave Gardone to reduce costs: around

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<sup>20</sup> Beretta and Bernardelli were put into temporary receivership until 1948: following the peace treaty, an international commission for the control of Italian investments in the military field was established (Del Barba 2008, p. 138).

<sup>21</sup> Several other companies in the province (e.g. Gnutti and Tempini) took part in the efforts required for military production during the war years. However, these firms were not part of the gun making industry, but were in the steel and mechanical engineering sectors: they temporarily adapted their production to take advantage of military orders adapting to the needs of the moment and for them the reconversion was less difficult.

<sup>22</sup> Archivio Centrale dello Stato di Roma (ACS hereafter), f. «Ministero dell'Industria e del Commercio – Commissione Centrale Industria. Sottocommissione Industria Alta Italia», b. 107, «Relazione. Sulla situazione industriale nel settore “Armi”, pp. 1-4».

<sup>23</sup> For the period 1945-50, the data of the National Proof House show a significant increase in the number of civilian firearms (Appendix 1, p. 151).

<sup>24</sup> The diversification strategy had little success because of difficulties in adapting the machinery of this sector to new types of manufacturing. For two reasons: their specificity and the wear and tear produced by intensive use during the war years. A list of the products introduced by the local firms follows. Beretta: combustion engines, brakes, various types of mechanic manufacturing; Bernardelli: screws; Breda: motorcycles, machine tools, springs, needles; Fabbrica Nazionale Armi: ovens, decorticating machines, agricultural tractors, bicycles; Gitti: fishing reels. Regarding diversification, it is worth noticing that FAPB kept on pursuing this strategy in the following decades obtaining good results. Building alliances with other entrepreneurs and companies, Giuseppe Beretta invested especially in the automotive sector and in the production of machine tools. See: ACS, f. «Ministero dell'Industria e del Commercio – Commissione Centrale Industria. Sottocommissione Industria Alta Italia», b. 105, «Programma produzione anno 1946/1947»; Ibidem, b. 107, «Relazione. Sulla situazione industriale nel settore “Armi”, p. 3»; Onger and Paris (2012, pp. 85-109); Paris (2016).

<sup>25</sup> Aggravated by high tax charges and social security contributions labor cost accounted for 75-80% of the price of the product. Raw materials were estimated to account for the 15%. ACS, f. «Ministero dell'Industria e del Commercio – Commissione Centrale Industria. Sottocommissione Industria Alta Italia», b. 105, «Relazione 1949»; Ibidem, «Realzione 1948, p. 129».

Firm	Number of employees			
	1943		1952	
	Firearms production	Other production	Firearms production	Other production
Fabbrica Armi Esercito (Gardone V.T.)	2,500	0	0	300
S.A. Bernardelli Vincenzo (Gardone V.T.)	700	0	500	0
S.A. Fabbrica d'Armi Pietro Beretta (Gardone V.T.)	3,000	0	1,625	0
Armerie Gnutti <sup>26</sup> (Lumezzane)	3,000	0	0	500
S.A. Officine Carlo Gnutti & Figli (Lumezzane)	1,800	0	0	430
S.p.A. Officine Meccaniche Saleri (Lumezzane)	600	0	0	170
Breda Meccanica Bresciana (Brescia)	5,800	0	710	0
S.p.A. Metallurgica Bresciana già Tempini (Brescia)	4,500	1,500	0	1,300
S.p.A. OM (Brescia)	1,500	2,500	0	3,300
S.A. Fabbrica Nazionale d'Armi (Brescia)	2,650	0	470	0
S.A. Luigi Franchi (Brescia)	300	0	100	0
F.lli Marzoli & C. (Palazzolo s/O)	2,000	1,000	0	2,100

Table 1 - Source: ASCCBS, Carteggio 1943-1963 (Cat. X-XXI), b. 261, f. 5.

<sup>26</sup> S.p.A. Serafino e Andrea Eredi Gnutti.

1,500 jobs were lost. In 1949, around 5,000 people were estimated to be unemployed and the workforce of local gun firms had been severely cut (Sotgiu 2012). Table 1 (p. 67), with data sent by the Brescia Chamber of Commerce to the Italian Ministry of Defense, shows the consequences of the transformation of the gun industry in terms of employment<sup>27</sup>.

The condition of the sector started to slowly improve in the first half of the 1950s when the effects of the gradual integration of Italy into international markets provided new opportunities to local producers<sup>28</sup>. Massive unemployment and the conversion to civilian firearms became fundamental in the umpteenth evolution of the local production system. Many people who lost their jobs were skilled workers trained inside large factories in the valley; some were trained in the local vocational school with general studies in mechanical engineering, and specific training in gunsmithing (Baglioni 2012). Wishing to reinvest their technical skills in hunting shotguns, many inhabitants in the valley decided to start up their own business, opening small workshops. These micro-enterprises occupied two fields: 1) niche markets based on a high degree of product customization, because these small firms could dedicate themselves entirely to meeting the needs of their customers; 2) the market of subcontracting, where they were able to carry out tasks or provide specific firearms parts for the newborn craft enterprises and the large companies at a lower cost<sup>29</sup>.

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<sup>27</sup> For the same enterprises, the Brescia Chamber of Commerce carried out a survey to investigate conditions and the potential of provincial plants in 1952 (Appendix 4, p. 195).

<sup>28</sup> Since the end of the war, exports were a sore point in the recovery of the sector. The domestic market which had promised something in the early postwar period was soon blocked by the poor economic conditions of the country (customers were mainly hunters, in particular farmers, who had the opportunity to hunt); therefore entrepreneurs in the sector repeatedly called for more help from the State to reach foreign markets. In particular, they identified three major problems: 1) the heavy duties imposed by countries on Italian civilian firearms as a consequence of the exclusion of this type of product from the trade agreements and the difficulties of Italy in obtaining the Most Favored Nation status; 2) the lack of foreign currency reserves (especially for South American countries, good markets before WWII) and the custom of paying on receipt of goods, a serious obstacle for companies with poor liquidity; 3) the fierce competition of Belgian products at prices 30% lower than for Italian products, which were not helped by favorable trade treaties. The rivalry with the firearms sector in Liège was also highlighted in 1950 when Bernardelli and FAPB wrote to the Ministry of Industry and Commerce to suggest stricter conditions for imports into Italy. See Ibidem, «Relazione 1948, pp. 128-129»; Ibidem, b. 111, «Accordi commerciali. Import-Export».

<sup>29</sup> Anon., «Le armi da caccia bresciane ritornano sui mercati mondiali», *Il Cittadino*, December 13, 1953, p. 6; Fausti, M., «La secolare industria delle armi sempre fiorente a Gardone V.T.», *Il Cittadino*, October 3, 1954, p. 5; Fontana, S., «Lo sviluppo dell'artigianato a Gardone V.T. legato allo spirito di cooperazione: nostra intervista col sindaco Angelo Grazioli», *Il Cittadino*, February 13, 1955, p. 4.

Due to the gradual emergence of these craft-family businesses and the slow gradual recovery of Beretta and Bernardelli, Gardone Val Trompia and its surrounding municipalities were not only able to catch up with the postwar reconstruction, but to drive the rapid growth in the province of Brescia in the steel industry and mechanical engineering sector in the 50s and the 60s (Taccolini 2005; Tosini 2010)<sup>30</sup>.

### *Geographical coordinates*

In the period under investigation, the provincial production specialization in gun making also reconfigured itself from a geographical perspective. The transformation began in the first half of the century and sped up after WWII in the two side valleys of Val Trompia: Valgobbia and Valle del Garza. Lumezzane completed its transition to civilian metal works, specializing in cutlery and valves, and Nave focused on the steel industry. Gun production remained in Gardone Val Trompia and the provincial capital (Porteri 1995; Fontana 2009).

To identify the boundaries of the two production areas, two indices were used: geographical concentration and production specialization. The indices, here calculated for the period 1951-1981, identify areas characterized by phenomena of concentration and specialization in a given manufacturing activity. Such phenomena are two basic characteristics of industrial districts, according to both Becattini<sup>31</sup> and Italian Law<sup>32</sup>.

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<sup>30</sup> The growth of an intense network of craft businesses was noted by large factory entrepreneurs. In 1950, when the sector was still struggling with problems in the domestic and foreign markets, they wrote a report to the Ministry of Industry and Commerce complaining of the illegal position of the many small workshops which had opened recently. According to the industrialists, there were two major problems: 1) many craft businesses were not in the Companies Register or authorized by the relevant authorities for the production and marketing of firearms. In particular, the report estimated that 4,338 shotguns out of a total of 9,985 in 1948 and 3,970 out of 15,778 in 1949 were produced on the clandestine market; 2) craft businesses largely relied on black market labor, paying the labor force half the normal salary with no social security contributions. Entrepreneurs in large firms noted that small workshops could draw on a mass of unemployed people or workers from other factories during their non-working hours (prefiguring the district organization of the following decades). ASCCBS, Carteggio 1943-1963 – Categorie I-IX, b. 97, f. 19.

<sup>31</sup> See the introduction.

<sup>32</sup> Law October 5, 1991, art. 36: industrial districts are geographical areas characterized by a high degree of SME concentration, with particular reference to the relationship between enterprises and the resident population, as well as to the production specialization of the firms. Translation from Italian: «aree territoriali locali caratterizzate da elevata concentrazione di piccole imprese, con particolare riferimento al rapporto tra la presenza delle imprese e la popolazione residente nonché alla specializzazione produttiva dell'insieme delle imprese» (Istat 2001, p. 10).

The tables in Appendix 2 (pp. 161-165) show how Gardone Val Trompia was the capital of local and Italian gun production. In 1951, significant levels of specialization, together with a considerable number of local units, were recorded only in Gardone; whereas in the provincial capital, the second municipality for number of workers in the sector, the gun industry was diluted in a context generally oriented toward manufacturing and mechanical engineering products. The chart for 1961 shows how new towns became involved in the production specialization. Marcheno led the increasing trend both in terms of the number of employees and local units. This is significant for three reasons: firstly, because Marcheno borders with Gardone; secondly, in view of the fact that the trend strengthened in 1971 and 1981; finally, because in the following years production specialization spread to the neighboring villages including Sarezze, Lodrino, Tavernole sul Mella and, to a lesser extent, some towns in the upper valley.

It is worthy of attention the fact that the production specialization tended to spread according to these coordinates. As a matter of fact, it confirms that the neighboring village of Marcheno became the first solution to space availability issues for old and new entrepreneurial activities and highlights the role of Gardone as barycenter of the central and upper valley in terms of employment dynamics<sup>33</sup>. This second aspect is particularly relevant as commuting is a fundamental factor used to identify local labor systems and, on their basis, industrial districts (Istat 2001). In this sense, the results obtained from the two indices confirm the information in two other sources. The first comprises documents in the archive of the municipality of Gardone Val Trompia: in 1949, when unemployment was a serious problem, the mayors of Marcheno, Tavernole sul Mella and Lodrino wrote to the director of the provincial labor office, the prefect and the mayor of Gardone to remind them of the importance of the factories of the town in the central valley. In particular, they complained that the local administration of Gardone pressed firms to employ its inhabitants<sup>34</sup>. The dispute was solved on 28 December 1949: in the provincial labor office, several local mayors signed a document establishing

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<sup>33</sup> Anon., “Una realtà che sta cambiando per il ‘boom’ delle industrie”, *Giornale di Brescia*, February 27, 1976, p. 9; Anon., “Una cittadina conosciuta nel mondo per le armi che ‘firma’ da secoli”, *Giornale di Brescia*, August 9, 1978, p. 8. Marocchi was an important example of a firm moving to Marcheno in the early 70s in order to grow (Abbiatico 1984, pp. 187-194).

<sup>34</sup> ASCG, b. 790, f. 4.3, «All’Ill/mo sig. Direttore dell’Ufficio Provinciale del Lavoro».

the rules for the rehiring of the unemployed in the firms located in Gardone. New jobs were allocated according to the following percentages: Gardone 40%, Sarezzo 25%, Tavernole 11%, Marcheno 10%, Polaveno 9%, Lodrino 5%<sup>35</sup>. Furthermore, the accusation against the municipality of Gardone Val Trompia was disproved by the list of the employed that year: half were from other towns in the valley, and half from Gardone, confirming its traditional role as the center of attraction for the local labor force<sup>36</sup>.

The second source for the importance of Gardone Val Trompia in the dynamics of local commuting is a study by Consolati (1989, pp. 7-12), who analyzed workforce movements in the period 1971-81. He shows that during the 1970s, the attractiveness of Gardone for workers resident outside its boundaries increased, strengthening a well-rooted role in the area: in 1971 the local imported workforce was 39.3%, rising to 39.9% in 1981. Moreover, a significant increase was recorded in the share of the active population of Gardone working outside its territory: from 15.4% in 1971 to 22.4% in 1981. Consolati also points out that Gardone Val Trompia mainly influenced 9 towns in the central and upper valley. Specifically, the local system was characterized by two kinds of interconnection, one group of towns comprising Marcheno, Sarezzo and Villa Carcina which was thoroughly integrated with Gardone and among themselves<sup>37</sup>; and a second group comprising Polaveno, Lodrino, Tavernole sul Mella, Pezzaze, Bovegno and Collio that provided a large pool of workers for the industrial activities of the center of the system<sup>38</sup>.

On the basis of the data in Appendix 2 (p. 159) and in light of the information on the local labor market above given, it seems reasonable to assume that the core of the local system included the towns of Gardone Val Trompia, Marcheno and Sarezzo. This does not mean that firms in other towns of the province had no interactions with those of the three above, or that they played no part in external

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<sup>35</sup> Ibidem, f. 4.4, «Verbale di riunione».

<sup>36</sup> Ibidem, f. 4.3, «Disoccupati. Avviamento al lavoro».

<sup>37</sup> Gardone was well integrated with Marcheno and especially Sarezzo. In 1981, the greatest mobility was between Gardone and Marcheno with 30% of the active population in Marcheno working in Gardone. Villa Carcina was involved in the core part of the local system through its strong relationship with Sarezzo.

<sup>38</sup> The interviews with Pierangelo Pedersoli and Cristina Abbiatico confirm these dynamics in the local labor market and in the spread of the production specialization.

economies of the geographical concentration. However, the central Val Trompia was indisputably characterized by higher degrees of concentration-specialization, more intense labor dynamics and, as we shall see in the following sections, by a sense of belonging to an industrial branch that was unique and with a strong impact on the culture of the people. This is why the analysis of the structure of the production system focuses on firms in the three towns specified above.

To conclude this first part of the analysis, it is worth noting that the production concentration and specialization of Gardone, Marcheno and Sarezzo was based on a large number of SMEs. This is clearly visible in Charts 2.1 and 2.2 (pp. 166-167) where the gun making firms and labor force of the three towns are shown according to size classes.

## **Products and markets**

The gun making sector has two main product categories: military and civilian firearms. This paper focuses mainly on the latter. Indeed, civilian firearms grew considerably and steadily throughout the period under consideration and were the main driver of development for the central Val Trompia production system. They include the following main categories:

- shotguns and semi-automatic shotguns with one or multiple smoothbore barrels;
- manual double-barreled rifles;
- manual combination guns;
- rifles, carbines and muskets with one rifled barrel, even though designed for automatic operation system;
- revolvers;
- semi-automatic pistols;
- replicas of antique and muzzle-loading firearms models before 1890;
- rifles and carbines that, while employable in a war situation, present specific characteristics for hunting or sporting purposes; have a limited fire volume and are intended to be used with non-military types of ammunition.



After the war, the production of long guns gradually increased from zero to a peak of 475,438 units in 1977, passing the thresholds of 100,000, 200,000 and 300,000 units in 1954, 1964 and 1968 respectively. An important part in the recovery was played by the double-barreled hunting shotgun. More specifically, immediately after the war and throughout the 50s the recovery was led by side-by-side shotguns whereas under and over shotguns led local production in the 60s, first produced industrially and then by craftsmen, reaching 183,979 pieces in 1975<sup>39</sup>.

From the 60s onwards, the growth of semi-automatic rifles and shotguns was extremely significant. Production following traditional typologies began in 1960 and continued up to the 70s, then it developed according to the typical concepts and systems of the Italian labor capacity, reaching 152,383 units in 1976. This product drove the development of the most heavily industrialized companies, whose potential was significantly limited between 1977-1980 by statutory regulations limiting the use and distribution of shotguns and rifles.

Finally, it is worth mentioning that the reproduction of ancient firearms acquired considerable importance for firearms production in Gardone and the surrounding municipalities. The first producer was Aldo Uberti in 1959, when the United States were preparing to celebrate the centenary of the American Civil War. He received an order for 4,000 units of muzzle loading rifles and pistols. After this unexpected event, producers in the valley were able to move into a new unexplored market segment based on North America. Especially in Montana, North Dakota and Texas, a large number of collectors and aficionados of hunting and target-shooting practiced with this type of firearm<sup>40</sup>.

In addition to the production of long guns, short-barreled firearms were manufactured for personal defense, mainly by larger and more heavily

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<sup>39</sup> See Appendix 1 (p. 151) for figures relating to small arms tested by the National Proof House before going on sale.

<sup>40</sup> All manufacturers of historical firearms replicas were in Gardone Val Trompia. In the 1960s the local gunsmiths specialized in the reproduction of Colt and Winchester models, and in particular firearms from the American Civil War (Daffini 1969). They made replicas of revolvers (Navy mod. 1851 – cal. 36, Navy mod. 1861 – cal. 36, Army mod. 1860 – cal. 44, Remington New Army mod. 1859 – cal. 44, Reb Navy mod. 1851 – cal. 36, Baby Dragon mod. 1848 – cal. 31, Welles Fargo mod. 1848 – cal. 31, Walker mod. 1847, Dragoon 2° mod. 1848, Colt Single Action), pistols (Kentucky, Derringer 22 L.R. – 38 special, Bodyguard) and rifles (Winchester mod. 1866). For this topic see also Barbieri, P., “Cominciò tutto col centenario della guerra di secessione...”, *Bresciaoggi*, February 2, 1979; as well as the interviews with Pierangelo Pedersoli and Luigi Zanardini (Appendix 5, pp. 219, 253).

industrialized companies. This figures for this product were similar to those of shotguns in the 50s, but fell into the background in the following decade. The albeit short-lived peak occurred in the last three years of the 60s and the second half of the 70s.

These products found their way into national and international markets. The Italian market was important in the years immediately after the Second World War but in the first half of the 1950s its relevance rapidly diminished due to the limited potential and increasing constraints of the state for the possession and sale of firearms<sup>41</sup>. The domestic market mainly comprised hunting firearms, a popular activity with a strong tradition (amongst industrial and craft workers, farmers, craftsmen and office workers) and was extremely sensitive to legislative norms. Severe fiscal tightening of the tax for hunting licenses between 1961 and 1962 led to a rapid decline in firearms sales and, as a result, a fall in production. Only after a partial reversal of the tax decisions did the decline come to an end. In addition and closely related to the legislative norms, two further factors influenced the domestic market: seasonality and geographic concentration. The hunting season was limited during the year and this concentrated sales in one period only (from the end of May to the beginning of October), leading to some problems in the distribution of firearms and forcing the industry to stock up sufficiently for the sales period. With regard to the geographic concentration, Tuscany, Emilia Romagna and generally the whole of Northern and Central Italy had high numbers of hunters and sales compared to the South, Sardinia and Sicily. This was because of higher disposable incomes with users often buying more than one shotgun, and greater interest in hunting due to the natural abundance of game.

Consequently, a major role in the relaunch of the sector was played by foreign markets. Indeed the gun trade started to significantly improve after two important events: membership of the Gatt and Italy joining Nato. The first allowed Italy to market its hunting and sports shotguns outside its borders; the second definitively included the country in the Western Bloc allowing (after review of the constraints imposed by the peace treaty) the industry based on military orders to begin a process

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<sup>41</sup> Restrictive measures introduced by the public authority included: the increase in the fee for the hunting license in 1961 and the gradual shortening of the hunting season. Further details on the impact of legislative measure are provided in the paragraph “Local institutions”.

of reconstruction and the industry based on civilian orders to increase the sale of pistols for self-defense to the police under the public order management taken from the American model (Del Barba 2008, pp. 141-146).

From relatively low levels in the first half of the 50s, exports gradually improved both as absolute values and in relation to total production, reaching 50% of production in the second half of the 60s. In particular, four countries were the main buyers of the civilian products made in Brescia: the United States, France, Germany and the United Kingdom, representing 77% of the whole. The United States was the biggest market and, as already mentioned, the main driver behind the reproduction of antique firearms. France traditionally represented a good outlet for Brescia shotguns, due especially to the high number of hunters, whereas Germany, in which hunting is not widespread, acted as an intermediate market between production and destination: due to its superior financial organization, it was able to reach markets inaccessible or too expensive for exporters from Brescia (see Table 2 and Chart 1, pp. 76-77).

With reference to the 60s and, more specifically, to 1962-1967, the data regarding units sold abroad, both short and long firearms, are available. Tables 3 and 4 (p. 76) and Charts 2 and 3 (pp. 78) show the increasing foreign market share of local products from Brescia. For long firearms, once again it is possible to infer the important role of the hunting shotguns. Among short firearms, the leading position was taken by the 6.35 and 22 caliber pistols, produced mainly by the largest industries in the sector (Bontempi 1970)<sup>42</sup>.

Despite the difficulties of the oil crisis and the first signs of industrial maturity, Italy became the largest exporter of hunting and sports firearms during the 70s. As far as the long-barreled firearms were concerned, there was a significant improvement in 1979, compared with the beginning of the decade and the period from 1976 to 1978, during which a 23.4% fall in exports was recorded. It is worth

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<sup>42</sup> These data refer to the number of export licenses requested by producers. Two points require clarification: 1) not all licenses could be used for export; 2) so-called “temporary imports” are included, that is all those long and short firearms imported from abroad in order to be repaired and subsequently re-exported. Therefore, the data do not reflect actual exports, which were lower, albeit not by much (perhaps 1%).

Country	1967	1968	1969
Germany	1,423,491	2,045,365	2,383,520
USA	4,558,910	6,734,655	5,532,420
UK	246,495	406,954	317,023
France	1,741,510	3,068,864	2,822,699
Spain	343,086	165,762	238,614
Greece	37,821	85,361	32,843
Australia	75,538	60,122	60,077
Indonesia	314,774	161,729	217,345
Canada	257,005	184,563	831,802
Portugal	129,023	143,955	148,044
Japan	254,154	188,866	144,301
Israel	1168,768	67,970	153,641
Switzerland	1176,233	146,252	215,287
Jugoslavia	1170,649	14,930	69,595
Algeria	72,978	119,568	19,113
Others	111,016,434	1,411,217	1,600,274
Total	10,686,869	15,006,133	14,786,598

Table 2 - Exports in \$ per country. Source: Bontempi (1970)

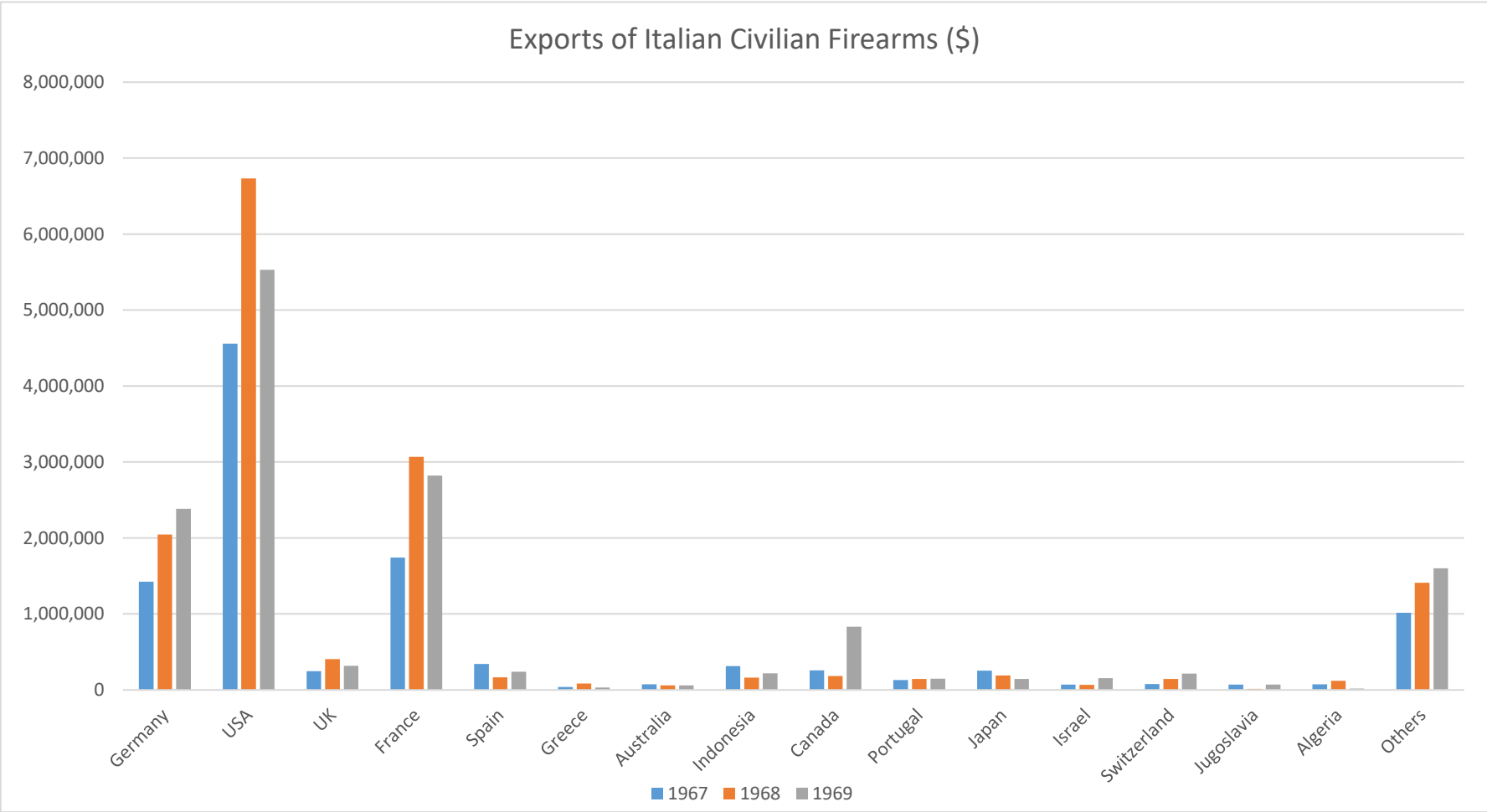
Type of firearm	1962	1963	1964	1965	1966	1967
Shotguns: O/U, S/S and semiautomatic	73,872	71,712	83,866	83,504	78,630	102,593
Carbines	2,484	2,044	5,106	5,802	4,780	6,035
Muzzle loading rifle replicas	1,881	682	907	1,200	1,645	1,916
Total	78,237	74,438	89,879	90,506	85,055	110,544

Table 3 - Long Firearms Exports (quantity). Source: Bontempi (1970)

Type of firearm	1962	1963	1964	1965	1966	1967
Cal. 7.65	4,497	11,245	4,264	4,873	10,745	13,008
Cal.6.35	20,484	31,008	33,727	49,542	63,507	80,072
Cal. 22	24,971	28,065	35,847	46,729	44,974	42,270
Muzzle loading hand gun replicas	9,839	10,433	10,753	12,341	20,063	20,275
Total	59,791	80,751	84,591	113,485	139,289	155,625

Table 4 - Short Firearms Exports (quantity). Source: Bontempi (1970)

Chart 1 - Source: data (Bontempi 1970) processed by the author



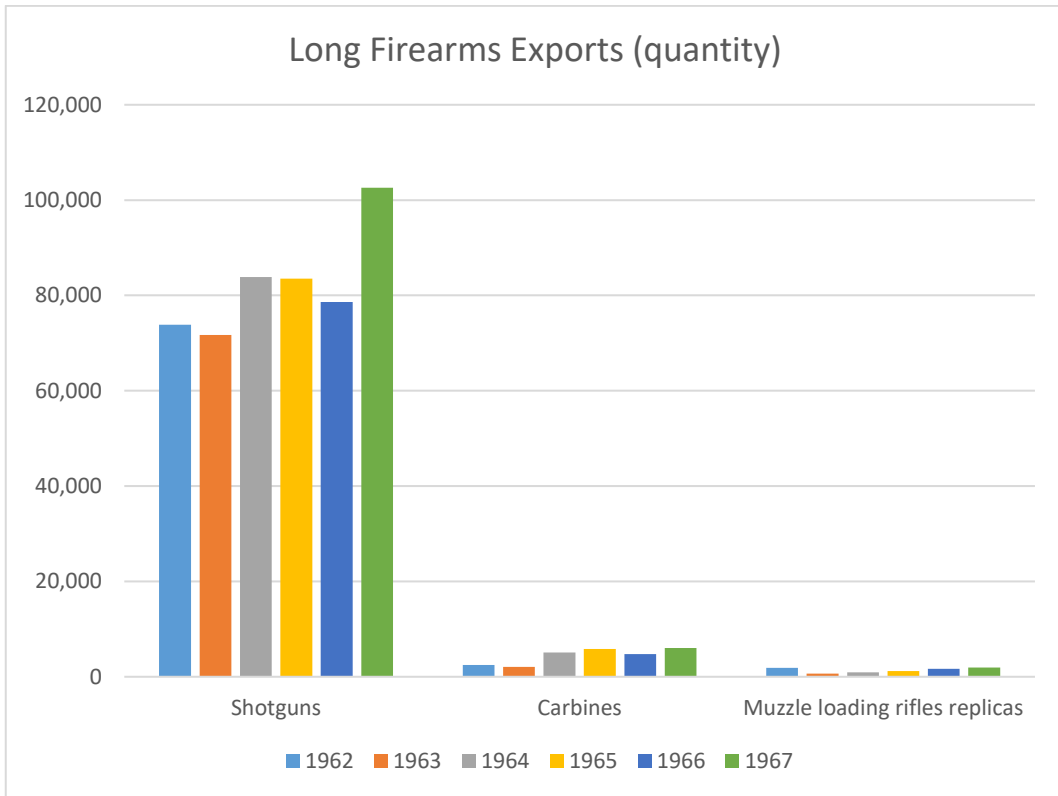


Chart 2 - Source: data (Bontempi 1970) processed by the author

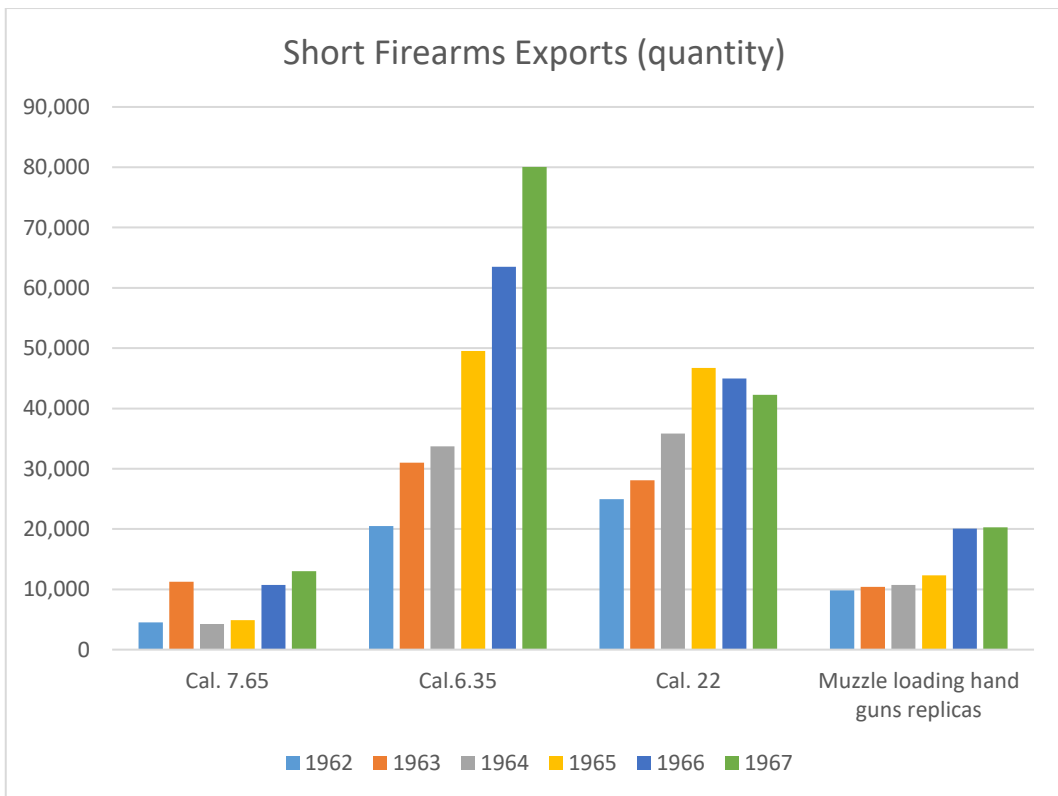


Chart 3 - Source: data (Bontempi 1970) processed by the author

noting that in 1979 the ratio of exports to the total production of long-barreled firearms was 66%, the highest recorded since 1973. Limiting the analysis to long-barreled firearms, the breakdown of exports per country was practically the same as in the previous decade. In line with the percentages on the international level of hunters and shooters, the USA was still the leading importer - although Italian products had lost some market share to domestic producers - followed by France, West Germany, Canada, Spain and the United Kingdom (Tosini 1980).

In an attempt to thoroughly explain the re-emergence of the vast network of small and medium-sized production units and the success of local producers in Brescia, it is worth describing the foreign competition that they had to face during the period covered by this paper. Historically the firearms industry was organized according to the *fabrique disséminée* pattern assuming the form of a proto-district (Braudel 1977): similar cases to that of Val Trompia, characterized by an extraordinary concentration of workshops specializing in the manufacturing of firearms components, existed in Belgium (Liège), France (Saint-Étienne), England (Birmingham) and Spain (Eibar). Nevertheless, in the second half of the 20<sup>th</sup> century, foreign production systems, including those that achieved excellent results both qualitatively and in terms of sales before World War II, were forced to give way to Brescia companies. This success was determined by the strengths of the national production and the increasing problems of foreign producers. The former included the relatively low cost of specialist skilled labor and the considerable improvement in the quality and image of the products, due to the extreme care of the new craftsmen employed. The latter included diverse factors according to the country, but generally involved a strong reduction in the activity of craftsmen accompanied by the vertical integration of foreign production set-ups.

In other words, the gradual weakening of foreign counterparts favored the emergence of a network of small and medium-sized production units in Brescia. It is therefore worth reviewing the main issues faced by foreign industrial districts.

After the Liberation in Liège, the arms industry suffered the same problems it faced after the First World War: loss of manpower and markets, political instability, import restrictions, withdrawal of the Eastern bloc and modernization by competitor nations. A combination of social, economic and technological factors

seriously weakened the Belgian district which shrunk to eight towns with the center of gravity shifting from Liège to Herstal due to the pre-eminence of the famous Fabrique Nationale as a source of employment. The decline of the home-based system and increasing wage costs affected the competitiveness of Liègeois firearms in world markets. The cheap and readily available supply of manpower, previously a manufacturer's vital asset, gradually disappeared. Recruitment difficulties, training costs, the mobility of arms workers (in demand from the labor market), increased wages and social security contributions all compelled manufacturers to produce weapons (especially in the civilian sector) which, without improved quality, could no longer compete with rival products. This tendency, which began after the Great War, became more marked after the Second World War, particularly as Liègeois arms manufacturers were still using traditional techniques, and unlike their competitors, had failed to reduce the manual element in their production methods. Hence, recovery after the Liberation was slow and difficult. The precarious and contradictory growth of the postwar period reach a peak in 1969, just before a new crisis caused by the fall in the dollar and inflated labor costs from which Belgium, in particular, suffered (Gaier 1985, pp. 213-230).

In Birmingham, the introduction of machinery clearly contributed to the decline of the craft gun trade in the second half of the 19<sup>th</sup> century, although the mechanized companies able to produce military magazine rifles and machine guns prospered. This, tough competition from European and North American manufacturing centers and periods of economic depression continued to gradually erode the size of the hand-made sports gun trade, which continued to shrink after the First World War and was hit by the Great Depression. Continuing legislation to limit the ownership of weapons in the UK also impacted on the trade, as did air-raid damage in the Second World War. In the 1950s, the old gun trade was very restricted in terms of supplies, and molds and forgings for guns were becoming very scarce indeed. Even more critical was the supply of tubes for shotgun barrels. With the exception of imported tubes, there was virtually only one source for these, making the position of the traditional gun makers rather precarious. The final step in the decline was the development of the Smallbrook Ringway in the 1960s, leading to the demolition of



many traditional workplaces in the so-called Gun Quarter of the city (Williams 2009, pp.140-146; Dunham 1955, pp 33-35; White and Trudgeon 1983).

The production of Eibar was specialized in short-barreled firearms. After its heyday, between the second half of the 19<sup>th</sup> century and the first decades of the following century (Goñi Mendizabal 2010), local producers faced increasing difficulties, first due to the civil war and later to the regulations introduced by the Spanish government for the manufacture of firearms and explosives. In particular, two regulations approved in 1941 and 1944 respectively, made authorization for the production of short firearms conditional on production in a single building, thus excluding workshops and allowing only the three principal producers to continue: Unceta, Bonifacio Echeverría and Gabilondo. The situation was not ideal for shotgun production either: due to the disorganization of the production system after the Civil War and lack of raw materials, Spanish companies were not able to find a place in a market partially freed up by the major continental competitors involved in World War II. Nor did the situation improve at the end of the conflict: both the handgun and shotgun industries struggled due to the Spanish commercial embargo and the limitations of the domestic market. The turnaround occurred in the 50s when the Basque gun making industry managed to return strongly to international markets following the provision of significant aid for exports by government institutions. One initiative of the Guipúzcoa Chamber of Commerce of was of paramount importance. The Chamber made it easier to import raw materials and machinery for metallurgical companies, which were in turn able to export their products. This intensified during the 60s, but if this on the one hand allowed local companies to achieve good results in foreign markets, on the other it made them even more dependent on institutional aid. Lastly, another weakness emerged in the production system of Spain: the excessive dependence on the American market, which became catastrophic when in 1969 the United States introduced the Gun Control Act, thus significantly penalizing the import of short-barreled firearms to the country (Goñi Mendizabal 2009a, pp. 91-93).

### **The structure of the district: phase specialization, subcontracting, family ties**

With the introduction of the American System of Manufacturing in the 19<sup>th</sup> century, the military sector embraced the path of mechanization and parts interchangeability, whereas the civilian sector remained true to craftsmanship<sup>43</sup>. Especially in the field of hunting shotguns, where Gardone Val Trompia had a leading position, customers continued to look for products created by traditional manufacturing methods where hand fitting played a fundamental role<sup>44</sup>. The production of a shotgun required the work of a large number of skilled workers in a sort of production chain, comprising (Zoli 1969):

- *Preparatori di canne* (gun barrel makers): divided into diverse “specialists”. The first prepares the tubes, ribs and bolts to braze them together (copper or brass). The second checks the effectiveness of the brazing. The third (the leveler) perfectly straightens the barrels by using a simple hand wheel press. He verifies the straightness by sighting the inside of the barrel through a light source arranged horizontally and by observing the double shadow that it casts on the inner polished bore. The double shadow, when the barrel is perfectly aligned, is made up of two lines that have to look straight once the barrel is rotated along 360°. The fourth “specialist” is in charge of giving the appropriate uniformity and regulating gun dispersion, as well as reducing the recoil.
- *Basculatori*: these are skilled craftsmen in charge of pairing the barrels to the locking mechanisms of the receiver. Their main tools are the chisel and file.
- *Acciarinai* (lock manufacturers): they create the percussion and shooting devices for shotguns.
- *Preparatori del movimento* (movement preparers): these skilled craftsmen pair the lock mechanism and the trigger guard of the receiver. They mount the key with its pin and prepare the pieces in such a way that the movements of all the locking and firing mechanisms are synchronized according to strict rules.

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<sup>43</sup> See the study by Rosenbloom (1993). Regarding the importance of the military for interchangeability see Smith (1977, 1985).

<sup>44</sup> For small hand guns an approach based on mechanization and standardization is more common. One example is the gun making district of Eibar (Goñi Mendizabal 2010).

- *Modellatori or tiratori* (modelers): with the help of a chisel, hammer and file, they carve the receiver out of a shapeless steel block.
- *Incassatori* (inlayers): these apply the suitable carvings and slots to the stock so that the metallic and wooden parts perfectly match and the firearm, on the whole, is perfectly tailored to the physical features of the shooter<sup>45</sup>.
- *Lucidatori* (polishers): they are in charge of the stock by applying the finishing touches to the external surfaces. They sand it down with sandpaper and a metal scouring pad, then they apply layers of polish that make the stock waterproof and shiny.
- *Zigrinatori* (checkerers)<sup>46</sup>: they checker the part of the stock and fore-end that is gripped when using the firearm producing a crisscross pattern with a small and simple hand tool.
- *Incisori* (engravers): with the help of hand-gravers they decorate the main metallic parts of the firearm<sup>47</sup>.
- *Riparatori* (repairers): they re-finish the triggers, hammers and trigger guards, they adjust the screws, the safety, the lock mechanisms and many other pieces.
- *Pulitori* (smoothers): with brushes, tape, abrasive pastes, felts, etc. they perfectly polish all the metal parts of the firearm in order to allow for a uniform burnishing.
- *Tempratori* (brazers): they are in charge of “hardening” the metal parts that are most exposed to wear and tear in order to increase their hardness. They heat the parts up to a precise temperature and then cool them down quickly by immersing them in water or oil.
- *Brunitori or verniciatori* (burnishers or finishers): they treat the metal parts of the firearm with chemicals to avoid oxidation.

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<sup>45</sup> Inletting is a very difficult profession that requires long training (around 3/4 years). Because of this the number of experts fell considerably; details regarding inletting and the story of a famous inlayer can be found in Abbiatico (1984, pp. 43-48).

<sup>46</sup> Women usually carried out this kind of work.

<sup>47</sup> Engravers are considered genuine artists: a qualified craftsman could earn more self-employed; for firearms engraving see Abbiatico (1976; 1980), Cerino Badone and Giovanardi (2007).

- *Assemblatori in nero* (assemblers): they assemble all the parts of the firearm, perfecting the pairing between the receiver and the barrels and permanently setting the “locks”. They set the mechanisms, synchronize the extractors and verify the percussion.

These craftsmen could be employees or self-employed, but for some it was more natural to start up their own business and be directly involved in outsourcing. The rationale behind subcontracting was the reduction of fixed costs, shared with the surrounding community of firms<sup>48</sup>. Through the documents in the archive of the Brescia Chamber of Commerce it is possible to reconstruct a complete picture of the gun making industry in the central Val Trompia in 1961. As noted in *Methodology and sources*, they comprise questionnaires and summary tables for the census of industrial and commercial activities in Gardone Val Trompia, Marcheno and Sarezzo. They allow to identify firearms producers as well as subsidiary industries<sup>49</sup>.

Table 3.1 and Charts 3.1 and 3.2 (pp 183, 187-188) show the formation of a district structure in the post-war period: perhaps this is mainly related to the re-launch of the production of civilian firearms. At the time, 101 local businesses, or 37% of the total production system, were end producers who manufactured civilian firearms, employing 593 people, thus representing 19% of the labor force for firearms production in the three towns under investigation. They were mainly craftsmen who re-invested their technical skills by opening small businesses working on a small number of products, particularly in the post-war period side-by-side shotguns and subsequently under and over shotguns. Further confirmation that the network of these small and medium-sized businesses underwent significant development after the Liberation is given by the incorporation dates: only 5 of the 101 businesses in the category “Civilian firearms manufacturing” were founded before 1945. Of the 272 production units in the local system, only 19 were founded before that date.

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<sup>48</sup> As stated by Cristina Abbiatico, outsourcing was almost unavoidable for small producers who could not afford to permanently employ a large number of people (Appendix 5, p. 233).

<sup>49</sup> For the database, its tables and charts see Appendix 3 (p. 169).

22% of the workers somehow associated with firearms production were in so-called subsidiary industries, in other words, businesses that carried out specific phases in the production cycle of firearms or other activities in support of the end producers. 62% of the businesses in Gardone, Sarezzo and Marcheno were engaged in subsidiary activities. These were specialists in the production and repairing of parts and in the specific phases of assembly, engraving, inlaying, checkering, smoothing and stock manufacturing. Mechanical engineering and wood firms worked on and off in the industry: they participated in the handguns and shotgun according to the particular needs and opportunities of the market. Subsidiary activities were mainly for third parties, which meant that they were different from the end producers in the type of order management: if the majority of the former carried out their work exclusively on customer orders, the latter mainly operated with and without pre-orders (see Table 3.2 and Chart 3.7, pp. 184 and 192).

Three significant aspects emerged from the field interviews enhancing the data from the census documents. The first is that in the 50s and 60s, firearms parts manufacturers had a key role: they supplied the so-called *serie*, i.e. all the main components of shotguns, to end producers who, in most cases, were unable to produce them. The producers then carried out and/or outsourced assembly and refining operations of the *serie* in order to customize the final product, becoming coordinators of the production process<sup>50</sup>.

The second aspect is related to the “permeability” between the classes of the industry identified by the analysis carried out through the census. This type of flexibility was particularly significant for so-called end producers: it was not uncommon for both small workshops and larger firms, who maintained their licenses for firearms production but essentially dedicated themselves to repairs. In other words, in a period of slack, it was common that craftsmen decided to work on a particular phase of the production process on behalf of a colleague or much larger company<sup>51</sup>.

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<sup>50</sup> Interviews with Pierangelo Pedersoli and Cristina Abbiatico (Appendix 5, pp. 219 and 233).

<sup>51</sup> By crosschecking the data in the registry files of the registry for businesses of the Brescia Chamber of Commerce it is clear that almost all craft workshops in the valley specialized in firearms repairs and maintenance and, in some cases, in the production of single parts. A particularly significant example of how gun makers could adapt to market opportunities and relationships with the other craftsmen is provided in the interview with Giuseppe Pirlo: he had his own production

The third aspect is the fact that flexibility of the production system was also assured by a flourishing “intermediate market”. There is no information on the retail of tools and work machines, but it was certainly common practice for an entrepreneur to buy from a competitor forced to close or unable to make a decent living. Skilled craftsmen usually purchased unfinished shotguns and pistols, completed them and then sold them under their own name<sup>52</sup>.

A crucial element in local production dynamics was the family. According to the database, 61 companies out of the total of 272, approximately 22.5%, were run by family members or included family members among their employees. However, excluding single person businesses (120), the percentage rose to 68.5% (see Table 3.1, Charts 3.4 and 3.5, pp. 183 and 190). Moreover, in all likelihood we cannot exclude that even within those businesses that officially presented themselves as sole proprietorships, family ties were widespread with family members helping with work in a sporadic and unreported manner. Anecdotal evidence and the interviews indicate that the degree of family ties was underestimated in the official statistics. Knowledge and skills in the field of gun making were passed on within the family, from father to son, or from grandparents and uncles to grandsons and nephews, as repeatedly shown by the life stories of gun makers collected by Mario Abbiatico (1984). The interview with Cristina Abbiatico brought to light an eloquent example: an inlayer in her company refused to teach his job to non-relatives, a problem for the owner because of the shortage of inlayers. In the end, she was forced to hire the employee’s nephew<sup>53</sup>. Another practice based on family ties was the temporary allocation of licenses to a family member (usually the wife) by employed craftsmen setting up their own businesses. In this way, aspiring entrepreneurs solved two problems: on one hand, they could overcome the constraints that prevented the assignment of the license to employed workers and, on the other, it provided them a sufficient margin of time to start the business and, if they deemed it necessary, end the relationship with their own employer (Abbiatico 1984, p. 221).

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(which was restricted to shotguns), made parts (barrels) for other local businesses and he also repaired and assembled firearms (Appendix 5, p. 247).

<sup>52</sup> Giuseppe Pirlo says this practice became particularly profitable for him at the beginning of the 70s (Appendix 5, p. 247).

<sup>53</sup> Interview with Cristina Abbiatico (Appendix 5, p. 233).

As can be seen in Table 3.1 and Chart 3.3 (pp. 183 and 189), although a significant 23% of craftsmen worked at home, most of the companies in the census said they had their own premises. However, two aspects deserve special attention. First, these data did not have a homogeneous distribution: for certain categories, especially businesses specializing in engraving, inlaying and checkering, the situation was exactly the opposite. Secondly, all the interviewees say the home was seen as an additional workplace at the end of the long day. After their shifts many workers in large factories brought their work home or worked for local craftsmen in their own garages or basements. Moreover, it is worth highlighting the fact that the interviewees (recalling another characteristic feature of the district) associated the reconstruction of these aspects of their lives at the time with the idea that those who merely carried out the canonical 8 hours were considered by the locals as “slackers”. In other words, work permeated people’s lives; it was often carried out by the whole family and was regularly brought home. People spent most of the day and many evenings working<sup>54</sup>.

Table 3.2 and Charts 3.6 and 3.8 (pp. 184, 191, 193) provide further confirmation of two aspects of the local production system mentioned above. At the beginning of the 60s, the large network of small and medium-sized businesses used craft working methods: 76% of the businesses that took part in the census said they did no mass produce, and only 16% used partially or fully mechanized methods (data for the remaining 8% was not available). The second aspect is participation by the employers in work activities: the data demonstrate a system based on technical expertise with 80% of the owners working in their own company in close contact with their employees.

Last but not least, the enormous impact of Bernardelli and Beretta on employment should not go unnoticed. These two businesses were categorized separately in the database under “Firearms producers” and were the only end producers to also work for the military market. It was especially FAPB that led the production system and molded its structure. After the vicissitudes of the early postwar period, the company was able to recover through the sports sector and, as

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<sup>54</sup> Interviews with Pierangelo Pedersoli, Cristina Abbiatico, Giuseppe Pirlo and Luigi Zanardini (Appendix 5, pp. 219, 233, 247, 253).

soon as the political and economic context allowed, it returned to military orders. Despite the importance of civilian firearms in this phase, very soon the centuries-old company set up a division dedicated to military products, obtaining under license from American companies, orders from the U.S. Army and Nato. These efforts put a stop to the ongoing downsizing and created a sort of virtuous cycle further boosting the relaunch of hunting shotguns. One significant example is the famous Garand M-1: by producing this rifle, FAPB acquired the know-how associated with the interchangeability of parts, which it then adapted for civilian production. R&D and investments in quality were exploited by the company in a cautious commercial strategy aimed at foreign markets. Crucial were the trade contacts Giuseppe Beretta set up in the early postwar period in South America, leading FAPB to establishing a plant in Brazil<sup>55</sup>. The following step was the U.S.: through a strategic and long-term partnership with Galef & Son, a company based in New York, Beretta started to promote and export its products to North America, the first move in the process of penetration of the American market that was completed in the 1970s with the establishment of Beretta Arms in Connecticut and the acquisition of The Firearms Industries in Maryland (Onger and Paris 2012, pp. 63-85).

The importance of FAPB to the local system was evident not only in terms of production volumes and reputation but also in shaping district dynamics in two ways. First it contributed to the emergence of the network of SMEs participating to the subcontracting practice, especially in the manufacturing phases characterized by low tech procedures. Secondly, FAPB employees often had a second job in the numerous craft workshops in the valley. This way, a mutual virtuous relationship was set up with FAPB able to outsource to smaller units in order to reduce production costs and the workshops able to use highly trained workers (Onger and Paris 2012, p. 85)<sup>56</sup>.

To summarize, the system was characterized by a strong division of labor, creating a process of progressive sub-specialization and accentuating the

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<sup>55</sup> It is worthy to recall that the famous M9 pistol was first produced in Brazil for the local government.

<sup>56</sup> For details see also the interviews with Pierangelo Pedersoli, Giuseppe Pirlo and Cristina Abbiatico (Appendix 5, pp. 219, 233, 247); Barbieri, P., "Decentramento e doppio lavoro: un terreno scivoloso per tutti", *Bresciaoggi*, February 3, 1979.



interdependence of its various parts. In some cases, the predominant relations between the two main sections of the system were vertical, but mostly they were horizontal. Subcontracting allowed companies to minimize total unit costs through the expulsion of destabilizing production functions which presented non-homogeneous trend curves for unit costs. These functions were entrusted to companies whose creation was often stimulated by the same company responsible for the decentralization. The new firms, primarily and traditionally handling one production function, gradually increased their “professionalism” through a process of learning by doing.

When, with the 1973 oil crisis, the first signs of industrial maturity appeared, fragmentation and production specialization intensified throughout the remaining years of the decade. The protagonists of this phenomenon were the businesses that did not require specialist machinery and equipment so a single worker (polishing, checkering, cleaning) or small workshops (stock manufacturing) could carry out the work at home. But the process also included activities that required a higher level of specialization which a skilled craftsman could carry out on his own (engraving) with the intention of securing higher earnings.

Large and medium-sized businesses underwent restructuring through the introduction of laborsaving technological innovations in some phases of the production cycle and by outsourcing particularly labor-intensive activities. In other words, the response of the production system of civilian firearms consisted in rationalizing production units, and innovating the process for every part of the cycle in order to reach higher production levels and thus maintain competitiveness in terms of quality and value for money. Such processes mainly took place through a reduction of the employment in the industry, only partially absorbed by the existing and new craft workshops (Piccoli 1981, pp. 129-131).

With the general decline in demand for civilian firearms, especially for hunting, companies diversified. Entrepreneurs began to pay more attention to the rapidly growing market for sport shooting firearms, a product that required greater precision and technical perfection and hence with higher added value. In addition, firearms replicas became increasingly important. Lastly, in most industries total revenues increased for components and manufacturing phases for the military. In

general, more attention was paid by end producers to quality enabling workshops to detach themselves from parts producers and abandon their role as assemblers. They no longer bought the so-called *serie*, but created their own *serie* in order to provide the market with higher quality and increasingly customized products<sup>57</sup>.

## **Local institutions**

As stated above, local institutions can play a significant role within a district. They can act as regulatory authorities and as triggering factors for the establishment of other organizations and institutions that strengthen the local system and foster its development. In the case in question institutions played both roles: a significant “institutional thickness” (Amin and Thrift 1994) can be detected and is worthy of attention.

### *The local administration*

Gardone Val Trompia can be included in the long list of towns in northeastern Italy characterized by a strong Catholic subculture (Triglia 1986). This can be seen in the lengthy political hegemony of the Christian Democrats between 1951 and 1980. During this period, the local party was led by Angelo Grazioli, mayor for six consecutive terms. Furthermore, the other force in Italian politics, the Communist Party, also had a strong tradition in the valley through the working class employees of Beretta, Redaelli and Glisenti (Bonetti 1987; Aa. Vv. 1988).

The local authorities, especially the mayor, backed several initiatives for the development of the gun industry. In addition to strengthening the position of Gardone as administrative capital of the valley<sup>58</sup>, the municipality supported other institutions which were important for the production specialization, and mediated between actors in the local system and between the system and the State.

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<sup>57</sup> See interviews with Pierangelo Pedersoli and Cristina Abbiatico (Appendix 5, pp. 219 and 233).

<sup>58</sup> The local administration paid great attention to infrastructure and services; they opened Inail and Inam clinics in 1953 and 1955 respectively, built a new hospital (1961-1969), built and renovated new and old schools at all educational levels (Aa. Vv. 1988).

On 8 September 1943, following the withdrawal of Italy from the war, the Nazis closed the local Arsenal and its factory passed under the control of the company OM, a truck manufacturer. At the end of the war, with unemployment rife, the firm decided to abandon the plant due to operating costs and brought production back to the provincial capital. The Gardone local administration, other municipalities in the area, the labor force and their representatives, opposed this decision. Their intense lobbying had no effect on the decision of OM but did produce two results. The first was to delay the inevitable traumatic event, that finally occurred in 1948, while obtaining the introduction of allowances, training courses and a social canteen for the unemployed. The second result was the reopening of the Arsenal in reduced form under the name of Stabilimento Militare per l'Armamento Leggero (Smal). In the following decades, around 100 people worked on the repair and production of guns for the Italian army and, in particular, controlled the orders of the state to private producers<sup>59</sup>. In 1949, the remainder of the plant was bought by Mival, a machine tools manufacturer which also produced audio-video equipment, electronic components, mopeds and motorcycles. Crucial to the success of what can be considered the first full-scale conversion in the gun industry of the valley was the contribution of FABP. In fact, Mival was created on the heritage of a mechanical engineering company, Officine Minganti, with equity held by FABP from the outset. From a 5% share of the capital in 1950, FABP reached a 26% stake in 1952, 56% at the beginning of the following decade and 98% in 1965 (Onger and Paris 2012, pp. 90-104).

Over the following years Mayor Grazioli and the local administration lobbied intensely on behalf of the gunsmiths. They pressured deputies, senators and ministers during debates on possible regulatory changes for the marketing and possession of weapons. They organized public and private meetings with actors in the local system, sent letters to Mino Martinazzoli, Aldo Gitti and Adelio Terraroli providing them with data regarding the performance of the sector. Examples in this

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<sup>59</sup> ASCG, b. 790, ff. 4.1-4.6. For further information about the Arsenal and its history see Albesio (1969).

sense are the efforts made against the introduction of the so-called Tambroni Law<sup>60</sup>, the increase in the cost of hunting licenses<sup>61</sup> and Decree Law 6/7/1974<sup>62</sup>.

The municipality often found itself mediating in conflicts between entrepreneurs and unions. The end of the 60s and the 70s was a time of industrial disputes and strikes throughout the country: in Gardone significant downsizing was carried out by Bernardelli and FAPB, following the introduction of labor saving innovations, with the opposition of the workforce. Italian metalworkers obtained significant results including the new National Collective Employment Contract. In 1970, the position of the workforce was strengthened by the introduction of the Statuto dei Lavoratori (Workers Charter). The strikes continued, indeed were intensified by the reactions of entrepreneurs to the achievements of the unions, and the widespread practice of subcontracting became a new fight<sup>63</sup> (Del Barba 2008, pp. 175-187). In this context characterized by harsh debates, the local administration tried to mediate and, as an example, we can recall the words uttered by Mayor Grazioli during a meeting of the city Council meeting in 1971: «On 14 May the long and serious labor dispute in Beretta ended by agreement, truly creditable for the unions and the company. The agreement includes very important economic and legal aspects [...]. As in other circumstances, the local administration contributed to the resolution of the dispute [...] mediating in favor of a fair settlement for both parties» (Aa. Vv. 1988, p. 55).

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<sup>60</sup> ASCG, b. 833, ff. 3-4. In particular, Law 1274 dated 22/11/1956 banned on sale of handguns to people not in possession of a firearms license. On 16 September 1957, the mayor received a thank you letter from Fabbrica d'Armi Pietro Beretta for his commitment to the local gun industry.

<sup>61</sup> ADGVT, b. «Pubblica sicurezza 1961 – Circolari». In 1961, the Council of Ministers approved an approximately 120% increase in the cost of hunting licenses. Mayor Grazioli went to Rome to discuss the problem with the Finance Minister, Trabucchi. Hunting licenses were important for Gardone since most local small and medium-sized enterprises were entirely devoted to the production of hunting shotguns. Furthermore, hunting was very popular and a traditional activity handed down from father to son in many families. Handguns provided a living but also leisure and exploration of the surrounding mountains and forests (Salvini 1969; Abati 2010).

<sup>62</sup> Lazzari, E., “Si vogliono uccidere gli armaioli”, *Giornale di Brescia*, July 14, 1974, in ACAI, f. «Famigerato decreto legge n. 258 sull'imposta armi da caccia».

<sup>63</sup> In 1977 for the first time the principles of subcontracting were strongly criticized by workers representatives at Beretta. Outsourcing, working at home and people with two jobs (all crucial in the district) were described by the unions as a serious threat for the employees of Beretta. In 1979, it was estimated that around 20-25% of the production of Beretta was made outside the factory and about 30% of local workers had two jobs (one official and another undeclared, at home, after work hours). Barbieri, P., “Decentramento e doppio lavoro: un terreno scivoloso per tutti”, *Bresciaoggi*, February 3, 1979.

Finally, the local administration also supported sports activities. Mayor Battista Guerini established a pioneering shooting range in 1884<sup>64</sup>, Grazioli encouraged the creation of a field for clay pigeon shooting. After a couple of failed attempts, a suitable area was found in Ponte Zanano (a hamlet near Sarezzo) and fitted out by the municipality in 1968. Through the direct intervention of a group of local entrepreneurs (including Beretta, Zoli and Marocchi) a society was set up to manage the activity: the Skeet Trap Club Valtrompia. The purposes of this initiative were: 1) to organize events to attract potential customers with the opportunity to visit workshops and firms in the valley; 2) to demonstrate the quality and reliability of the products; 3) to allow local producers to test prototypes and products; 4) to revitalize the area (Abbiatico 1984, pp. 287-295).

### *The National Proof House*

One of the institutions associated with the districts for the production of firearms is the National Proof House. As a matter of fact, Piore and Sabel (1991, p. 51) cite the Banc d'Épreuve of Saint-Étienne as a typical district institution, but also Eibar, Liège and Birmingham had similar centers<sup>65</sup>. The National Proof House is the “technical supervisor” for the compliance of firearms and ammunition with technical and legal standards, and can be considered a “Registry Office” for all the weapons produced in Italy as well as for most of the imported ones. To the firearms that have passed the testing process, the National Proof House applies its proof marks.

A forerunner of the National Proof House was established by the Serenissima and continued to operate until the fall of the Venetian Republic. The current test center was established in 1910 with two premises, in Brescia and Gardone Val Trompia. It was created by both private producers and public institutions including the local Chamber of Commerce and the municipalities of Brescia and Gardone. FABP coordinated the process, aware that the only way to compete with foreign

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<sup>64</sup> It is worth noting that the facilities found a definitive location at the end of the 1960s after numerous logistic problems. The first area dedicated to the activity was occupied by Mival, so the company agreed to build a new shooting range as part of the transformation of the Arsenal.

<sup>65</sup> In Liège it was founded in 1672, in Saint Etienne in 1782, in Birmingham in 1813 and in Eibar in 1915; see: Fraikin (1940), Gaier (1972), Perret (2014), Harris (1946) and Goñi Mendizabal (2010, pp. 125-127).

producers was to improve the quality of production and protect its reputation from badly made guns. In 1923<sup>66</sup>, driven by the same motivation, leading public and private actors in the sector succeeded in making testing compulsory and no longer voluntary (Onger and Paris 2012, pp. 47-55; Tombola 2007).

Since its foundation the National Proof House has supported itself with the revenue from testing. On 15 March 1930, the Chairman of the Board of Directors decided temporarily to close the premises in Brescia due to the woeful condition of the industry. Indeed in the second half of the 1920s the production of firearms underwent significant losses in sales and its competitiveness was significantly reduced compared to foreign producers, especially Belgians<sup>67</sup>. This severely impacted on the institution, making it impossible to maintain and innovate the less busy and rather out-of-the-way branch in the provincial capital. Nothing changed in the two following decades and in 1950 the temporary closure became definitive: activities were moved entirely to Gardone, undergoing the umpteenth renewal and expansion of the gun industry<sup>68</sup>.

In the second half of the 20<sup>th</sup> century the activity of the Proof House followed the growth in national production and became indispensable for gunsmiths,

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<sup>66</sup> The law took effect in 1925. Albesio, A., “La storia del Banco di prova che è l’unico esistente in Italia”, *Giornale di Brescia*, May 15, 1963, p. 8.

<sup>67</sup> It is worth noting that compulsory testing made this institution and its data very important: test figures provide a reliable picture of the state of the industry and allow for comparisons in the market trends for different types of guns. The producers and the municipality of Gardone Val Trompia used these data to attract the attention of the central State to a negative situation or the consequences of what they considered detrimental regulations.

<sup>68</sup> Leading producers in Gardone played a significant role in the decision. They wrote a report on the conditions of the Proof House and recommended solutions to the problems of the institution. This document shows that the Proof House faced two problems: a) a drop in the number of tests and consequently in earnings (in the second half of 1929 Brescia contributed  $\frac{1}{4}$  and Gardone  $\frac{3}{4}$  of total earnings, 28,000 Lire and 85,000 Lire respectively); b) the need to move the premises of the provincial capital to the neighborhood of Mompiano (the former was assigned by the Podestà to the Moretto vocational school despite the significant contribution of 15,300 Lire from producers in Brescia for its equipment). In light of this situation, manufacturers in Gardone, together with a group from Brescia, made four proposals: 1) to unify the two branches for the tests in Gardone; 2) preserve the official premises in Brescia in the Consiglio Provinciale dell’Economia, as in the past and as in France; 3) to have the Proof House pay for the cost of transporting firearms produced in Brescia; 4) to allocate a portion of the funds given by the Brescia municipality for the construction of the new premises in Mompiano to purchase a van for transport purposes and to renovate the branch in Gardone. Faced by the opposition of producers in Brescia, Pietro Beretta wrote a second letter on 25 February 1930, in which the entrepreneur stressed the importance of cost rationalization and suggested temporary closure. ASCCBS, Carteggio 1900-1932, b. 71, f. 1; see also Barbieri, P., “Tutte le armi italiane controllate a Gardone”, *Bresciaoggi*, February 1, 1979, p. 10.

particularly in Brescia and the valley<sup>69</sup>. In addition to its institutional duties, the National Proof House carried out complementary activities, such as testing the ballistic resistance of vests, helmets, bulletproof glass, window and door frames, and armor plating in general, for Police Forces, manufacturers and Security Services. Two new branches were opened, both directly dependent on headquarters in Gardone: one in FAPB and the other in Benelli (part of the Beretta Group). The decision was taken for security reasons in light of the production volumes at FAPB and the distance from Urbino where the Benelli is located (Pagani and Camarlinghi 2010)<sup>70</sup>.

### *The Giuseppe Zanardelli vocational school*

The Zanardelli vocational school is one of the oldest and most important institutions in Gardone Val Trompia. Its establishment and importance were and still are deeply connected to the specialization of the valley in the mechanical sector. Officially recognized in 1902, its origins can be traced back to 1860 when a holiday and night school were opened.

The school went through several regulatory changes and in the 1920s a specific course in gunsmithing was created, albeit this specialization had already represented a focal point in previous industrial design courses. After WWII and the postwar reconstruction, the school provided three 3-year courses: mechanical design, machine maintenance and gunsmithing.

The course in gunsmithing included practical and theoretical subjects. The former comprised weaponry practice, machine tools practice, welding and engraving; whereas the latter included general education, technical drawing, technology, weaponry techniques, mechanical engineering and physics. The course hit on hard times after the mid-1970s with a local business association described in

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<sup>69</sup> As highlighted by Pedersoli and Abbiatico in the interviews, the compulsoriness of the proof made the institution unavoidable and pushed the gunsmiths, whether they liked it or not, to adjust their production to international standards and in a certain way to the pace of the Proof House. In this sense the interviewees recall the frequent encounters and chats between the gunsmiths when delivering/collecting the guns for the proof, but also the labor disputes in the institution which caused significant delays in the commercialization of the products (Appendix 5, pp 219 and 233).

<sup>70</sup> See also Albesio, A., "Le prove attuate dal Banco per il collaudo delle armi", *Giornale di Brescia*, May 16, 1963, p.8.

the following paragraph playing a crucial role in its survival (Abbiatico 1984, pp. 65-69; Maranta and Sotgiu 2010).

It is worth highlighting that for the subsidiary activity of engraving, an entrepreneur, Cesare Giovanelli, opened an engraving school in 1979. He started up his engraving workshop in the 1960s for the mechanical reproduction of engravings on mass-produced rifles, without losing sight of hand-made engraving. His desire to create a future for his profession led him to move his house and business to Magno, a hamlet near Gardone<sup>71</sup>, where he opened the school. Pupils attended the school 40 hours per week: drawing classes were given by a local painter, and Giovanelli himself and a couple of engravers from his workshop gave the practical lessons (Abbiatico 1984, pp. 71-75).

#### *Consorzio Armaioli Italiani*

Business associations have a troubled history in the Val Trompia gun making industry. Entrepreneurs are immensely proud of their work and territory: the profession has always been more than a way to make a living; it is part and parcel of the daily life of the local community shaping its activities and relationships. However, such strong spontaneous relations nourished by craftsmanship and strong family ties, are difficult to institutionalize and bring under an associative spirit. After several attempts, the gunsmiths found a balance in the Consorzio Armaioli Italiani<sup>72</sup>.

In 1952, around twenty craftsmen established an association called ArtArm, linked to the Unione Artigiani. It was located in the small village of Inzino and headed by Giuseppe Gitti. The main purpose of ArtArm was to provide members with a common sales system and to help them to export shotguns, particularly to Greece. Initially successful, according to various local witnesses the association failed probably due to self-interest and envy.

In 1970, a group of gunsmiths created another business association, Comunità Artigiani Armaioli, with the intention of defending and promoting the art of gun

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<sup>71</sup> Since 1927 Gardone Val Trompia has included two small villages: Inzino and Magno. Previously they were independent towns.

<sup>72</sup> For further insight into the poor associative spirit of local entrepreneurs see the interviews with Pierangelo Pedersoli and Cristina Abbiatico (Appendix 5, pp. 219 and 233).



making, in particular the craft activities in Val Trompia. Associates wanted to open a showroom in Gardone, where locals and potential customers could see the latest products, and get to know the centuries-old history of the valley. Other important topics frequently addressed during the general meetings of members were: lobbying against the taxes burdening the sector, labor supply, the vocational school, group purchases and the black list of unreliable customers. In particular, in 1971 and 1972 the Comunità made significant efforts to stimulate the training of new apprentices. In fact, as often occurs in high added value sectors, there was a lack of specialists in gun making and the association looked for new workers in the towns around Gardone, canvassed schools in the province and bought a minivan to move pupils to and from.

On 21 December 1972, the Comunità became the Consorzio Armaioli Valtrumplino giving the association legal status, but the poor results in training, difficulties in establishing the show-room and the same problems that beset ArtArm led to closure of the Consortium in September 1973. However, not all was lost. The 1970s was a troubling decade for firearms manufactures: the tragic events of the so-called Anni di Piombo – Red Brigade terrorism – and a growing hostility to hunting encouraged the State to introduce new restrictive regulations for the possession and transportation of guns. Despite the previous difficulties, several gunsmiths saw the need to work together in opposition to the excesses of the new legislative measures and to revive a sense of belonging. On 15 June 1974, a new association, Comunità Armaioli Bresciani, was created<sup>73</sup>.

Initially the principal concern of members was the vocational school, but soon their attention shifted to Decree 258 published in the Official Gazette on 6 July 1974. Not only did it complicate the bureaucratic procedures for obtaining a firearms license, it also introduced a production tax on firearms and ammunition: for hunting shotguns the tax was 10,000 Lire<sup>74</sup>. Immediately the newborn association started to lobby intensely: spokesmen were sent to Rome to express the

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<sup>73</sup> “Draft of an unpublished book on the Consorzio Armaioli Italiani” in ACAI, f. «Libro del Consorzio Armaioli Bresciani».

<sup>74</sup> Anon., “Imposta di fabbricazione e sovrimposta di confine su armi da sparo, munizioni ed esplosivi”, *Il Sole 24 Ore*, July 11, 1974 in ACAI, f. «Famigerato decreto legge n. 258 sull’imposta armi da caccia». It is worthy to notice that a side-by-side normally costed 36-40,000 Lire, whereas a cheap over-under 33-35,000 Lire.

point of view of local producers to parliamentary committees, meetings with the local administration and an intense press campaign were organized<sup>75</sup>.

On 8 March 1975, the Comunità was transformed into a Consortium, rather like three years earlier: the main idea behind the transformation, once again, was to give legal status to the business association in order to obtain subsidies from public institutions such as the Lombardy Regional Authority. The Consorzio Armaioli Bresciani (CAB) was headquartered in via Matteotti 315 with 31 founder members<sup>76</sup> (see Table 5, p. 99). The main purposes of the Consorzio were to<sup>77</sup>:

- receive and redistribute orders among the associates;
- organize the collective participation of associates in exhibitions and trade shows;
- carry out market research for the sale and promotion of members' products;
- promote a system of group purchases to supply members with raw materials, semi-finished products, machine tools and other instruments of work;
- keep members informed of the latest technological and professional innovations;
- promote the training and specialization of the labor needed by associates supporting the gunsmithing course in the vocational school of Gardone Val Trompia;
- collect and facilitate the exchange of information among members, as well as assist them in all operational needs;
- promote the image of gunsmithing;
- help associates to modernize their firms, if requested;
- carry out any activity and economic and financial operations related to the above aims.

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<sup>75</sup> Bertussi, E., "Gardone Valtrompia: la paura della disoccupazione", *Bresciaoggi*, July 14, 1974, p. 7 in *Ibidem*; Valerio, S., "Per gli armieri un supercontrollo", *Bresciaoggi*, July 14, 1974, in *Ibidem*; Lazzari, E., "Si vogliono uccidere gli armaioli", *Giornale di Brescia*, July 14, 1974, in *Ibidem*.

<sup>76</sup> ACAI, f. «Statuto Consorzio. Elenco soci fondatori presenti all'assemblea generale 8/3/75», "Consorzio Armaioli Bresciani. Elenco dei Consorziati".

<sup>77</sup> ACAI, f. «Statuto Consorzio. Elenco soci fondatori presenti all'assemblea generale 8/3/75», "Statuto del Consorzio".

<b>Member</b>	<b>Place and date of birth</b>	<b>Residence</b>	<b>Firm</b>	<b>Location</b>
Zubani Diamante	Marcheno, 13/1/1923	Marcheno	N.O.M.A.	Marcheno
Contento Eugenio	Brescia, 31/10/1925	Collebeato	M.V.T.	Collebeato
Benetti Vincenzo	Gardone V.T., 31/12/1931	Gardone V.T.	Benetti Vincenzo	Gardone V.T.
Piotti Faustino	Gardone V.T., 8/6/1936	Gardone V.T.	F.lli Piotti	Gardone V.T.
Bolis Alberto Mario	Iseo, 9/12/1933	Gardone V.T.	S.I.L.M.A.	Gardone V.T.
Beschi Mario	Lonato, 10/12/1935	Gardone V.T.	Beschi Mario	Gardone V.T.
Fabbri Ivo	Poggio Berni, 4/12/1928	Concesio	Fabbri Ivo	Concesio
Redolfi Arturo	Leno	Manerbio	Redolfi Arturo	Manerbio
Contrini Giovanni	Gardone V.T., 17/9/1935	Gardone V.T.	C.O.M.	Gardone V.T.
Lucchini Stefano	Sarezzo, 13/12/1912	Sarezzo	Sport Italia	Ponte Zanano (Sarezzo)
Di Maggio Guglielmo	Gardone V.T., 13/9/1925	Gardone V.T.	F.lli Di Maggio	Gardone V.T.
Scalfi Italo	Prevalle, 22/7/1919	Prevalle	Scalfi Italo	Prevalle
Rubagotti Angelo	Toscolano Maderno, 28/6/1916	Gardone V.T.	Rubagotti Angelo	Gardone V.T.
Castellani Bruno	Macerata, 20/1/1924	Gardone V.T.	Castellani Bruno	Gardone V.T.
Giacomelli Pietro	Magno (Gardone V.T.), 17/5/1920	Gardone V.T.	Giacomelli Pietro	Gardone V.T.
Mino Andrea	Gardone V.T., 22/7/1908	Gardone V.T.	Mino Andrea	Gardone V.T.
Rizzini Isidoro	Marcheno, 29/5/1946	Marcheno	Tecni-Mec	Marcheno
Ferraglio Libero	France, 28/1/1924	Gardone V.T.	Ferraglio Libero	Gardone V.T.
Pedretti Simone	Gardone V.T., 18/12/1935	Gardone V.T.	Pedretti Simone	Gardone V.T.
Brignoli Silvio	Gardone V.T., 14/1/1941	Gardone V.T.	Brignoli Silvio	Gardone V.T.
Bolognini Bruno	Gardone V.T., 5/12/1938	Gardone V.T.	Bolognini Bruno	Gardone V.T.
Gasparini Aldo	Gardone V.T., 16/11/1942	Gardone V.T.	Gasparini Aldo	Gardone V.T.
Rizzini Amelio	Gardone V.T., 22/10/1937	Gardone V.T.	Rizzini Amelio	Gardone V.T.
Rizzini Emilio	Gardone V.T., 15/2/1933	Marcheno	Rizzini Emilio	Marcheno
Abbiatico Mario	Gardone V.T., 26/2/1934	Gardone V.T.	Famars	Gardone V.T.
Poli Paolo	Gardone V.T., 2/10/1940	Gardone V.T.	Poli Paolo	Gardone V.T.
Pirlo Giuseppe	Gardone V.T., 9/1/1922	Gardone V.T.	San Giorgio	Gardone V.T.
Boniotti Angelo	Monticelli Brusati, 11/4/1927	Gardone V.T.	SIACE	Gardone V.T.
Dalè Roberto	Brescia, 11/5/1924	Brescia	Boniotti Angelo	Brescia
Varini Giuliano	Moglia, 10/12/1929	Sarezzo	Varini Giuliano	Zanano (Sarezzo)
Fausti Augusto	Marcheno, 23/7/1933	Marcheno	Fausti Augusto	Marcheno

Table 5 - Founders of the CAB. Source: ACAI, f. «Statuto Consorzio. Elenco soci fondatori presenti all'assemblea generale 8/3/75», "Consorzio Armaioli Bresciani. Elenco dei Consorziati"

Meanwhile the regulatory fight was ongoing: on 21 April 1975, Law 110 governing arms, ammunition and explosives was published in Official Gazette. Firearms manufacturers were unable to prevent the introduction of masses of red tape in the new law, but they did manage to get the production tax under Decree 258 revoked.

In the following years, the Consorzio continued to lobby to prevent the introduction of regulations with more bureaucratic hurdles and punitive limitations for the sector, particularly by not distinguishing between civilian and military weapons. Significant fights included measures for the control of transportation and exports in 1979, and the referendum for the abolition of hunting in 1980-81<sup>78</sup>. Furthermore, the association continued to provide assistance to members for compliance with the complicated laws passed by Parliament<sup>79</sup>.

In the late 1970s, the Consorzio was faced with numerous problems for gun making. First, it prevented the abolition of the gunsmithing course in the local vocational school. The public authorities wanted to cancel it after it failed to meet its economic targets: through intense lobbying and after providing instruments for the classes, the association convinced the relevant institutions to take a step back<sup>80</sup>. A second aim achieved by the Consortium was to finally establish a showroom. On 4 December 1976, in the presence of local and regional authorities, the President of the Consortium inaugurated a permanent exhibition of sports and historical firearms. The intention was the same as before, but this time the Lombardy Regional Authority took an active interest, as did the Brescia Chamber of

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<sup>78</sup> Barberi, P., "Artigiani sul piede di guerra: non possono esportare armi", *Bresciaoggi*, January 26, 1979, p. 10, in ACAI, f. «Allegati libro CAB 1971»; Barberi, P., "Il decreto che tutti avversano", *Bresciaoggi*, January 26, 1979, p. 10 in Ibidem; Anon., "Alt ai fucili da caccia via libera ai bazooka", *La Notte*, January 26, 1979, in Ibidem; Anon., "Allarme: le novità alla dogana paralizzano l'industria armiera", *Giornale di Brescia*, January 28, 1979, p. 4, in Ibidem; Borta, A., "L'esportazione di armi esce dalla paralisi", *Il Sole 24 Ore*, February 27, 1979, in ACAI, f. «D.M. 27/11/78 Export. D.M. 16/3/79»; Mondini, L., "Sbloccato lo 'scoglio dogane': ossigeno ai produttori di armi", *Corriere della Sera*, February 27, 1979, in Ibidem.

<sup>79</sup> "Draft of an unpublished book on the Consorzio Armaioli Italiani" in ACAI, f. «Libro del Consorzio Armaioli Bresciani».

<sup>80</sup> Corvi, G., "Premiati gli studenti 'meccanici-armaioli'", *Giornale di Brescia*, July 13, 1977, in ACAI, f. «Allegati libro CAB 1971»; Anon., "A Gardone corso per armaioli", *Diana*, September 24, 1977, in Ibidem; Anon., "Premiati gli allievi del Corso Armaioli della Scuola professionale di Stato", *Caccia e Pesca. Tiro a Volo*, August, 1977, in Ibidem; Anon., "Promozione degli allievi del C.A.B.", *Tac Armi*, October, 1977, in Ibidem.

Commerce, the local administrations of Gardone and Marcheno and the Comunità Montana di Valle Trompia (Abbiatico 1984, pp. 265-271)<sup>81</sup>.

The search for new markets, in particular foreign markets, was another field of action soon tackled by the association. The Consortium promoted the collective participation of craftsmen in international trade shows, starting with Copenhagen in 1976, followed by Paris and Nuremberg in 1977. After positive results, participation in this type of event intensified after 1978 with participation in the N.S.G.A. Show, the European Trade Show of Hunting and Shooting and most importantly the IWA (probably the leading exhibition in the sector) becoming regular appointments for associates to promote their products with the logistics and bureaucratic support of the association. The Consortium also decided to contribute to the organization of the increasingly important local trade show: EXA. Organized by the Brescia Chamber of Commerce, this meeting was held for the first time at the headquarters of the Chamber in 1979. After a hiccup in 1980, the event became indispensable for professionals and amateurs alike<sup>82</sup>.

Last but not least, the business association promoted the image and tradition of gunsmithing in the province, sought new pupils for the vocational school in Gardone, promoted specialist courses for gun making in numerous middle schools, awarded the best students and provided classes with tools and specialist personnel. Activities for the reinvigoration of the tradition of the sector included the publication of videos and catalogues where the history and current situation are illustrated and explained, along with promoting associates and their activities. Most of these initiatives sought cooperation with other institutions such as the Lombardy Regional Authority, the local Chamber of Commerce and the municipality of Gardone. In this sense it is worth highlighting that in 1983 the course of specialization in gunsmithing was suppressed by the State, but reintroduced in 1990 as a regional training course.

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<sup>81</sup> The Lombardy Regional Authority, the municipality of Gardone, the local mountain community and the Chamber of Commerce provided a subsidy of 7,000,000 Lire, 1,000,000 L. and 500,000 L. respectively. ACAI, f. «Conti consuntivi. Bilanci preventivi. Reale situazione finanziaria»; “Draft of the unpublished book about the Consorzio Armaioli Italiani” in ACAI, f. «Libro del Consorzio Armaioli Bresciani».

<sup>82</sup> *Ibidem*.

At the beginning of the 1990s the association underwent a new transformation. After lengthy debate in the 1980s, the Articles of Association were modified: entrepreneurs from subsidiary industries and owners of larger firms were allowed to join the Consortium<sup>83</sup>.

## **Conclusion**

This paper traces the historical development of the gun making industry in the central Val Trompia during the second half of the 20<sup>th</sup> century: the main objective is to verify whether the area can be seen as an industrial district. It focuses on three major aspects: a) the identification of the historical and geographical roots and boundaries of the local system; b) the analysis of the production process with particular attention paid to phase specialization and the consequent relationships between firms; c) the role of institutional actors in the area. The study demonstrates that most of the characteristics of the so-called Marshallian district (Becattini 2000a, 2004) can be found in Gardone Val Trompia and its neighboring municipalities. Some were inherited from the past, others emerged as an answer to the problems of large local factories, the conversion to civilian production and the integration of international markets in the postwar period.

The industrial district of Gardone produced different types of a quite homogenous product. Hunting and sports shotguns, historical gun replicas, pistols and revolvers found their way onto national and especially international markets, taking advantage of a period when foreign production was either vanishing or undergoing profound restructuring. Local production featured long firearms, in particular hunting shotguns, which required highly skilled workers. As a consequence, the average size of production units was quite small and the phenomena of working at home and self-employment were widespread. Indeed, the gun making industry of the valley relied on a large network of SMEs specializing in different phases of production where one company, Beretta, played a leading role both as producer and as social actor. The resulting chain comprised producers of

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<sup>83</sup> Ibidem.

weapons parts, small workshops (often home based) dedicated to specialist manufacturing, assemblers and small-sized firms devoted to high-quality firearms. Most of these businesses were set up by self-made entrepreneurs, who used to work in others factories in the valley: encouraged by the social atmosphere and not ashamed of or frightened by their poor education, they responded to the increasing demand for civilian firearms in the Golden Age.

Another relevant aspect of Gardone Val Trompia in the second half of the 20<sup>th</sup> century was the presence of inherited or newly created institutions and organizations able to provide the local system with positive externalities, crucial for the so-called industrial atmosphere and the process of social capital accumulation. They included: 1) the local administration, 2) the National Proof House, 3) the Giuseppe Zanardelli vocational school, 4) the business association *Consorzio Armaioli Italiani*. Examples of their contributions were training courses for labor force, the promotion of gunsmiths interests when faced with detrimental laws and establishing quality standards for manufacturers.

Actually, the presence of a business association should not mislead; according to our reconstruction, it reflected typical district dynamics but also the greatest weaknesses of the local system. The consortium (which still exists) is the result of several previous attempts to form an association and was finally established when gun making was undergoing problems due to restrictive regulations. As explained in this paper, the business association had a significant role in the defense of small producers and was able to intervene to stem the gradual erosion of the sense of belonging that in the 1970s and 1980s was affecting and infecting the local system. It also partially responded to the familiar problems of local producers in marketing their products through the organization of exhibitions and cooperation with regional actors. However, for a long time the association was dedicated only to a small number of actors in the local system<sup>84</sup> and it never succeeded in organizing initiatives bringing together the various producers in their daily activities. All cooperation for the procurement of raw materials and semi-finished products and the sharing of tools soon ended. There were two main reasons for these difficulties.

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<sup>84</sup> The craft producers of firearms. The opening to the producers of loose parts and to the subsidiary industries of the district only occurred at the beginning of the 1990s.

The first is related to the type of market approached by small producers: as explained in the article, the SMEs focused on product customization and on poorly standardized work, factors which made cooperation difficult due to the resulting different needs of firms and their customers<sup>85</sup>. The second is strong individualism: in several books, as well as the interviews we carried out, the individualistic and cantankerous character of gunsmiths comes to the fore appearing as a problem for the cooperation between the actors of the district. It is worth noting that the same remarks regarding difficulties in cooperation were made by Goñi Mendizabal (2010) in relation to the gun making district of Eibar and Gaier (1985) in the case of Liège<sup>86</sup>.

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<sup>85</sup> “Draft of an unpublished book on the Consorzio Armaioli Italiani” in ACAI, f. «Libro del Consorzio Armaioli Bresciani».

<sup>86</sup> This is not the only feature that Gardone shares with the other European gun making districts. In addition to the above-mentioned test centers and similarities on the production side, common elements can also be found in customs and traditions as a consequence of the shared craft roots of these production systems. An example is so-called “St. Monday”: the gunsmiths of Valle Trompia still used to take Mondays off in the second half of the 20<sup>th</sup> century (Abbiatico 1984; Behagg 1998; interview with Luigi Zanardini in Appendix 5, p 253). For details regarding “St. Monday” see Reid (1976).



**Giants in Lilliput:  
State Intervention and Large Firms in Small Arms Districts  
(1850-1914)**

*Paper 4*

**Keywords:** firearms, industrial district, state, arsenal, large firm, factory system, American System of Manufacturing, comparative approach, Europe.

**Abstract**

The aim of this study is to contribute to retracing the events and transformations affecting some of the main local small arms manufacturing systems in Europe in the latter half of the nineteenth century. After the early nineteenth century development of the technology required to achieve firearms component interchangeability by United States arsenals, the European powers also decided to break through the delays and focus on mechanizing production. This marked the beginning of a phase, which saw the various national governments getting involved on a large scale in the strategic firearms sector, of fundamental importance in preparing their armed forces for World War One. Even production centers hinging on craftsmanship and small production units which had been the main suppliers of the Old Continent for centuries were swept up in this epoch-making change. This phase is a particularly important vantage point from which to observe the state-district relationship and for further in-depth study into the adoption of the factory system within concentrations of small and medium sized firms. This study focuses in particular on Italy but for a better understanding of events it provides a contextualization within a broader framework encompassing England, Belgium, France and Spain.

## Introduction

Over the 19<sup>th</sup> century arms production underwent a number of key changes and innovations. In the latter half of the century in particular, in the wake of the second Industrial Revolution, small firearms production played a center-stage role in a series of crucial advances in manufacturing, chief of which was the so-called American System of Manufacturing. The United States took a leading role in this phase of firearms history with state investment and a growing contribution from large firms playing a primary role in stimulating and taking a central part in armaments manufacturing. At the same time craftsmanship and traditional arms production frameworks did not disappear and continued to play a crucial role in the civilian arms sector and hunting in particular. In other words, the two sub sectors of military and civilian arms moved apart with the former increasingly working at the technological frontier while the latter continued to accord a primary role to manual labor.

A number of European small arms districts also took part in this period of extraordinary ferment: Birmingham, Liège, Saint-Étienne and Eibar, in their different ways, all took up the challenge of the century's innovations. The lion's share of these cases whose manufacturing systems hinged on small production units retaining strong links with the "disseminated factory" system (Braudel 1977, p. 288) saw certain large firms getting the upper hand. With their ability to exploit economies of scale these latter put themselves forward as the principal partner for the state's military contracts alongside the traditional craftsmanship and home-based work world.

In the second half of the nineteenth century, Italy's small arms sector, concentrated in the modern-day province of Brescia<sup>1</sup>, implemented the crucial changes required to equip the newly formed Kingdom of Italy, regain the ground lost to foreign competitors during the period of Austrian domination and take up the innovation gauntlet referred to above. First and foremost, in order to take advantage of the Brescia area's well-established armoring skills, the state began

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<sup>1</sup> The two main production zones were Gardone Val Trompia, a central Val Trompia town, and the city of Brescia itself (Montanari 1982).

with an enquiry to sound out the state of the local production fabric and immediately set to work to re-open and extend the arsenal hitherto closed by the Austrians. The re-opening of this latter, strongly stimulated also by local producers and institutions, brought considerable ferment in which three important firms came to the fore: Società Siderurgica Glisenti (Glisenti hereafter), Fabbrica d'Armi Pietro Beretta (FAPB hereafter) and Società Anonima Vincenzo Bernardelli (Bernardelli hereafter).

The objective of this article is to examine the transformations which local Brescia-Gardone Val Trompia arms production underwent in the period between Italian Unification and the outbreak of World War One in the context of the wider framework of changes affecting similar European districts in the same period. In particular, great attention will be paid to the role which two players - the state and the large firms - played in prompting these changes with a view, also, to contributing to the wider academic debate on the role played by these in the development of the industrial districts.

For the purposes of the objectives outlined above this study will make use of both the wide-ranging historical work on this subject and of primary sources. As far as the evolution of arms manufacturing techniques and the progressive dissemination of innovations in European production centers is concerned, the reference point used in this study will be the many contributions made by economic and technology historians in various countries. As far as events in Brescia are concerned, on the other hand, in addition to references to the work of important scholars such as Montanari, Onger and Paris, primary source material kept at the State Archives in Brescia and town archives in Gardone Val Trompia, Magno and Lumezzane Sant'Apollonio have been used. It should be noted that in 1927 Magno was grouped together with Inzino under Gardone Val Trompia becoming a district of the latter while Lumezzane Sant'Apollonio was grouped together with Lumezzane Pieve and Lumezzane San Sebastiano under Lumezzane on the same date. Today the documents from these towns have been incorporated into the Valle Trompia Archive System managed by the Comunità Montana di Valle Trompia since 1993 and made up of the 18 towns of the corresponding mountain zone in addition to Collebeato.

After this introduction this study is split into four sections set out as follows: the first section looks at currents of research to which the study intends to refer and illustrates the main transformations and innovations affecting armory production in the second half of the 19<sup>th</sup> century; the second studies the main European armory districts in depth and the consequences of the transformations set out for these; the third takes an in-depth look at the Italian case study; the last sets out the study's conclusions with the intention of highlighting shared trajectories and divergences in the districts examined with special reference to the role of the state and the large firms.

### **The State and large firms in the industrial districts**

The present study intends to dedicate great attention to the role of two specific players in industrial districts dynamics: the central state and the large firms. Both of these have been the object of numerous studies by economic historians.

A great many studies have been devoted to the role played by national institutions and policies in the transformations which took place in local production systems in a number of countries such as Britain, Germany, France, the United States and Japan. As Zeitlin (2007, p. 228), has noted, however, «comparatively little attention, by contrast, has been devoted to the impact of national institutions and policies on the development of industrial districts in Italy. Insofar as Italian scholars have seen the national state as a causal factor in the rise of the industrial districts, it is generally in negative terms, emphasizing for example the failure of French-style efforts at rationalization and centralization of industrial policy and labor relations during the 1960s and 70s (Locke 1995). Other forms of state intervention such as the favorable legal regime for artisanal firms or subsidized loan schemes for small businesses are viewed as too generic to explain much about the territorially differentiated growth of industrial districts in certain regions but not others. Yet some recent research suggests that the nation state may have played a larger part in this story. Thus Giovanni Ferri (2006) makes a strong case for the negative impact on Italian industrial districts of the trade, industrial and financial

policies of the Fascist regime which were largely reversed after 1945. Ferri and Giuseppe Conti (Conti and Ferri 1997) have also underlined the positive contribution of the Bank of Italy's post-war "via svizzera" strategy in supporting through its discount policies local and regional banks leading to small and medium-sized district firms – another sharp point of contrast with the French situation during *les trentes glorieuses*<sup>2</sup>.

For the second of our two players here too – large firms – there is undoubtedly no shortage of studies on its role within these districts. The scholar who has contextualized the research of economic historians on this theme is Belfanti (2009, pp. 15-16) who argues that «artisans and pluriactive peasants – rather than proto-industrial peasants – were the actors who created forms of local development based on small businesses, but in many cases the presence of a factory, even though limited to a certain phase of the history of the territory, had a decisive role. The centralized industrial settlement played a fundamental role in the acquisition of technical competence and professional ability on the part of the local workforce: such an apprenticeship constituted a vital passage in the history of local development (Brusco 1989a). [...] In the districts of Sheffield and Birmingham [...] (Berg 1993), in German Solingen (Boch 1997), in Italian Prato (Dei Ottati 1995) and even in the rural fortress of Morez in France (Olivier 2004) – to quote just a few examples<sup>3</sup> – the evolution of the ID (industrial district), at least in some phase, crossed with, flanked, or lived with the factory, exploiting it as a source for the formation of skills that were then poured into the local production system. It is possible to imagine the factory as a factor able to generate positive output in terms of skills to the benefit of the ID».

The firearms sector is a terrain of special interest for the study of the district-state relationship. Its relationship with governments has, in fact, been a very close, to some extent privileged one, from the outset with rulers acting as primary buyers, often adopting ad hoc measures to enable it to survive and seeking to obtain a competitive advantage over foreign powers<sup>4</sup>. In other words it might be argued that

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<sup>2</sup> On the state as "substitution factor" in Italian industrial development see Amatori et al. (1999) and more specifically on the Lombard case, Amatori (2004).

<sup>3</sup> For Italian case studies, see Grandi (2007).

<sup>4</sup> A case in point is local Brescia and Val Trompia production. In the 17th and 18th centuries this was the object of concern by the Venetian Republic which adopted controversial mechanisms in this

the public authorities have always been crucial stakeholders in arms production regarding it as a strategic sector since the Early Modern period on what we might define grounds of security and defense. This importance is confirmed by the investments made by the authorities in it, such as arsenal building, for example. These latter were large structures managed by the military authorities which served to fit out armies either by means of internal production or by managing commissions to distribute across the area to private producers (Parker 1996; Degli Esposti 1997; 2009).

It should also be noted that, above all in Europe, light firearms manufacturing had adopted the “disseminated factory” model right from its origins and throughout its history. This organizational framework was the outcome of the multiplicity of skills, and thus of professional craftsmen, required to make firearms<sup>5</sup> and was, in many cases, reinforced during the Early Modern age as a result of an institutionalization process in the armory trades involving the creation of craftsmen’s guilds in the 17th and 18th centuries<sup>6</sup>. In the Old Continent, then, well defined geographical areas dense with small production units developed, workshops guided by artisans and home workers with merchant-entrepreneurs supervising them each of whom specialized in a specific phase of the production process<sup>7</sup>. Birmingham in England, Eibar in Spain, Liège in Belgium, Saint-Étienne in France and Brescia in Italy – i.e. those already referred to - are just some of the

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regard. On one hand the Serenissima Republic sought to limit the ability of these producers to supply weaponry to other states. On the other, when these limitations prompted these same producers to emigrate signifying a risk of the industry folding, the Republic did not fail to come to its aid to encourage its recovery (Montanari 1982).

<sup>5</sup> For a description of the firearms trades chain, see Belfanti (1998).

<sup>6</sup> In relation to the setting up of guilds of specialised master craftsmen working in the various firearms working phases see, for example, Eibar (Larrañaga 1981) and Brescia (Belfanti 1998).

<sup>7</sup> This domination of the small arms market by the manual component of the workforce and craftsmen in Europe was also described by Samuel Colt (1852) in a paper to the Institution of Civil Engineers in 1851: «The manufacture of arms, both in Great Britain and on the Continent, is carried on almost entirely by manual labor, the various parts being forged, filed and ground into the requisite form by workmen in their own houses, the barrels alone being forged, bored, and ground in factories established for the purpose, and machinery being employed only for cutting out the stocks». The production units examined in this work have been mentioned and analysed within the debate on local production systems and industrial districts in a number of studies: Birmingham: Sabel and Zeitlin (1985), Behagg (1998); Eibar: Goñi Mendizabal (2010); Saint-Étienne: Sabel and Zeitlin (1985); Brescia: Tombola (2000), Del Barba (2008). As far as Liege is concerned no explicit references to this as an industrial district exist. However, as we will see in the course of this work, this Belgian town also showed the very same characteristics which have prompted scholars to use the district concept for other national cases.

possible examples. In these areas, as we will see, relationships with the authorities became even more exclusive with conflict sometimes growing out of the state ambitions to control the sector referred to above together with private producers' attempts to exploit public commissions while at the same time retaining a proudly defended independence.

A further aspect worth underlining, in a preliminary sense, is that the US authorities played a fundamentally important role in armory production innovation in the nineteenth century<sup>8</sup>. In the first half of the century the driving force behind the pioneering application of the emerging principles of the so-called American System of Manufacturing (ASM) was two-fold: precise and challenging requirements in American military contracts in terms of component interchangeability and unit production cost reduction together with direct involvement by the Army Ordnance Department in the development of technologies capable of satisfying the standards which the organization had itself imposed. The emergence of mass small arms production using machinery was the outcome of the vital contribution of federal arsenals such as Springfield and Harpers Ferry. These dragged the private firms working to military contracts into the future in terms both of the development of measuring systems guaranteeing full component uniformity and in the development of the tools required for a complete mechanization of the working processes involved in making rifle and pistol barrels and stocks. It was only from the mid-19th century onwards that private manufacturers such as Colt, E. Remington & Sons and Robins, Kendall & Lawrence began successfully to take up this challenge, making it profitable for the civilian arms markets too and thus for private sector models (Smith 1977; Smith 1985; Hounshell 1984; Rosenbloom 1993). By contrast, in Europe the introduction of ASM took place later and frequently encountered resistance from small producers whose strengths were flexibility and phase specialization. As we will see, it was only in the second half of the century, thanks to the intervention of the authorities

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<sup>8</sup> The nineteenth century was a period of extraordinary importance in terms of the improvements applied to small arms firing systems and solutions to technical problems which had to date remained unsolved. The success of the percussion cap together with the definitive consecration of breech-loading and the rifled barrel are also examples of this (Borja Pérez 1999; Aa. Vv. 2014; Rattenbury 2014).

and the stubbornness of certain producers pushing for growth in scale, that ASM made its way into the larger production centers of the Old Continent<sup>9</sup>.

For the reasons set out above, a study of the small arms sector of some of the industrial districts which had been such a feature of European rifle and pistol production since the Early Modern age is of some importance. This study will focus on the 1850 to 1914 period whose technological innovations make it of special interest as do the significant changes which took place in these districts prior to World War One. The objective is to highlight shared trajectories in evolutionary trends in European armory districts and to study this significant phase in the twofold state-district and district-large firm relationships from close to. With this in mind the next section will examine the Birmingham, Liège, Saint-Étienne and Eibar case studies while the fourth will take a closer look at the vicissitudes of the Brescia area.

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<sup>9</sup> Bohn and Jaikumar (2005, p. 7, 41-42) identify «six epochs of manufacturing process control [...], preceded by a pre-manufacturing epoch in which products were made but not manufactured. 1) The Craft System (circa 1500); 2) The invention of machine tools and the English System of Manufacture (circa 1800); 3) Special purpose machine tools and interchangeability of components in the American System of Manufacture (circa 1830); 4) Scientific Management and the engineering of work in the Taylor System (circa 1900); 5) Statistical process control (SPC) in an increasingly dynamic manufacturing environment (circa 1950); 6) Information processing and the era of Numerical Control (NC, circa 1965); 7) Flexible manufacturing and Computer-Integrated Manufacturing (CIM/FMS, circa 1985)». A number of major manufacturing innovations originated in the gun making industry. «While the English were evolving a system of manufacture around the ethos of accuracy, a new system based on precision and interchangeability of parts was being developed in the United States. The difference occurred because in the English System mechanics and engineers made parts to fit (i.e., to mate with one another) as closely as possible, while interchangeability, by contrast, relies on the existence of clearance between parts. As “fit” was achieved by concentrating on the relationship between components, one made parts for each subassembly one at a time. The parts being assembled were then filed by hand until the mated surfaces fitted tightly. The result is that each part and each subassembly are unique. The greater the clearance between mating surfaces, the more likely it was that parts would be interchangeable. Thus, the objective of interchangeable manufacture was to move from perfection of fit towards the greatest possible clearance, as long as the clearance was not too large to lose the functionality of the product. [...] Clearances allowed for variance, and management of these variances was the hallmark of the American System of Manufacture. Interchangeable manufacture allowed for the separation not only of fabrication and assembly, but also of the different operations in fabrication from one another. Managing variances entailed prescribing limits and then achieving the precision imposed by these limits by developing (1) machinery that was constrained in its operation, and (2) a system of inspection based on gauges that would ensure that fabricated parts were, indeed, interchangeable».



## Small arms districts in Europe

As we saw above small arms production in Europe had been characterized since the Early modern period by a singular tendency to concentrate into specific geographical areas with favorable characteristics sometimes in terms of consolidated expertise in cold weapon working<sup>10</sup>. In these areas the development of the production fabric had taken place in accordance with the ‘disseminated factory’ framework and been powerfully influenced by wars and military commissions which had come with them from their respective state rulers. Such developments were always mainly a question of the culture and tradition of the individuals and places concerned as a result both of the details and multiple skills of the armory arts and of factors of an institutional nature<sup>11</sup>.

### *Birmingham*

Birmingham village was becoming known as a manufacturing center by the middle of the sixteenth century. The exact date of the founding of the gun trade as a separate branch of manufacture is difficult to determine, one suggestion being that it was founded as early as 1603. Certainly, there is evidence implying that trade was already underway by the middle of the 17<sup>th</sup> century as the fact that a contract secured from the Ordnance Office in 1689 was executed without delay would seem to imply (Dunham 1955).

As Behagg has argued (1998, pp. 5-6, 9, 13), «the craft system of production in Birmingham was able to adapt its structures to meet the increased demand, so obviating the need for fixed capital investment in an industry in which the market was extremely unstable. Innovation took place by a process of ‘re-drafting custom’ so that mass production could be achieved without the growth of the factory or the descent into sweating. Central to this process was the realignment of the relationship between the small business man and the craft-producer within the workshop. [...] The Birmingham musket was a craft article and consisted of a

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<sup>10</sup> Brescia’s Val Trompia is a case in point. This area developed thanks to considerable supplies of iron minerals, water and timber which were crucial to the production of firearms and had already been famous for cold weapons (Simoni 2010).

<sup>11</sup> With reference to the debate on the relationship between industrial districts, local cultures and institutions, see the *Institutions et valeurs* section in Eck and Lescure’s work (2002).

number of parts, each manufactured by a different branch of the trade. From the early eighteenth century, gun barrels were produced in mills driven by water and, later, steam power. This element of the production process required large-scale capital investment and acted as a multiplier for the decentralized workshops that completed the remainder of the gun's manufacture. The basic components of lock, stock and barrel went through a number of stages of production normally involving a movement between the workshops that made the different components. The end of the production process was the shop of the gun finisher, whose task it was to 'set up' the gun. [...] The organization of the gun trade in Birmingham involved the interplay of three groups: the contractors, the small masters and the artisan-workmen who coordinated teams of apprentices within the workplace. Perhaps the most significant feature of production was the way it operated through a network of continuous negotiation between the three groups. This was activated each time an order was taken by the contractor. First, the contractor would negotiate a price with the merchant or with the representative of the Board of Ordnance. The contractor, whose only fixed plant would be a warehouse, would then negotiate with the small masters for each component part of the gun. The small master would, in turn, negotiate prices with his artisans, who would also need to arrive at an agreement with their apprentices. [...] The gun makers of Birmingham adopted four strategies to expand production to meet wartime demand: increasing the multiplier effect of gun barrel making by increased investment in large plant; establishment of a contractors' 'cartel'; re-negotiation of apprenticeship regulations, particularly where bottlenecks in production were identified; and the introduction of the 'bounty' system into the workshop. [...] Utilizing these four strategies, the gun trade was able to maintain high levels of production, without any high risk investment of capital».

By the end of the 18<sup>th</sup> century Birmingham was the foremost producer of arms in the world, as the only large manufacturing center left to anti-Napoleonic forces. A comparison of manufacturing resources during the 1804-15 period shows that 1,827,889 muskets and pistols were made for the Board of Ordnance in Birmingham as against 845,477 made in the government factories and by the London industry. These figures were generated in protest against the setting up of

<b>Material Makers</b>		<b>n.</b>
Stock makers		100
Barrel	welders	700
	borers	
	grinders	
	filers and breechers	
	rib makers	
	breech forgers and stampers	
Lock	forgers	1,200
	machiners	
	Filers	
Furniture	forgers and casters	100
	filers	
Rod	forgers	100
	grinders and polishers	
	finishers	
Bayonet	forgers	500
	socket stampers	
	ring stampers	
	grinders and polishers	
	machiners	
	hardeners	
	filers	
Hand	forgers and stampers	300
	machiners	
	filers	
	pin makers	
Sight	stampers	300
	machiners	
	jointers	
	filers	
Trigger boxers		20
Oddwork makers		100
Total		3,420

Table 6 - Source: Goodman (1866)

<b>Setters Up</b>	<b>n.</b>
Machiners Prepare the front sight and the lump end of the barrel for the nipple	50
Jiggers, lump filers and break-off fitters Prepare the breech end of the barrel	200
Stockers Let in the barrel and locks and roughly shape the stock	1,000
Percussioners. Finish the nipple seat, put in the nipple and adjust the hammer to the nipple	200
Screwers Let in the furniture and all the remaining pins and screws	1,000
Strippers Prepare the gun for rifling and proof	20
Barrel borers	50
Barrel riflers	50
Sighters and sight adjusters	50
Smoothers. Prepare the barrel for browning	50
Finishers. Distribute the several parts to browner, polishers, maker off and barrel smoother, and when they are returned put the guns together and finally adjust the several parts	1,000
Makers off File the stock to give them their proper finish, glasspaper and oil them	
Polishers of lock and furniture	50
Engravers (lock, etc.)	50
Browners (barrel)	50
Lock freers Finally adjust the working parts of the lock	50
Total	3,870

*Table 7 - Source: Goodman (1866)*

a government factory in Birmingham in 1816 and the project was eventually dropped. The turn of the century saw also the perfecting of the flintlock as a weapon and by the middle of the 19<sup>th</sup> century gun factories in Birmingham were still the greatest source of arms in the world: a large proportion of the military firearms used in the Kaffir and Crimean Wars were made in the town<sup>12</sup> (Dunham 1955). This success is confirmed by the figures provided by Jon D. Goodman (1866). He divided up the workers engaged in the gun trade in Birmingham in two groups: material makers and setters up with the former numbering 32 different specialists whereas the latter 16. In 1865 there were 3,420 material makers and 3,870 setters up (see Tables 6 and 7, pp. 115-116).

Despite a large production capacity organized principally on a flexible basis, the relationship between the Birmingham armories and the Board of Ordnance was never an easy one. On their part the authorities frequently complained of low product quality and the industry's inability to fulfil all its contractual obligations. On their part the private producers found the frequent complaints and intransigence of the authorities – which they did not encounter from their other clients – oppressive. In his doctoral thesis Lewiss (1996) goes as far as to hypothesize the direct responsibility of the Board of Ordnance for the difficulties encountered by the private armor sector in setting a modernization process in motion. Its reluctance to grant long-term supply contracts, refusal to supply product calibers and models to firms and the ultra-rigid product control standards it required were all elements which did not help private producers to overcome their production difficulties and shift from a labor intensive production model to a more capital intensive one.

The turning point was the 1850s. By the mid-nineteenth century the British authorities were increasingly aware of the mechanization and interchangeability principle revolution which was by then consolidated practice in the United States. The 1851 Great Exhibition at which American companies such as Colt and Robinson & Lawrence exhibited their products and visits to the 1853 Exhibition of Industry in New York and to US arsenals by special commissions nominated by the British government led to a speeding up of the race to small arms production

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<sup>12</sup> The workshops were packed into the St Mary's 'gun quarter' but gun locks were produced by workshops in the Black Country and then transported to Birmingham. On the evolution of the 'gun quarter', see Wise (1949).

managed according to the new principles of the so-called ASM. With the information gathered and the worsening of the impasse described above in the context of the Crimean War, the government decided to increase the manufacturing capacity of the Enfield arsenal by importing machinery from the US. In 1854 the royal arms factory began work using machinery, most of which was useful for stock working and by 1858, Enfield 1853 rifles could be made entirely with standardized components (Williams 2004).

The success of the Enfield arsenal prompted the Board of Ordnance in the direction of even more selective parameters which were difficult to fulfil with artisan methods and thus Birmingham's private producers soon realized that their quasi-monopoly of the sector had been broken. They were thus obliged to adopt a defensive strategy and a group of the most important local entrepreneurs decided to join forces to create a factory capable of taking up the standardization challenge. On this basis the Birmingham Small Arms (BSA) co. was set up in 1861 in the Small Heath area. After an initial period in which craftsmanship and mechanized working co-existed, the group increasingly adopted mechanized manufacture with significant results by the 1870s and was exclusively mechanized by the turn of the century (Fries 1975; Lumley 1989).

The governmental role was crucial to the mechanization process undertaken by the BSA. Of the 2324 machines bought by the company in the 19th century less than 7% were foreign imports. The take-up of products made by companies such as Greenwood and Batley in Leeds was significant. This company was founded in 1856 and acquired a solid position in both the UK and abroad in the field of machine tools for small arms production. This supplier's success was a direct outcome of the orders which the authorities had commissioned it for their own machinery at the Enfield Arsenal and the London Armory Company. In other words private companies could now count on suppliers who would have struggled to establish themselves without this initial public investment. And this was not all. The Birmingham producers also benefited from a new more conciliatory approach by the Board of Ordnance than in the past. Enfield and its employees were encouraged to help the BSA supplying it with calibers and product models and allowing its

technicians to visit the state factory to study its machinery (Lumley 1989; Lewis 1996).

Other companies such as National Arms and Ammunition Co. Ltd and Grenfell & Accles Ltd set mechanization processes in motion but a significant part of the sector retained artisan production methods. Though machinery was used for specific working processes here too, it was mainly sport firearms producers who maintained traditional production processes based predominantly on manual work. Thus at the turn of the nineteenth century there was a growing gulf in small arms production with totally mechanized military production founded on standardization, on one side, and civilian arms production which retained product personalization and attention to detail as its standard bearers, on the other (Williams 2004).

### *Liège*

Firearms production in Wallonia can be dated back to the late 14th century, on a continuum with an earlier cold weapons working tradition. After a hiatus during the Napoleonic period Liège made a rapid recovery during the first half of the nineteenth century and by 1860 it was being referred to as “the greatest arms manufacturing town in the world”. In the period covered by this study the Belgian state’s neutrality ensured its Wallonia based production concentration the opportunity to export both military and civilian products to a great many markets and develop a huge variety of models in the sport arms sector (Hertslet 1906).

For legal reasons the Liège armory firms were usually private companies or partnerships. When World War One broke out, of 118 private companies working in this sector, 62 were trading companies or partnerships and only 14 joint stock companies. Stubbornly individualistic, local entrepreneurs never regarded limited liability companies favorably with the latter’s reduced personal responsibility and tendency to urge local entrepreneurs to find common ground. An example of this inclination in the local context took place in 1836 when, in an attempt to re-establish the monopoly enjoyed in the Dutch regime years, the government attempted to bring producers Hanquet and Ancion into a limited liability company to be accorded order exclusivity. This initiative triggered a wave of protests by local armorers who

saw this type of company, and accompanying state intervention, as a serious threat to their autonomy.

A further example of the conflictual relationship between the local context and the state is the case of Fabrique National d'Armes de Guerre (FN). This anonymous company was set up with private capital but was only able practically to open up for business and begin work with a Belgian government loan. This intervention was in fact crucial to its purchase of the machinery required for the production of a significant quantity of Mauser rifles for use by the national army. Hostility came to the surface once again when, in 1894, the suspension of the FN, which had just completed its contract with the Belgian War Ministry, was proposed. Most of its directors – as arms manufacturers – were disinclined to perpetuate an institution which they saw as a dangerous rival to their own firms and handed in their resignations. In so doing they allowed the German group L. Loewe und Co. to take control of the firm until 1919 (Gaier 1985; 1996).

In the nineteenth century Liège's production system was founded on home working using the putting-out system inherited from the pre-industrial era and still linked to the figure of the merchant entrepreneur rather than the industrialist. The extraordinary diffusion of this production framework is visible in the 1896 census data which shows that three quarters of the arms industry's workforce (more than 8000 people) were working from home. Generally speaking firearm components were made in city districts or the countryside while finishing and assembly were the task of city based workers. Piece work was crucial to this production process as it enabled many middlemen to intermediate between the large contractors and specialized labor. These middlemen, like the master barrel craftsmen of the Vesdre valley and the wholesalers of the Basse-Meuse, usually controlled a specific phase of the production process and made use of the truck system (Ansiaux 1899).

In a context such as this - extremely hostile to state intervention and with no private incentive to invest in manufacturing structures of an industrial nature - the lion's share of innovations were imported from abroad especially those relating to raw materials supplies and metal working. A few hesitant steps forward took place in mechanization of the production process in which the figure of technical entrepreneur Falisse stands out as having put the final touches to a machine for



working both metal and wood components. It was Falisse who set up a company producing military firearms with mechanized factories in 1853 together with Trapmann. In 1854 Société pour les Armes de Guerre Ancion et Cie, Renkin Fres, Pirlot Fres et Auguste Francotte, also known as Société des Anglais for its relationship with the British Board of Ordnance, installed American machinery to fulfil orders for previously unheard of quantities however part of the work was still done manually at armorers' homes. Mechanization began to make headway from 1860 to 1890. By the end of this period all components, with the exception of damascus barrels, were generally machine made in crude form but only rarely took interchangeability criteria into account. Prior to 1914 only two firms were capable of manufacturing arms in their entirety within their factories and these were FN and Establishments Pieper. These used US and German machinery and sought standardization in both military and sporting arms. They were, above all, the first to urge local producers in the direction of the adoption of more avant-garde production methods incorporating a higher degree of mechanization. No radical changes occurred in civilian arms working. While workers making barrels, flintlocks and other components were unheard of in early nineteenth century Liège home production, workers specializing in breeches, barrel finishing and engraving were working in ways which were identical in every single way to their similars in 1814 (Gaier 1985, pp. 117-126).

### *Saint-Étienne*

In France, too, firearms production was structured according to the *fabrique disséminée* system shared by all four of the country's main production centres: Saint-Étienne, Mutzig, Tulle and Châtellerault. In the modern day capital of the Loire, in 1861, production was scattered over an area measuring 10 km in length and 6 km in width. At Mutzig in 1864 the majority of employees were working from home. There were no workshops except for those making parts which required large scale movements or the use of mechanized engines. In Tulle all firearms components were made in the private workshops and shops of craftsmen who lived in this Corrèze valley town and the other eight production centers which revolved around it, some as far away as 40-60 km. Screws, bores and testing tools were made

in the capital; barrels were made in Estabourne and Souillac together with part of the bayonets, breeches, barrels and rods and the flintlocks were made in Treignac.

Civilian and military arms production took place side by side in the various production centers but the presence of the state made itself felt in the latter, a presence which had attempted to distinguish between the two in past centuries in order to regulate those who, working on behalf of its *Manufactures*, were incorporated into the system set up for the supplying of the French armed forces. Legally speaking, the private sector was the norm in these production centers. The state owned buildings and machinery and awarded contracts to businessmen. These latter were charged by the state with fulfilling fixed price orders on which they earned a percentage. Entrepreneurs normally directly employed the workers they needed for production but cases in which work was subcontracted to local craftsmen were certainly not rare. The workforce was divided up into registered employees (master craftsmen, artisans and apprentices), free workers and military workers (in 1852 there were 2801, 654 and 19 of these respectively). The former were bound to employment by a contract which guaranteed them a pension and the chance to become firearms controllers and workshop foremen, the second could leave their state employment on 3 months' notice while the latter were temporarily removed from their regiments by ministerial order and, having returned to civilian life, frequently requested registered employee status. It was an extremely flexible system this which enabled the numbers of free and military workers to be increased in the event of an increased need for arms by the armed forces. The military category, in particular, had the great advantage of being made up of soldiers who could be returned to their regiments once orders lessened (Brun 2008).

However the system also suffered from structural disadvantages of some significance. Worker dispersion and externalization practices made supervision of production by state appointed controllers almost impossible and wasted a great deal of energy and resources in transport and movements. In the mid-nineteenth century, moreover, the principal products were based on *système 1842*. These were made using well-established processes which were the result of an entirely craft type know-how and, whilst they responded to precise production standards, perfect interchangeability of parts could not be guaranteed. These were long standing

problems which the French government had already attempted to respond to in the first half of the century by introducing mechanization elements into production processes. The first experiments of this sort were the work of Honoré Blanc in the 18th century. Fierce resistance by artisans and arms merchants who saw his ideas as a danger to their know-how and social status and the limited results obtained, however, prompted the French government to suspend the mechanization process. This was taken up once again in the 1850s when Napoleon III's government, well aware of the race underway to improve army weaponry by other powers (especially the United States and England), decided to entrust the matter to Frédéric-Guillaume Kreutzberger, a Frenchman who had extensive experience as technical director of the US firm E. Remington & Sons. The latter's working goal was clear: use the American system as a model for work mechanization and in making firearm parts interchangeable. On indications by the War Ministry, in 1857 experiments began at Châtellerault focusing both on the greater concentration of production which this center showed as compared with the others and its proximity to Paris. The same problems presented themselves: resistance by workers to new production methods and the absence of a global vision of the production process. The decision was thus taken to adopt a progressive approach which enabled workers to gain the necessary skills but also allowed Kreutzberger to study solutions to the many problems which emerged and to travel in America and England to visit local arsenals. In 1859, these experiments were extended to certain workshops in Tulle. However, in 1862, in the face of partial success and competition from other powers, the French government decided to put an end to the delays and focus on a large factory in which to concentrate modernization efforts - a new factory in Saint-Étienne (Brun 2012).

Saint-Étienne was chosen for a great many reasons. First and foremost, by the end of the eighteenth century Saint-Étienne had established itself as an industrial center thanks to plentiful coal supplies and markedly dynamic metalworking and textile sectors - in 1859 it was supplying 55% of the country's steel and was a center of armory innovation with no fewer than 80 private companies of which Petin et Gaudet stood out together with its production of both Lafauchaux revolvers, on contract to the navy, and certain experimental Chassepot rifles. There were also, however, two further grounds for the government's decision. The first of these was

that, in contrast to the other production centers, armory was not Saint-Étienne's only significant industry and thus better conditions potentially existed for the recruitment of modern armory workers and that it avoided bringing soldiers into the production process. The second, on the other hand, was the bad conditions of the area's production site. Despite good production levels, in fact, neither Chavanelle nor Rives seemed capable of guaranteeing future development prospects as a result of structural limitations above all in energy supplies.

For this long series of reasons, in October 1862 an agreement was signed between the War Ministry and Saint-Étienne town council. This identified the area best suited to the requirements of a large scale factory capable of manufacturing 120,000 firearms per year in accordance with the most cutting-edge production methods, the Champ-de-Manœuvre area. In addition to the availability of a dozen hectares, the area had level ground, plentiful water and good road and rail access in its favor. The agreement set out that the town council should buy up the land and sell it on to the state for 350,000 francs and then, after further enquiries into the potential of a further area, an agreement was signed on 24th January 1863. The original project involved funds totaling 2,800,000 francs but on May 16, 1864 a law passed through parliament allowing the state a loan of 5,800,000 gold francs for the building and fitting out of the site. The main buildings were completed in 1867 and the new factory was five times bigger than Rives and Chavanelle put together.

1500 machines were installed in the new factory but, as the time was not yet ripe to supply a standard model for all firearms parts to American and English producers of machine tools, it was decided that these would be brought in gradually in synergy with French companies. The shift to a totally mechanized production was not, then, immediate. It was also slowed down by an increase in the quantity of arms required by the authorities (from 120,000 to 150,000 and then 200,000) which meant, for a few more years, that filers across the area had still to be used bringing to the fore a number of interchangeability issues linked to differences which were emerging between the various national production centers. In any event, the new Saint-Étienne factory was a great success in the French arms scenario. The disseminated factory model gradually disappeared with small workshop production remaining a preserve of the civilian market and a new relationship between state

production and private enterprise emerged. In 1870-1 this Loire city earned itself the title of French war economy center laying the foundation for its later key role in arming the French armed forces in World War One (Bacher et al. 2014; Bacher 2008; Forissier 2005).

### *Eibar*

Eibar is a large town in Guipuzkoa, a province in the autonomous Basque country community in northern Spain. Armory production in this province dates back to the late 15th century and it retained strong links to the state orders of the *Real Fábrica* of Placencia de las Armas for the whole of the Early Modern age. The Real Fabrica acted as administrative center assigning commissions to private contractors, corporations which then redistributed the work amongst the various specialized workshops scattered across the area and checked that the resulting products respected the standards required in the contracts.

This situation began to change at the close of the 18th century when the crown decided to build a new arsenal in Oviedo. This latter was increasingly favored in the complex market interplay and this led to the progressive marginalization of the *Fábrica* of Placencia de las Armas. On June 2, 1860 a royal decree liberalized armaments production, freeing it from intermediary bodies and obliged the *Fábrica* to act as testing ground for the arms emerging from the new fabric of private producers with whom the state was increasingly doing direct business. Five years later the arsenal was definitively closed (Goñi Mendizabal 2007).

Whilst for some years state production retained a certain importance in both quantitative and qualitative terms, the *Fábrica's* closure brought significant changes to the local armory industry. Production was henceforth primarily civilian firearms, and short arms in particular, as these latter were less common in the armed forces than long arms. Despite pistol and revolver making's greater vocation for mass production, Guipuzkoa remained characterized by a total absence of large, mechanized firms. The structure of the area's production fabric remained unchanged but in this new phase the contracting role was performed by a number of companies most of which were still based in Eibar. With their patents and brands these firms out-sourced production of specific phases of production to the area's

workshops and then carried out end assembly processes internally. This production organization, and a trajectory which was in some ways unique in the European production center panorama, meant that it was precisely at this time that this industrial district was at its most successful with a period of growth which would be interrupted seriously only by the 1914 crisis (Goñi Mendizabal 2010).

On more than one especially difficult occasion the local armory industry demanded the building of a state factory in Eibar to ensure stable quantities year round and lay the foundations for the development of mechanized production. Local people looked to Liège, in particular, as an example and the FN model was presented to central government both to encourage the development of a private armory sector and, at the same time, develop a production center of a size capable of managing war time demands. All these demands fell on deaf ears, however, and other initiatives with similar objectives always failed in the face of a lack of the necessary capital. Thus as far as the production system was concerned there was no alternative for the zone but to focus even further on the disseminated factory framework relying on other factors for its development: replacing hydraulic power with electricity, increases in the town's population, improvements in the road system which allowed the sector to integrate further into international markets (Goñi Mendizabal 2007).

The internationalization aspect turned out to be of exceptional importance: local firms adopted a strategy which was well suited to their limited size and mechanization levels and enabled them to overcome the saturation of the local small arms market internationally. These Basque firms focused on keeping prices low even at the cost of sacrificing quality. This strategy involved both supplying clients with imitations of foreign models and using exotically named brands to conceal the discredited Spanish origin of their products. This specific export orientation also benefited from the support of the only public body still present in the district - Eibar town council. Not only did the council become an important network hub between agents with an interest in the production system but it also played a center-stage role in sourcing information on foreign competitors and resolving a thorny diplomatic-trading issue with the Ottoman Empire which blocked Spanish arms at the customs posts (Goñi Mendizabal 2008; 2009a).

Within the Guipuzkoa context a firm worthy of mention is the J. Esperanza y P. Unceta company founded in Eibar in 1908 with the objective of focusing on mechanized production of the components required by other producers in the same town. The company's special claim to fame from 1911 onwards was the Victoria pistol inspired by American John Moses Browning's patents and whose popularity on foreign markets is paradigmatic of the strategy adopted by these Basque armories. It is important to remember that Esperanza y Unceta was a company which, like a great many others in the area, worked only in product assembly. In particular it outsourced components production to Belgian, French, English and German firms<sup>13</sup> and relied for sales on Eduardo Schilling of Barcelona for the Spanish, French and German markets and Thieme & Edeler of Liège for Belgium and Austria. Furthermore, like other Basque firms, it took advantage of the absence of the testing obligation in Spain<sup>14</sup> and, relying on its foreign trading agents, it exported its pistols to a country, Belgium, where it could obtain hallmarks from the local testing authority without much difficulty<sup>15</sup> and then sell its products on this market under special names without its clients realizing where they were actually made (Goñi Mendizabal 2009b).

## **The Italian job**

### *Foreign domination*

As we have seen above, in Italy too small arms production dated back to the Early Modern era in accordance with the disseminated factory system. Firearms working was, just like today, concentrated in the Brescia area with its main centers

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<sup>13</sup> In contrast to other Basque firms Esperanza y Unceta focused on quality products and this was the basis for its decision to use foreign firms for raw material supplies and outsource the production of firearm parts.

<sup>14</sup> It was only with a royal decree of 31st January 1915, after heated debate within the district between pros and cons in which Eibar's mayor and town council took part that the idea of a testing body began to take shape. After World War One related delays, the project came to fruition in 1923 when an institution for testing civilian arms effectively started work (Goñi Mendizabal 2010).

<sup>15</sup> Arms brought into Belgium without obligatory testing had to pass minimum functioning tests which the Basque arms generally passed despite their low quality. It was a very different matter for locally produced arms which were subjected to intermediate checks which Eibar-made goods would have had great difficulty passing.

in Gardone Val Trompia and Brescia city itself. Throughout the 17<sup>th</sup> and 18<sup>th</sup> centuries the firearms production cycle resembled a long chain rooted along the Mella river and in the city of Brescia. In this production chain «each craftsman held a specific task<sup>16</sup>, although some phases of the manufacture required more sophisticated techniques and more complex tools than others. At the apex of the craft hierarchy there were the masters who forged the gun barrel, who in general owned a forge able to exploit water power. [...] While the various phases of gun barrel production were exclusively located in Gardone Val Trompia (the forges, the plants and the workshops being distributed in fact over the territory of that small town) the manufacture of the firing mechanism was, instead, the prerogative of other villages in the valley. For example, a large number of the inhabitants of Marcheno, Sarezze and Lumezzane were employed in the construction of gunlocks to be mounted on firearms. [...] In other places along the valley, scattered forges and cottage industry, organized under a putting-out system, produced bayonets, firing rods, powder horn, munitions and other accessories for firearms. Finally, in the city itself, there were the craft workshops whose principal task was to serve the “good taste” of wealthy clients: it was in fact thanks to the artistic ability and to the loving attention to detail paid by engravers and etchers that butts and gun barrels were made more precious for these civilian clients» (Belfanti 1998, pp. 269-270).

Following on from the bitter struggles between guild master craftsmen and merchant-entrepreneurs which marred the 18th century firearms sector, a new phase began in 1797 with the proclamation of the Repubblica Bresciana and its annexation to the Cisalpine Republic. Production passed into Napoleon’s hands and soon became a branch of France’s military organization. On December 29, 1806 Viceroy Eugenio Beauharnais visited the Brescia area and decided to open a royal arsenal there at the provincial capital with a base in Gardone too. The objective was to

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<sup>16</sup> This long chain of artisans is described in full detail by Gaibi (1964a, 1964c) and Belfanti (1998). 1) *bollitori*: the masters of the barrels based in Gardone, these were the apex of the chain as they took care of the forging, the most important part of the manufacturing process; 2) *trivellatori*: these smoothed down the inside of the barrels; 3) *livellatori*: in charge of grinding down the inside with drills and files; 4) *fondellieri*: these applied an ‘end’ in the form of large screws to close the breech; 5) *molatori*: took care of the external surfaces of the barrels; 6) *brunitori*: in charge of the burnishing; 7) *fornitori*: applied the sights and the firing mechanism appliances; 8) *azzalinieri*: made the locks, especially flint gunlocks; 9) *incassatori*: in charge of the creation of the wooden blocks; 10) *ferradori*: produced the iron parts to fix the butt to the other gun components; 10) *lissadori*: inlaid and polished the wood 11) *camuzzadori*: engravers of the metal parts.



consolidate the position of the local specialized industry within a system of government contracts thus overcoming the backwardness of the local system resulting from the fierce clashes between those involved in production and, in recent years, in difficulty with the *Serenissima* (Montanari 1982; 1999; Bohn and Jaikumar 2005, pp. 35-37).

However the situation changed once again in 1815 after Napoleon's defeat at Waterloo when Brescia was annexed to Austria. With the end of hostilities and the beginning of the Restoration, the situation deteriorated. As a result of a stagnation in demand due to a clear contraction in wartime supplies, in the 1815-16 two year period the Brescia valleys had to deal with the progressive downsizing of the iron working sector. This obliged the whole local metalworking sector to face up to a wide ranging redefinition of its production framework. This re-organization triggered a workshop selection process which culminated in the ejection from the mining-metalworking sector of the less competitive firms (Rosa 1977).

Once the economic crisis in the Lombard-Veneto area in the initial phase of the Restoration was over the government decided to reorganize the firearms manufacturing industry. In the last few months of 1818 a number of measures were adopted which had a powerfully negative impact on the Val Trompia district's production fabric. Of these, three measures were the most important: 1) the suspension of production at the Gardone Fabbrica Erariale which was downgraded to simple store room; 2) the closure of the Brescia artillery headquarters; 3) the handing over of war supplies contracts to three merchant-entrepreneurs, namely Crescenzo Paris, Giuseppe Franzini and Antonio Beretta. The protests of the Gardone craftsmen - worried by the closure of an institutional body capable of ensuring them important contracts on an ongoing basis and by the increased contractual power of their historic rivals - were not slow in coming. The Austrian authorities stood their ground, however, and it was only in the 1820s that the government decided to bring the armorers back into contracting and the playing field was partially levelled once again. But the situation which local producers were about to face was an extremely delicate one: harboring their contracts and keeping back exports, the Austrian authorities decided on a rigid strategy controlling a strategic sector situated in a geographical area which it feared was less secure than

its other production centers. In the central years of Austrian domination, then, despite attempts to compensate for these difficulties in the hunting arms market, the pre-conditions for production specialization degenerated significantly. Not only did the Brescia metalworking sector experience innovation delays but it also had to deal with the less than excellent quality of the raw materials arriving from Dongo and the natural disasters which struck Val Trompia in this period (one of the worst of these was the Mella river bursting its banks in 1850<sup>17</sup>). Controls by the government authorities became even more pressing following on from the Austrian victory in the First War of Independence in 1848. In the decade which followed military contracts were maintained at subsistence levels in both Brescia and Gardone and activities ceased altogether in 1857 (Marchesi 2003; Cominazzi 1861).

#### *The Italian Kingdom: a new beginning*

In 1859, the Second War of Independence ended very differently from the first: Brescia was finally freed of foreign occupation and annexed to the Kingdom of Sardinia which conquered Central and Southern Italy two years later and became the Kingdom of Italy. In an 18th August decree King Vittorio Emanuele II re-opened the Arsenal, naming it Fabbrica Erariale di Brescia<sup>18</sup> and a year later (Royal decree 17th June 1860) the Italian army was formed with the artillery arm encompassing the Fabbrica itself together with the Turin and Torre Annunziata

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<sup>17</sup> The flood hit all the municipalities of the province crossed by the river, not only those in Val Trompia, and an ad hoc commission was established to oversee the management of the resources for the reconstruction. In July 1860, when the province was still struggling to recover from the damages, the money given to the towns and villages totally amounted to L. 303,386.17. An important share of the aid came from other Lombard provinces and other regions: from the cities and provinces of Brescia L. 538.55, Milan L. 2,851.78, Mantua L. 1,272.54, Como L. 91.27; from Piedmont and Sardinia L. 72,317.45; from Tuscany L. 275.97; from the Austrian Empire L. 1563.18 (more precisely from Istria and Illyria L. 1,259.00, Wien L. 5.20, Hungary L. 103.76, Bohemia L. 64.63, Galicia and Lodomeria 7.65, Styria and Carinthia L. 122.94). The municipalities of the valley received: Carcina L. 1,118.32, Concesio L. 13,065.00, Gardone L. 3,200.00, Inzino L. 2,700.00, Lumezzane L. 2,312.03, Marcheno L. 200.00, Pezzaze L. 530.00, Sarezzo L. 4,117.12, S. Vigilio L. 600.00, Villa L. 2,970.00. Among the other share of aid distributed by the commission there were also: L. 3,000.00 for interventions to the stretch of the river between the bridges of Zanano and Pregno; L. 32,217.00 to Commissione Figliale di Soccorso in Gardone which, in its turn, gave L. 25,000.00 for various interventions in Inzino, L. 1,000.00 for a road in Fontanelle, L. 6,000.00 for reopening 25 forges located in Lumezzane Pieve, Lumezzane S. Apollonio and Sarezzo, L. 217.00 for various urgent interventions in Villa, S. Vigilio, Carcina and Sarezzo. See: Archivio Storico del Comune di Magno (ASCM), b. 28, ff. 1-15, "Supplemento al Giornale La Sentinella Bresciana n. 36: Prospetto Generale Riassuntivo".

<sup>18</sup> Also called Reale Fabbrica d'Armi. *Giornale Militare*, 1859, p. 605.

arsenals. Norms, responsibilities and organizational instructions were established for these<sup>19</sup>. In particular it was specified that:

- 1) after the necessary restoration work by the Directorate, all workers in the new arms making workshop are to be supplied with the following from the R. Fabbrica: workbench, press, clamp, bellows, forge anvil, weights and gauges required for firearms working.
- 2) arms finishers are to be supplied with bolts and corresponding screws;
- 3) workers are to purchase all other tools required at their own expense;
- 4) the necessary oil and grease are to be supplied from the royal warehouses to the finishing master craftsmen and the barrel levelers and finishing master craftsmen working in the testing room (and the same applies to the grease used for the press and clamp screw grease for the various workshops);
- 5) all other workers, including the steel tempering foremen, are to supply their own oil, grease, vinegar, charcoal and anything else they need;
- 6) flintlock finishers are to be supplied with the parts required to substitute those which break during tempering for forge working;
- 7) all firearms parts, except flintlocks, revealed as unusable during working are to be substituted with others supplied by the royal warehouses (on these workers are to work to fixed pay);
- 8) workers are to be liable for no supplies replacements or housing which is defective and thus unusable on condition that these are given back, whilst workers are liable - by means of sums kept back from their pay - for parts they themselves have broken.

The government also fixed tariffs for each small arm working activity for a total cost per firearm of 5.35 Lire (L. hereafter)<sup>20</sup>:

- 1) Piercing and countersinking the tail of a breech screw: L. 0.03.
- 2) Adjusting the bayonet on a barrel: L. 0.04.
- 3) Making a nut and countersinking the holes for the two long screws in the side plate: L. 0.03.

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<sup>19</sup> *Giornale Militare*, 1860, p. 145.

<sup>20</sup> *Ibidem*, p. 146.

- 4) Making a nut and countersinking the hole in the breech screw in the trigger guard: L. 0.25.
- 5) Assembling the firearm, i.e. working the housing and all firearm parts: L. 2.55.
- 6) Aligning the hammer head to the frizzen and finishing it off: L. 0.10.
- 7) Adjusting the wood screws: L. 0.10.
- 8) Dismantling a firearm and flintlock and separating the parts out: L. 0.04.
- 9) Readjusting the mounts after making the stock: L. 0.02.
- 10) Readjusting the trigger guard nut and its screw: L. 0.01.
- 11) Making the imprint for the flintlock side plate. L. 0.04.
- 12) Powdercharge tempering and re-tempering those parts which need it: L. 0.25.
- 13) Cleaning and marking the stock: L. 0.07.
- 14) Hand cleaning all the parts of the flintlock and those which have been tempered: L. 0.57.
- 15) Hand cleaning all non-tempered parts of the mount, the bayonet and the rod: L. 0.57.
- 16) Cleaning the barrel externally: L. 0.25.
- 17) Separating the parts of the flintlock in its housing, adjusting the screws in their holes and reassembling them: L. 0.05.
- 18) Readjusting the flintlock before and after tempering: L. 0.18.
- 19) Reassembling the firearm, readjusting it and readying it for use: L. 0.20.

The new government's intention was to breathe new life into the Brescia firearms industry not simply by re-opening the state arsenal in accordance with similar norms to those regulating the Turin arsenal but also bringing the private sector into the market with a piecework system. In fact Camillo Cavour expressed himself thus in a contribution dating to 29th September 1860 which appeared in that year's *Giornale Militare*<sup>21</sup>: «This new factory was not slow in taking off satisfactorily and prospering as far as could be expected given the deplorable state into which the firearms industry had fallen, abandoned and harassed as it was by the former government. Nevertheless as production has not yet managed to produce the surplus which current needs require, those demands which have yet to be

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<sup>21</sup> Ibidem, p. 1036.

fulfilled, as defects to be repaired, have been provided for and it has emerged that the problem was due to delays in barrel supplies. The government has provided to supply the various producers with all the means available to it. [...] Special barrel workshops will be set up in Gardone which will be considered subsidiaries of the Brescia factory and subordinate to it. A representative of the Brescia directorate will be stationed there and will be subordinate and answer to the former. The directorate will seek out two or three workshops to let in the town, come to an agreement with their owners and send the contracts to the Ministry for approval. The prices of these goods will be fixed annually by the factory directorate and approved by the Ministry. Forge workers will be required to supply their own charcoal and in making barrels they will have to roll forge but hammer weld. Grindstone working will have to be replaced by the wheel. In order to avoid a lack of work between one contract and another, as a result of a momentary pause, infantry rifles for repair will be sent from the Brescia armory to Gardone».

In other words it might be argued that Brescia and Gardone, the two traditional armory working centers, were soon subject to the Kingdom of Italy's interest: together with the Turin factory they were seen as important cogs in the wheel which was to fit out the army responsible for unifying the peninsula<sup>22</sup>. This interest by the new authorities is also demonstrated by a full-blown dossier which the kingdom had drawn up by the Val Trompia councils on the subject of the sector's activities. This valuable source provides us with a very detailed account of the state of affairs in the private sector at the end of the period of Austrian domination as well as an idea of the attempts made by the production fabric to re-organize to satisfy the new state's demands.

All the buildings used to make barrels were located in Gardone Val Trompia in addition to all workshops for grinding, boring and levelling normally let out with the obligation that they were to remain available for the owner's requirements. More specifically there were 10 forges powered by the waters of the Mella river which were either exclusively owned or co-owned by the firms who ran them and bore the names of their merchant class family owners. There were also workshops

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<sup>22</sup> To support Garibaldi's thousand man expedition Gardone town council sent him 1000 rifles and organised a collection of funds involving selling off a forest; see Archivio Storico del Comune di Gardone Val Trompia (ASCG), b. 183, f. 1.

in the town - in this case too generally owned by tradesmen and more rarely by self-employed workers - and smithies, i.e. bellow worked barrel workshops.

Each tradesman worked commercial arms independently while those of the Erario were produced by a firm made up of all the owners of the various buildings with the exception of F.lli Franzini and F.lli Girolamo Bertarini, the former because it manufactured for the Erario on its own and the latter because it was not a barrel manufacturer. Zambonardi Simone, on the other hand, was part of the collective firm despite the fact that he did not own any of the buildings. Approximately 50 barrels per day were manufactured for the Erario: 40 by the firm and 10 by F.lli Franzini. These are figures which, to judge by the dossier, could have increased if production for the National Guards had been brought to an end and if the levelers had mastered the art of shadow levelling, a practice which had been neglected because it was of use only for the Erario's firearms.

All these craftsmen were pieceworkers and there were around 190 of them. There were 42 bollitori, 24 trivellatori, 23 livellatori, 22 molatori, 20 fondellieri, impanatori and mirinai, 49 finishers and 10 checkers who checked barrels contracted by the government and civilians. In addition to these 190, lastly, there were also a great many apprentice bollitori and finishers who were not counted in the dossier as they had not yet learnt their craft<sup>23</sup>.

A year later the information regarding Gardone Val Trompia alone was supplemented by an overview of the barrel manufacturing figures of the various companies, the machinery these had at their disposal, workforce numbers and salaries and, lastly, observations relating to the forges present in the town area<sup>24</sup>.

There were 15 companies working and trading barrels and these were supplemented by "various small producers" whose exact number was not specified. The tools used were mainly hand tools: 49 drills for barrel boring and grinding, 7 Sarnico grindstones, 12 rolling mills, 25 forges powered by hydraulic bellows, 7 forges powered by bellows. The sole elements of mechanization in the production

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<sup>23</sup> Ibidem, b. 69, f. 1, "Prospetto della Fabbrica d'Armi da Fuoco in Gardone". See Appendix 6 (p. 257) for the summarizing tables of the dossier.

<sup>24</sup> Ibidem, b. 180, f. 1, "Prospetto di Statistica della Industria Manifatturiera nell'Anno 1861 nel Comune di Gardone, Mandamento di Gardone, Provincia e Circondario di Brescia. Statistica da Diversi Fabbricanti Gardonesi per le sole Canne". See Appendix 7 (p. 263) for the entire transcription of the report.

process were two turns and three machines for rifling the barrels which were government owned.

In addition to the private sector the Regio Erario had also begun production, having identified the forges to let in the town area on instructions by the War Ministry referred to above. The government let: 1) the Fornace forge owned by Bertarini; 2) the Rampinelli forge owned by Moretta; 3) the Mulino forge owned by Ditta Crescenzo Paris.

In 1861 40, 581 barrels were made of which: 30,796 were for war rifles (of which 8000 were state made), 2326 were for various double barrelled firearms, 6789 for various single barrelled rifles (and thus 9115 for civilian use, mainly for hunting) and lastly 670 pistol barrels. The total value of these was 542,165 L. and they were made using 41 hydraulic engines, 7 wind mills and others which were animal-powered with a workforce of 6. The barrels made for the National Guard and private clients were made with cast iron from the Val Trompia (worked by the Glisenti firm) and iron mined in the same valley, respectively, while those to be used for government rifle orders were made using iron mined in the Aosta valley. In all, 1814 hundredweights of Italian iron were used. The fuel used was charcoal (7385 hundredweights) and this too was produced locally.

The total workforce increased to 287 including: 50 bollitori, 50 trapanatori, 50 livellatori, 8 tornitori, 14 molatori, 70 limatori, 25 tra vitonieri, bombardieri and others and, lastly, 20 pulitori. All armory workers were men with the exception of the pulitura trade. They were all piece workers and those who earned the most - the bollitori - were paid a daily rate which ranged from a minimum of 2 L. to a maximum of 6 while those who earned the least, the pulitrici, were paid a maximum of 2 L. and a minimum of 0.75 L. per day. Total yearly workforce expenses added up to 240,000 L..

The people of the nearby towns of Magno and Inzino also worked in firearms production. There were 8 workshops for flintlock making in Magno. These were small and frequently located in the homes of their owners employing a total workforce of 20<sup>25</sup>. In Inzino, on the other hand, there were a further 6 forges

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<sup>25</sup> Ibidem, b. 69, f. 1, "Prospetto degli individui addetti al lavoro d'armi nella qualità di acciarinai sì di monizione che mercantili del Comune di Magno"; ASCM, b. 28, ff. 1-15, "Prospetto degli operaj addetti alla fabbrica d'armi del Comune di Magno".

employing 30 people on flintlock and cold weapon making in addition to nails and farming tools<sup>26</sup>. In Lumezzane Sant'Apollonio there were 8 workshops making military rifle finishings (rods and nosecap for the royal arsenal), strips for the same type of product and cold weapons (daggers, sabres and bayonets). 55 workers were employed in these forges or at their own homes for these same forges<sup>27</sup>. There were 12 buildings - forges, workshops and small forges - and 19 shops (most of which were in private homes) in Lumezzane Pieve. The workforce employed in the firearms sector amounted to 235 individuals making cold weapons and a great many firearm parts: trigger guards, flintlocks, screws<sup>28</sup>. The town of Marcheno, lastly, was home to a further 13 workshops all for flintlock working employing 40 workers who also frequently worked from home<sup>29</sup>.

The fact that the action of the new authorities had kick-started a production system which had experienced difficult times in recent years is confirmed by the writings of a well-known craftsman of the day: Marco Cominazzi (1861). While not sparing in his criticism of the new government for a recent arms contract commissioned to foreign producers, the latter wrote thus on Gardone's situation: «Three of the largest [forges] and two of the smallest have been let by the state and have eight furnaces, each powered by a trompe. The others produce as free private workers. [...] The work done by the firearms factories is around 50 finished barrels per day and the same quantity in the private forges. These latter sell the best barrels, not yet rifled, to the government for 16 L. each while externally different prices are agreed and furthermore today a grand total of 20 hunting twist barrels and more elaborate ones called Damascus barrels are traded. Our ardent hope is that this barrel making work will increase as the need of a great nation like ours for arms is supreme, one which has only recently risen to its feet and shaken off centuries of servitude to take the place which is rightfully ours. Great and eager is our will to

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<sup>26</sup> ASCG, b. 69, f. 1, "Prospetto degli Edifici a Fucina esistenti in questo Comune atti a convertirsi ad uso lavoriero d'armi".

<sup>27</sup> Ibidem, "Prospetto riassuntivo delle Notizie sul numero delle officine per lavoro d'armi esistenti nel Comune di Lumezzane Sant'Apollonio".

<sup>28</sup> Ibidem, "Prospetto delle Officine, degli Operaj ed Applicati per lavoro d'Armi in Lumezzane Pieve". The prospectus indicates that, in addition to the workshops and shops shown, a similar number of workshops operated in the town exclusively on civilian arms but could, if needed, have been used for weapons making.

<sup>29</sup> Ibidem, "Prospetto nominativo di tutte le officine pel lavoro d'armi esistenti nel Comune di Marcheno e nome e cognome degli operai in esse occupati".



make these devices which will see our industry return to the greatness of our fathers' day. For this reason few of us can entirely forgive the government for having recently made a large purchase of low quality, untested foreign arms for the National Guard's weaponry when it could have had them made perfectly at home».

In 1863 a long process was set in motion which is of especial importance for an analysis of state intervention in the industrial districts specializing in small arms and to highlight the dynamics characteristic of the Gardone district. The process concerned is that relating to the transformation of the state warehouse into a full-blown factory. This was a long, complex process but shows once again the strong bond between small arms production and the local population, a bond which is confirmed by the great energy invested in it by the Gardone town council for a positive outcome<sup>30</sup>.

It was 30th November 1863 when the Gardone Val Trompia town council deliberated sending the first of a long series of petitions to the War Ministry requesting the building of a state owned manufacturing plant for war armaments production. This building was to be of use to Gardone and the rest of the valley<sup>31</sup> in obtaining greater guarantees of continuity in military contracts and greater independence from Brescia<sup>32</sup>. This petition was probably dictated by the council's intention to maintain a high degree of state attention on the negotiations underway for some months by the Regia Direzione d'Artiglieria for the purchase of the Bertarini forge<sup>33</sup>, called Fornace, precisely to give further impetus to the local

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<sup>30</sup> On the subject of the important role played by the local government within these district dynamics see Grandi (2007).

<sup>31</sup> For an understanding of the importance of the military contracts and building of a state factory in Gardone for the whole valley see the petitions sent by the Lumezzane Pieve, Lumezzane S. Apollonio and Carcina town councils in 1864. ASCG, b. 180, f. 2, "Missiva del Municipio di Lumezzane Pieve, 12 giugno 1864"; Ibidem, "Missiva del Comune di Carcina, 12 giugno 1864"; Ibidem, "Missiva del Municipio di Lumezzane S. Apollonio, 14 giugno 1864".

<sup>32</sup> Ibidem, f.1, "Verbale di deliberazione, 30 novembre 1863". On the subject of the great importance of the firearms trade to the local people the resolution reads as follows: «There has been an arms industry in this town since the dawn of time and it is the only occupation of these craftsmen for whom it might be said that it is innate and rooted in their very natures».

<sup>33</sup> We learn from a report drawn up by the Giunta Comunitativa di Statistica on manufacturing industry in Gardone and the Brescia district that the Bertarini forge, let to the government at the time, was equipped with «12 machines operated by an ancient six motor animal pulled form» in 1861. By 1863, by contrast, «with the same motors 24 bores, 2 rolling mills, a grindstone, a wheel and 6 fires were powered. The new form bores worth 600 L. each came partly from Turin and partly from the Glisenti foundry in Carcina and the wheel worth 600 L. from Turin were all purchases made by the Erario and now a further 24 bores are being introduced. One of these will be powered by a single engine. For these, in addition to the remaining one engine with which other machines

military firearms manufacturing industry. A month later, moreover, the council approved a further resolution in which it undertook to purchase, and then cede to the government free of charge, the land around this forge required to redevelop it and build a structure suitable to military production demands<sup>34</sup>. This effort was also supported by local craftsmen who undertook to contribute a fixed sum monthly and individually for a year. Every month the sum of the individual amounts paid into the local Cassa di Risparmio for this land purchase was 274.75 L.<sup>35</sup>.

In 1864, the kingdom's parliament and senate approved the Bertarini workshop purchase authorising the sum of 32,500 L. in accordance with the agreement drawn up between the military authorities and the owners of the forge<sup>36</sup>. However, a positive, short term conclusion was still a long way off and a whole series of technical and bureaucratic problems cropped up which slowed down the buying process and prompted the military administration to assess the potential for transferring the project elsewhere<sup>37</sup>. It was only in the second half of 1869 that a

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will be powered, a further 40 bores will be brought in than there were in 1861. Additional machines, both for rifling and for plating the barrels with iron, work every day at government expense». The report then concluded as follows: «If, when machines did not exist and no improvements were made in manufacturing, a significant number of barrels were made and these arms won awards at the Paris, Munich, London and Florence exhibitions, how much better might they be in these current times and in the future». Ibidem, f. 2, “Relazione della Giunta Comunitativa di Statistica – doc. 29”. These repeated references to the mechanisation of the manufacturing process were probably deliberate in the light of the fact that on the occasion of the participation of an Italian delegation at the London international exhibition, the provincial delegation sent businessmen, factory managers and technicians to England. The Brescia delegation, under the leadership of Angelo Monà, assisted in the iron and steel sector by Giuseppe Ragazzoni, did not miss the chance to visit London, Manchester, Birmingham and Sheffield as well. Aware of the pressing changes taking place in the most important European production centres and the delay accumulated in the local iron and steel sector, various exponents of Brescia's provincial arms industry were present: G. Michelon (firearms factory manager), C. Premoli (firearms factory manager), G. Glisenti (owner). On the subject of the London exhibition see Bolchini (1986) and Gregorini (1993); on the issue of the participation of the Brescia delegation at the 1800-1915 period industrial exhibitions see Onger (2010). As far as the difficulties encountered by Brescia metalworking in the early years of unification is concerned see Marchesi (2003, pp. 275-284).

<sup>34</sup> Ibidem, “Verbale di deliberazione, 26 dicembre 1863 – doc. 15”; Ibidem, f. 2, “Alla onorevole Direzione della Regia Fabbrica d'Armi in Brescia – doc. 19”.

<sup>35</sup> Ibidem, f. 1, “Onorevole Giunta municipale di Gardone – doc. 13”.

<sup>36</sup> *Giornale Militare*, 1865, p. 414.

<sup>37</sup> In February 1869, an Italian armed forces commission was sent to Sarezzo for a series of surveys of the area in which the historic cannon foundry owned by the Bailo family had stood, causing concern in the Gardone town council. This latter, together with famous armourer Marco Cominazzi wrote to Giuseppe Zanardelli to head off any such event. On 25th March 1869 the manager of the Brescia arms factory wrote to the mayor of Gardone on the subject: «I should not conceal, however, that towards the end of last year I received orders from the Ministry to give the local offices of the armed forces all the indications the latter needed for the study of a potential project whose purpose was the choice of a new location for a branch workshop to this armoury factory and this in view of the difficulties which arose in negotiations with Mr Bertarini who is

breakthrough was made: from July to November 1869, all the thorny questions which had slowed the project down were resolved and a specific agreement between the Gardone Val Trompia town council and the War Ministry was drawn up. All the undertakings which the council agreed to take on set out in this agreement in order to enable the Fabbrica Erariale to be built can be summarized as follows<sup>38</sup>:

- 1) buying the forge called Fornace at its own expense and cede this to the government in order for the latter to build the factory on it<sup>39</sup>;
- 2) ensuring that the sum requested by Bertarini's owners to cede it was reduced by 7000 L. (from 32,500 to 25,500 L.).
- 3) removing the existing servants at the Bertarini forge;
- 4) guaranteeing the water required for the functioning of the Fabbrica Erariale;
- 5) offering 15,000 in cash to be paid within a year of the start of work<sup>40</sup>.

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unable to guarantee water rights». See: Archivio di Stato di Brescia (ASBS), «Fondo Zanardelli», b. 46, «Lettere della Giunta municipale di Gardone Valtrompia e di Marco Cominazzi a Zanardelli, Gardone 28 febbraio 1869»; ASCG, b. 180, f. 5, «Missiva della Direzione d'Artiglieria della Fabbrica d'Armi in Brescia al sindaco di Gardone, 25 marzo 1869». In addition to problems relating to water supplies for the Bertarini forge problems also arose linked to the notarial deed whose purpose was to certify ownership of this. It had, in the 1850-8 period, in fact, changed hands many times; see *Ibidem*, f. 4, «Certificazione di proprietà immobiliare della fucina Fornace».

<sup>38</sup> *Ibidem*, f. 5, «Verbale di deliberazione, 22 agosto 1869 – doc. 66, 68»; *Ibidem*, «Regia Prefettura della Provincia di Brescia – doc. 69»; *Ibidem*, «Verbale di deliberazione, 26 novembre 1869 – doc. 70».

<sup>39</sup> The estate was the property of Moretti Bonaventura, Moretti Giovanni and Moretti Giacinto. The former owned 5.72 perticas of land earning 44.14 L. while the other two owned 0.49 perticas earning 3.77 L.. The estate was thus worth 6.69 perticas equivalent to 2.055 Brescia piòs. The value of the estate was estimated at 2,086.50 L. per Brescia piò. However, considering that the sale of the estate led to the break-up of the neighbouring estate owned by Mr Moretti and involved moving his entrance, it was agreed that the Gardone town council should pay a third more than the estimate value. Thus the sale price was fixed at 2.782 L. per Brescia piò adding up to 5,343 L. of which 4,952 was owed to Mr Bonaventura and 391 to brothers Giovanni and Giacinto. *Ibidem*, b. 382, f. 9.1, «Relazione di Stima del fondo detto Fornace»; *Ibidem*, «Processo verbale di presa di possesso dei fondi».

<sup>40</sup> This offer was put forward by the town council to favour the government's purchase of a further forge, referred to as Rampinelli or Moretta with the adjoining Paris-Abeni mill. These negotiations, too, were lengthy and complex but in contrast to those for the Bertarini workshop they did not lead to agreement. It is likely that part of the government's purpose in buying these buildings related to fact that they were above the Bertarini forge and shared a canal with it and such a purchase would have headed off water supply problems (this issue appears in the quote in note 29). However on 19th August 1869, in a meeting with the mayor of Gardone and a captain of the armed forces, designed to renegotiate the value of the two properties, the owners of the workshop (the Moretta brothers) declared themselves against the sale (in contrast to Abeni who had already agreed to lower the price of the mill he owned). It is likely that it was for this reason that, as we have already seen, the state took the precaution of requiring explicit guarantees from the town council on the subject of water supply from the canals. Whilst the purchase of the two buildings fell through, it is evident that the town council did not feel able to decline the offer of 15,000 L. in cash. On the subject of the water supply see also: *Ibidem*, «Estratto del progetto di convenzione». In reference to the purchase of the Rampinelli-Moretta forge and the Paris-Abeni mill see: *Ibidem*, b. 180, f. 5, «Missiva della

Thanks to the efforts of a local context capable of convincing the state to invest in provincial manufacturing centers, the government buildings located there acquired a precise role within the composite framework of public contracts and played a crucial part in the development of manufacturing specialization. The two plants split the work up between them: «In Gardone they bore, rifle and smooth the barrels, make the breech blocks, the mobile breeches and the tails, in Brescia they finish off the job with burnishing and fire coloring, the housing is worked together with the rifle mounts, the sabre bayonet guards and rifles are assembled by joining the various parts together before testing. For the rotating-barrel pistols almost all the parts are made in Gardone but like the rifles they are assembled in Brescia» (Bonardi 1889, p. 57). As mentioned above, moreover, the state factories played an extremely important role in distributing contracts across the area between local entrepreneurs above all in the highest production phases. For example, in addition to the private Gardone forges the military directorate also made use of the Lumezzane master craftsmen from this town in Val Gobbia<sup>41</sup>, entrusting them, in particular, with work on sabre blades, mounts, finishings and rifle accessories. This external working was of a certain importance if it is considered that it accounted for between a third and a quarter of total workforce value<sup>42</sup>.

From 1876 onwards the armory production of the Fabbriche Erariali increased continually reaching a peak of 40,000 pieces in 1883. This increase was linked to both technical-manufacturing reasons and political dynamics. In 1876, in fact, the governmental phase led by men from the so-called historical right came to an end.

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Direzione d'Artiglieria della Fabbrica d'Armi in Brescia al sindaco di Gardone, 12 luglio 1869 – doc. 61bis”; Ibidem, “Gardone V.T. nell’Ufficio Municipale li 19 Agosto 1869”.

<sup>41</sup> A side valley of Val Trompia.

<sup>42</sup> To give some concrete examples of the outsourcing strategy we can mention the auction notices published by the Arsenal for the production of daggers, sabers and various firearm parts: Archivio Storico del Comune di Lumezzane Sant’Apollonio (ASCL), b. 43, ff. 1-3, “Avviso d’asta 4 ottobre 1867”; Ibidem, “Avviso d’asta: 6 ottobre 1867”; Ibidem, “Avviso d’asta: 14 ottobre 1867”; Ibidem, “Avviso d’asta: 14 novembre 1867”; Ibidem, “Avviso d’asta: 16 novembre 1867”. The importance of the arsenal for the firms of the province, especially the forges located in Val Gobbia, is underlined also in a defense submitted to the Italian Prime Minister and to the Italian Ministry of War regarding the decision of subordinating the Brescia state armories to the Arsenal of Terni. The document was written by Girolamo Orefici (mayor of Brescia), Giovanni Corridori (council member delegated by the mayor of Gardone Val Trompia), Polotti Giacomo (mayor of Lumezzane Pieve), Marcello Stanchino (representative of Lega dei Lavoratori dello Stato) and Carlo Bonardi (writer). See Aa. Vv. *Memoriale in Difesa della R. Fabbrica di Brescia-Gardone*, Apollonio, 1911 in ASCL, b. 171, f. 3.

This change in the political context in favor of the left sanctioned industrial capital's rise to power. Accelerated manufacturing expansion, the result of significant investments in equipment, paid off in a more marked ministerial manufacturing orientation and related approval of a new tariff standard in 1878.

Brescia's industrialists, including those in the armory sector, showed a willingness to take advantage of these new dynamics. The new managerial class's favorable attitude to the mechanics industry, especially the Brescia industry, as a result of Zanardelli's increased prestige within the left, was especially advantageous for the Fabbrica Erariale. This culminated in a long cycle of manufacturing growth which peaked in the mid-1880s with plans to enlarge the Gardone factory with related modernization of its machinery and an increase in indispensable energy generation. In the second half of the 1880s production contracted considerably with a low point in the 1890-1 two year period. The causes of this were manifold and concurrent as the Brescia military armories underwent a long period of stagnation from which they emerged only thanks to Giolitti's colonial policies in Libya and World War One (Montanari 2002)<sup>43</sup>.

### *Entrepreneurial dynamism*

An important feature of industrial districts is a great entrepreneurial ferment in addition to flexibility and the ability to adapt of the individuals taking part in this ferment. It was in many ways the state intervention described thus far which sparked off the return of private enterprise in the sector after the wretched Austrian parenthesis in Brescia. A case in point is the Vincenzo Bernardelli firm; Del Barba (2008, pp. 29, 32, 34) states that: «in 1865, after hearing of the issue of a tender by the arsenal - then re-organizing and seeking specialized craftsmen - Vincenzo Bernardelli decided to take the opportunity and try his luck. He left the Franzini firm and unexpectedly, instead of joining the Fabbrica Erariale, decided to set up his own workshop and work for the arsenal externally. [...] In a context of a rapid modernization drive in the organization of manufacturing processes [...] Vincenzo Bernardelli took his first steps in the world of Gardone entrepreneurship and, encouraged by continual demand from the arsenal (enthusiastically undertaking

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<sup>43</sup> Regarding the military policy in Liberal Italy see Degli Esposti (2006).

redistribution and organization of the area's work), he bought some rooms near his home-workshop in the early 1870s in order to attach them to a building he owned and extend the company's size». Very soon, «in the presence of ongoing demand for semi-worked goods triggered by the requirements of the Italian army and at a favorable moment in the hunting rifle trade, Vincenzo Bernardelli realized that the time was ripe to take a second leap forward in size terms: in 1883 he bought part of a workshop called "in Capo a Gardone" from Crescenzo Paris where he specialized in barrel making inaugurating», in his older workshops, «firing mechanism design with the objective of finally being capable of making whole rifles, i.e. firearms made by the firm in their entirety. He achieved this aim in around 1890 when the fourth of his sons, Giulio, joined the company having just left the local design school».

However his was not the only entrepreneurship story which stands out in the Val Trompia manufacturing fabric of those years. Bernardelli was, in fact, following in the footsteps of two other firms who had integrated all the various phases to produce complete firearms: Glisenti and Fabbrica d'Armi Pietro Beretta (FAPB or Beretta hereafter). These two companies established themselves as market leaders in those years with diverse strategies and took on the skill incubation role which was being undertaken in other districts by medium-large firms.

Glisenti was the first integrated steel group in the history of the province and was based in Villa Carcina. Its fortunes were the work of its founder, Francesco Glisenti, and his family on the basis of strong ties with the political authorities and impressive process and product innovation skills.

By means of this type of strategy and on the basis of a strong relationship with Giuseppe Zanardelli, Glisenti was able to carve out an important role for itself in the government contracts sector and become the standard bearer for a great many forges scattered across Val Trompia and along the Mella river (Montanari 1983; Marchesi 2004; Onger and Varini 2005).

In 1884, with an estimated social capital of 2.5 million L., the industry employed a total workforce of 880 and had horse power of around 600. Taking account of the various working phases the factories were spread out along the course of the Mella river following a downward transformation path and setting a complete and fully

integrated production cycle in motion. Further up, in Bovegno, was the mine from which 2000 tons of spatic magnesian iron was extracted which was fired in three continuous shaft furnaces with 50 workers engaged in extraction and firing. The mineral then passed to the Tavernole furnace, 50 kilometres further down the valley, where it was transformed into 1500 tons of cast iron using charcoal from the Valsabbia and Trentino. The Tavernole plant, with its 80 workers for six-seven months a year and a charcoal blast furnace with a 24 cubic meter capacity and two Siemens puddling furnaces, made Glisenti independent of the Pisogne blast furnace on which it had depended for cast iron supplies until then. The firm thus achieved production levels of 2000 tons of its own iron bars and puddled iron. Eleven kilometers further down the valley, in Zanano, there were two furnaces for forge welding and hammer rifling with a total of eight hydraulic hammers and related reverberatory blown furnaces with trompes for forge welding and reheating. Here the iron and steel bars from Tavernole were worked together with the steel produced in Carcina and scrap metal. A workforce of 90 worked 10,000 hundredweights of iron and steel every year. In Villa Cogozzo, a short distance from Carcina town, there was a plant made up of two buildings with a workforce of 100. The smallest was equipped with 25 operating machines used for rifle barrel boring and turning. The largest, by contrast, was equipped with one of the first Martin-Siemens furnaces in Italy<sup>44</sup> and three steam hammers one of which weighed 10 tons, built by Glisenti itself, and was capable of forging blocks weighing approximately 60 tons. This workshop was used for steel making with the partial use of scrap metal. Bar metals were produced here for the manufacturing of locomotives and carriage and locomotive axles for the Società delle Ferrovie dell'Alto Italia in addition to blocks of medium carbon steel for 120 mm canons for the Turin arsenal and 150 mm canons for the Navy. Lastly there was the most important of the plants, the Carcina plant referred to above, made up of three buildings used, respectively, for iron and steel production, mechanical construction and firearms manufacturing. The iron and steel building was equipped with two gas furnaces for carburized steel, a Siemens furnace with twelve crucibles assisted by four Sefström furnaces for the production

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<sup>44</sup> Designed in 1883 on plans by a French expert it began work in January of the following year, with four gasogenes, crane and reverberatory furnaces capable of producing 150 hundredweights of molten steel per day on a continuous cycle.

of molten cast steel without blow molding and for malleable cast iron fusion. There were also two foundries, one for malleable cast iron and the other for second fusion cast iron. With a 150 strong workforce the mechanical building workshop was fitted out for both machine manufacturing for third parties and the construction and maintenance of the company's machinery. Lastly there was an armory factory which, whilst it had a 100 rifle a day capacity, made 4000 military and hunting weapons per year. Here barrel working was completed with rifling and screw tightening, the mechanism parts were made and all housing and assembling processes took place (Onger 2009, pp. 63-65).

The case of FAPB is extremely interesting because it is an opportunity to highlight the extent to which the civilian arms market and local entrepreneurship played a complementary role to that of the state and military weaponry. It is true, as has been underlined on several occasions, that state contracts played a crucial role in reactivating a virtuous cycle within the local context. However, it is undeniable that the contract game tended to favor Piedmont and later the Terni arsenal<sup>45</sup>. Beretta certainly benefited from public contracts which emerged as of determinant importance for the growth of the firm but military production was accompanied right from the start by civilian contracts and, in particular, by arms for sports such as hunting, target shooting and skeet shooting (Onger and Paris 2012).

In the wake of Italian unification, FAPB set in motion an industrial concentration process in relation to its manufacturing activity in Gardone Val Trompia while at the same time maintaining its own control over a series of forges scattered throughout the valley. After having achieved a leading role in the local community of barrel manufacturers and traders in the first half of the 19<sup>th</sup> century, this historic family business began to concentrate in the Manenti forge all the various production phases to the extent of encompassing all finished firearm processes for both the military and hunting markets (Simoni 2010, pp. 55). The firm's production grew from 300 pieces in 1850 to 7000 in the early 1880s. The forge referred to above had a workforce of one hundred and a further 80 workers in

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<sup>45</sup> Once again on this point we can recall the decision of subordinating Brescia to Terni in 1910. See: Aa. Vv., *Memoriale in Difesa della R. Fabbrica di Brescia-Gardone*, Apollonio, 1911 in ASCL, b. 171, f. 3.



its various scattered workshops. Around half its production was exported to European and non-European markets (above all the Levant and northern Africa) and achieved new levels of excellence in both quantitative and qualitative terms in around 1880 thanks to new workshops equipped with modern machinery in a single, around 1000 square meter building in the center of Gardone town (Morin and Held 1980, p. 205; Bonetti 2004, p. 85). In other words, Giuseppe Antonio, the Beretta family member leading the company at the time, consolidated FAPB's passage from craft workshop to industrial factory not by making innovative process or product contributions but by assimilating the period's most avant-garde technology. It was precisely at this time, in fact, that the company invested in the ASM adopting specialized machine tools for mass production with interchangeable parts made by American Pratt & Whitney. Swimming against the tide of the generally negative reputation of Gardone armories which had taken root at the end of Venetian domination, FAPB opted for this system at more or less the same time as its main European competitors (Bohn and Jaikumar 2005, p. 54; Onger and Paris 2012, pp. 36-39).

To sum up, then, it might be said that the Beretta of the period considered here stood out for a far-sighted approach which took concrete form in two respects: on one hand its shrewd decision to ensure an alternative to military contracts with a marked focus on hunting shotguns, on the other the building of a factory of modern size and an organizational structure such as to exploit new economies of scale and potential diversification economies. The reasons for the diverse fates of the two sector leaders referred to above are in all likelihood to be traced to this far-sightedness. In the late 19th and early 20th centuries Glisenti encountered growing difficulties which did not enable it to survive the generational transfer from Francesco to his son Alfredo Glisenti. In the iron and steel sector it suffered in the general Lombard steel crisis from competition from Ligurian and Tuscan rivals and Società degli Alti Forni, Fonderie e Acciaierie di Terni. In the armory sector, it fell victim to the volatility of government contracts. For its part Beretta used the strategic choices illustrated to manage the generational transfer between Giuseppe Antonio and Pietro Beretta smoothly. It proved capable of managing and taking a leading role in the process separating the local iron and steel sector from the armory

industry and laid the foundations for a consolidated position in the decades to come as a full-blown national and international leader in the small arms sector (Onger 2009, pp. 70-73; Roffia 1997).

In the first decade of the 20th century, Beretta's importance within district dynamics was increasingly growing on the social plane too. Pietro Beretta presented his company as an example as far as the management of local industrial relations was concerned, founded as it was on labor agreements between liberals and socialists shored up by Zanardelli-inspired paternalism. Furthermore, in response to Glisenti's progressive decline, another Gardone firm referred to earlier, Bernardelli, came to the fore. As a matter of fact, while pursuing a growth in size through the concentration of work at a single location and a management strategy hinging on family relationships, Pietro Bernardelli stood out as primary exponent of Catholic associationalism presenting himself and his company as an alternative to the liberal world represented by the Beretta family (Del Barba 2008, pp. 53-66).

An industrial census of 1910 underlined that the majority of private armory firms in the province were concentrated in Brescia, Gardone, Inzino and Lumezzane. All those based in the former two towns worked firearm and revolver parts for the two sections of the Fabbrica Erariale in addition to their own hunting weapon ranges. The Gardone and Brescia firms were larger on average than those of the Gobbia valley which worked principally for third parties and on cold weapons continuing for the most part to use outdated working and technological organizational systems (Camera di Commercio e Industria di Brescia 1910)<sup>46</sup>.

## **Conclusion**

This study has retraced the key moments and events in the history of five of the most important industrial districts specializing in small arms making in the second half of the nineteenth century. Its objective was to observe the run up to World War One in Birmingham, Liège, Saint-Étienne Eibar and Brescia-Gardone Val Trompia

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<sup>46</sup> See Appendix 8 (p. 267) for all the data and information of the census regarding the provincial gun making industry.

to facilitate comparison. To this end special attention has been paid to the role played by the public authorities, a crucial player in a sector as strategic as arms production, and the innovations ushered in by the second industrial revolution. In particular, this analysis was prompted by two already well-consolidated study currents in economic and science and technology history studies. The former has retraced the crucial role played by the US government in the dissemination of ASM in its arsenals and from there in the private sector while the latter has underlined the importance, its limited time frame notwithstanding, of the factory system in district-based areas.

Whilst generalization is complicated by the diverse institutional and economic contexts of the states of which these districts formed part, several similarities and differences between these case studies can be highlighted. A first fact which is well known but merits further emphasis is the general delay in introducing a manufacturing system based on component interchangeability and oriented to mass production as compared to the US. In all cases, moreover, a conflictual relationship between local system players and the central authorities emerges clearly. A marked desire to maintain their autonomy on the part of private producers is evident in relation to the state's military requirements and monopolistic ambitions.

This conflictual relationship notwithstanding, in the period observed the authorities continued to exert a significant influence on the transformations taking place in European small arms districts. Public intervention took various forms, both direct and specific external action. The former of these encompasses English investments in the Enfield arsenal, French investment in the Manufacture d'armes de Saint-Étienne and Italian attempts to re-open the two sections of the Fabbrica Erariale di Brescia e Gardone. Examples of specific external action, on the other hand, are the granting of a loan by the Belgian government for the purchase of avant-garde machinery but also technology and skill transfers from the public to the private spheres in England.

In this way war ministries and governments played a role of some significance in the emergence of larger than average production units in these districts and, as had occurred in the United States, in introducing mass production techniques. Whilst in Enfield the Board of Ordnance decided to act as competitor to the private

producers with significant investments outside Birmingham, the decision served to prompt Warwickshire entrepreneurs both to join forces to found famous BSA and also to adopt a more co-operative approach to the central government. Whilst the Liège armories opted not to continue after their first FN contract with the Belgian government, the firm's technological facilities attracted capital from L. Loewe and Co. which made it a standard bearer for the local manufacturing system and internationally. Whilst in France the modernization of manufacturing processes clashed at length with armorers' resistance to change, the government's well-thought out strategy focusing on extremely large investments in the new Saint-Étienne factory and progressive mechanization emulating Anglo-Saxon examples but seeking the co-operation of the country's mechanical sector firms, succeeded in breaking through the obstacles it encountered in the first half of the nineteenth century on the road to the standardization of military arms.

It was precisely thanks, or in response, to the state intervention referred to above that certain private sector firms whose size meant that they could capitalize on the challenges posed by the second industrial revolution emerged in the European small arms market. The private sector contribution was especially significant in the Brescia and Gardone Italian manufacturing center. Here, as we have seen, recent unification served to bring in military contracts and revitalize the entrepreneurship fabric but it was above all the private firms and their investment in the civilian firearms sector, and hunting in particular, which enabled the sector to compete with its northern European rivals. A case in point is FAPB which was emulated by other sector operators and emerged as district sector leader.

In the light of this study's reconstruction, it would seem to be possible to argue that Europe's firearms production systems underwent a crucial transformation process in the second half of the 19<sup>th</sup> century which culminated in two important changes. First and foremost, a sort of dual trajectory emerged: on one hand traditional craft-type production systems persisted and continued to play a significant role in the production of hunting shotguns and, on the other, a more mechanized system developed which served above all to fulfil the military contract requirements of the various national governments. Secondly, the importance of the disseminated factory model inherited from the Early Modern period diminished.

Small workshops and forges did not disappear but rather specialized in high end civilian arms production or made parts for larger government factories capable of capitalizing on mechanization for both military and civilian production. In this way local small arms production systems also took part in the convergence process taking place in the structure of the armaments industries across Europe. Alongside state factories and arsenals which generally focused on supplying materials and technical testing, a network of private sector firms working mainly, but not exclusively for the military, was consolidated. Furthermore, specialized companies worked together with other firms making civilian arms for the most part but contributing, frequently significantly, to semi-worked or highly specialized goods supplies such as, for example, artillery components and chemical mixtures for gunpowder (Segreto 1997, p. 23).

Of the districts analyzed the only one in which the state was completely absent was the Spanish district. In Eibar, an area considered delicate from a geo-political perspective, the government decided to withdraw and invest elsewhere. The response of the district, after frequent complaints, was to focus on its traditional strengths: small size, flexibility and production specialization. In so doing, however, whilst it did specialize in making pistols and revolvers better suited to standardization, this Basque town did not succeed in the production process modernization which other districts had successfully completed. Quite the contrary. Its local producers were obliged to fall back on a strategy which focused on low prices and the emulation of well-established foreign models rather than quality and product innovation.



## Appendix 1

### *The Italian Production of Civilian Firearms (1920-2009)*

#### *Firearms Tested by Banco Nazionale di Prova di Gardone V.T.*

##### Sources:

- Pagani, M. and Camarlinghi, C. (2010), *Cento Anni di Prove. One Hundred Years of Proofing*, Banco Nazionale di Prova per le Armi da Fuoco Portatili e per le Munizioni Commerciali, Gardone Val Trompia.
- Bernardelli, C. (1990), *Gardone Valtrompia e le sue Armi. Un po' di Storia sul Banco di Prova e i suoi Fabbricanti d'Armi*.
- Bontempi, G. (1970), *Aspetti Aziendali dell'Industria Armiera nel Bresciano*, Università degli Studi di Padova. Facoltà di Economia e Commercio. Sezione Distaccata di Verona, Graduation Thesis, Supervisor: Prof. Giovanni Panati, a.y. 1969-70.

##### N.B.:

1. For the period 1950-1964 the data concerning over-under, side-by-side and semiautomatic shotguns in Pagani and Camarlinghi (2010) and Bernardelli (1990) were integrated with data from Bontempi (1970).
2. The category “Other single shotguns” includes rifles, carbines and floberts.
3. The category “Muzzle loading rifle replicas” includes single or double barrel pistols.
4. The category “Signal pistols” includes alarm pistols.

Year	O/U shotguns	S/S shotguns	Total shotguns	Single shotguns	Others single shotguns	Semiautomatic shotguns and pump-action guns	Muzzle loading rifles replicas	Total single shotguns	Total long firearms	Semiautomatic pistols	Muzzle loading revolvers	Revolvers	Total hand guns	Total firearms	Signal pistols
1920	-	-	1,734	-	-	-	-	19	1,753	3,573	-	-	3,573	5,326	-
1921	-	-	14,730	-	-	-	-	234	14,964	19,441	-	-	19,441	34,405	-
1922	-	-	20,432	-	-	-	-	1,803	22,235	4,843	-	-	4,843	27,078	-
1923	-	-	23,411	-	-	-	-	4,857	28,268	12,658	-	-	12,658	40,926	-
1924	-	-	21,006	-	-	-	-	6,142	27,148	19,031	-	-	19,031	46,179	-
1925	-	-	40,266	-	-	-	-	12,784	53,050	18,585	-	-	18,585	71,635	-
1926	-	-	33,897	-	-	-	-	11,438	45,335	23,976	-	-	23,976	69,311	-
1927	-	-	20,545	-	-	-	-	9,117	29,662	6,368	-	-	6,368	36,030	-
1928	-	-	16,261	-	-	-	-	8,104	24,365	7,602	-	-	7,602	31,967	-
1929	-	-	20,322	-	-	-	-	6,877	27,199	8,326	-	-	8,326	35,525	-
1930	-	-	10,861	-	-	-	-	4,197	15,058	8,691	-	-	8,691	23,749	-
1931	-	-	9,902	-	-	-	-	2,339	12,241	6,708	-	-	6,708	18,949	-
1932	-	-	6,571	-	-	-	-	1,822	8,393	6,339	-	-	6,339	14,732	-
1933	-	-	5,346	-	-	-	-	2,207	7,553	6,898	-	-	6,898	14,451	-
1934	-	-	5,601	-	-	-	-	2,126	7,727	5,176	-	-	5,176	12,903	-
1935	-	-	4,632	-	-	-	-	855	5,487	639	-	-	639	6,126	-
1936	-	-	4,478	-	-	-	-	903	5,381	4,874	-	-	4,874	10,255	-
1937	-	-	8,087	-	-	-	-	2,875	10,962	11,656	-	-	11,656	22,618	-
1938	-	-	13,447	-	-	-	-	4,055	17,502	10,154	-	-	10,154	27,656	-
1939	-	-	13,353	-	-	-	-	3,803	17,156	11,708	-	-	11,708	28,864	-
1940	-	-	9,716	-	-	-	-	1,507	11,223	26,945	-	-	26,945	38,168	-
1941	-	-	7,741	-	-	-	-	1,378	9,119	28,616	-	-	28,616	37,735	-
1942	-	-	6,855	-	-	-	-	1,619	8,474	20,993	-	-	20,993	29,467	-
1943	-	-	4,850	-	-	-	-	1,063	5,913	10,643	-	-	10,643	16,556	-
1944	-	-	1,313	-	-	-	-	187	1,500		-	-	-	1,500	-
1945	-	-	4,704	-	-	-	-	1,069	5,773	288	-	-	288	6,061	-
1946	-	-	19,287	-	-	-	-	8,704	27,991	15,573	-	-	15,573	43,564	-
1947	-	-	31,156	-	-	-	-	14,457	45,613	30,191	-	-	30,191	75,804	-
1948	-	-	32,088	-	-	-	-	15,364	47,452	28,814	-	-	28,814	76,266	-
1949	-	-	42,142	-	-	-	-	21,060	63,202	29,038	-	-	29,038	92,240	-
1950	2,198	41,215	43,413	-	-	1,775	-	19,786	63,199	33,897	-	-	33,897	97,096	-
1951	2,198	54,084	56,282	-	-	4,124	-	20,861	77,143	58,150	-	-	58,150	135,293	-
1952	2,495	57,359	59,854	-	-	4,091	-	33,376	93,230	81,332	-	-	81,332	174,562	-



Year	O/U shotguns	S/S shotguns	Total shotguns	Single shotguns	Others single shotguns	Semiautomatic shotguns and pump-action guns	Muzzle loading rifles replicas	Total single shotguns	Total long firearms	Semiautomatic pistols	Muzzle loading revolvers	Revolvers	Total hand guns	Total firearms	Signal pistols
1953	1,833	60,936	62,769	-	-	5,462	-	36,618	99,387	88,446	-	-	88,446	187,833	-
1954	1,957	66,724	68,681	-	-	7,563	-	34,458	103,139	54,918	-	-	54,918	158,057	-
1955	5,869	53,796	59,665	-	-	9,717	-	38,957	98,622	63,250	-	-	63,250	161,872	-
1956	2,876	52,672	55,548	-	-	10,636	-	40,308	95,856	89,918	-	-	89,918	185,774	-
1957	6,902	42,352	49,254	-	-	18,974	-	43,298	92,552	92,297	-	-	92,297	184,849	-
1958	11,952	44,220	56,172	-	-	19,871	-	57,411	113,583	86,977	-	-	86,977	200,560	-
1959	19,439	56,616	76,055	-	-	23,261	-	69,947	146,002	104,351	-	-	104,351	250,353	-
1960	27,230	68,019	95,249	-	-	34,865	-	92,463	187,712	11,223	-	-	11,223	198,935	-
1961	32,803	69,031	101,834	-	-	21,452	-	81,098	182,932	80,250	-	-	80,250	263,182	12,234
1962	41,449	59,815	101,264	-	-	34,562	-	78,686	179,950	62,474	-	-	62,474	242,424	22,786
1963	49,298	56,167	105,465	40,103		49,241	-	89,344	194,809	74,412	-	-	74,412	269,221	35,211
1964	49,552	62,269	111,821	51,095		63,257	-	114,352	226,173	65,287	-	-	65,287	291,460	35,161
1965	69,927	65,578	135,505	63,718		67,020	-	130,738	266,243	97,003	-	-	97,003	363,246	46,596
1966	72,375	59,243	131,618	60,182		67,699	-	127,881	259,499	122,459	12,000	-	134,459	393,958	44,133
1967	98,352	57,324	155,676	47,663	16,135	74,712	1,000	139,510	295,186	185,351	44,954	-	230,305	525,491	44,954
1968	124,440	46,572	171,012	30,782	42,198	76,242	6,000	155,222	326,234	232,703	22,000	-	254,703	580,937	55,204
1969	105,359	32,838	138,197	26,739	33,965	77,478	6,000	144,182	282,379	94,601	57,000	-	151,601	433,980	80,356
1970	108,114	29,586	137,700	34,592	36,669	90,726	26,000	187,987	325,687	76,297	90,000	-	166,297	491,984	118,680
1971	102,929	28,094	131,023	35,628	26,496	119,400	16,262	197,786	328,809	68,049	79,000	-	147,049	475,858	115,024
1972	118,520	25,823	144,343	33,100	27,504	129,275	20,473	210,352	354,695	77,898	89,000	-	166,898	521,593	129,577
1973	133,319	23,009	156,328	33,943	30,427	137,522	30,631	232,523	388,851	67,654	92,981	-	160,635	549,486	38,471
1974	160,018	23,961	183,979	35,982	37,647	147,831	35,504	256,964	440,943	85,143	109,664	-	194,807	635,750	68,119
1975	157,653	25,947	183,600	39,976	36,497	144,569	36,693	257,735	441,335	99,733	126,131	-	225,864	667,199	89,683
1976	142,790	32,392	175,182	41,684	29,057	152,383	51,312	274,436	449,618	109,342	126,688	-	236,030	685,648	74,189
1977	144,345	32,179	176,524	51,083	39,030	146,468	62,339	298,920	475,444	128,878	135,387	-	264,265	739,709	79,573
1978	129,285	29,000	158,285	48,544	45,169	108,768	59,959	262,440	420,725	184,860	139,391	-	324,251	744,976	81,240
1979	129,806	29,950	159,756	51,513	49,014	72,749	51,742	225,018	384,774	205,252	122,518	-	327,770	712,544	89,052
1980	143,049	22,697	165,746	50,763	54,281	83,358	50,754	239,156	404,902	160,612	132,873	-	293,485	698,387	104,588
1981	126,640	31,019	157,659	52,133	40,527	119,860	38,632	251,152	408,811	160,227	102,534	-	262,761	671,572	102,797
1982	131,791	33,005	164,796	63,827	50,865	175,317	19,608	309,617	474,413	183,187	59,662	54,790	297,639	772,052	10,544
1983	131,250	22,454	153,704	72,277	50,167	163,180	19,079	304,703	458,407	71,214	60,506	33,729	165,449	623,856	91,260
1984	138,650	24,630	163,280	66,765	35,479	115,557	32,876	250,677	413,957	54,974	63,443	48,565	166,982	580,939	128,603
1985	150,112	20,285	170,397	50,169	30,360	122,451	43,827	246,807	417,204	64,404	52,050	36,084	152,538	569,742	153,032

Year	O/U shotguns	S/S shotguns	Total shotguns	Single shotguns	Others single shotguns	Semiautomatic shotguns and pump-action guns	Muzzle loading rifles replicas	Total single shotguns	Total long firearms	Semiautomatic pistols	Muzzle loading revolvers	Revolvers	Total hand guns	Total firearms	Signal pistols
<b>1986</b>	120,299	21,403	<b>141,702</b>	60,822	39,072	123,400	38,459	<b>261,753</b>	<b>403,455</b>	88,174	56,785	32,559	<b>177,518</b>	<b>580,973</b>	111,985
<b>1987</b>	100,156	17,721	<b>117,877</b>	63,021	31,072	126,635	27,464	<b>248,192</b>	<b>366,069</b>	100,570	48,973	38,367	<b>187,910</b>	<b>553,979</b>	118,638
<b>1988</b>	96,180	14,686	<b>110,866</b>	32,744	27,663	104,471	25,078	<b>189,956</b>	<b>300,822</b>	109,292	46,145	43,637	<b>199,074</b>	<b>499,896</b>	153,353
<b>1989</b>	104,925	15,072	<b>119,997</b>	16,103	29,475	114,453	30,941	<b>190,972</b>	<b>310,969</b>	171,419	44,226	13,942	<b>229,587</b>	<b>540,556</b>	145,715
<b>1990</b>	117,233	17,676	<b>134,909</b>	15,264	28,390	107,518	29,715	<b>180,887</b>	<b>315,796</b>	139,911	46,590	19,264	<b>205,765</b>	<b>521,561</b>	131,002
<b>1991</b>	116,707	22,059	<b>138,766</b>	17,355	40,422	125,083	35,722	<b>218,582</b>	<b>357,348</b>	113,315	58,146	19,908	<b>191,369</b>	<b>548,717</b>	138,428
<b>1992</b>	89,547	13,733	<b>103,280</b>	9,466	32,139	108,893	34,990	<b>185,488</b>	<b>288,768</b>	138,802	68,437	26,601	<b>233,840</b>	<b>522,608</b>	157,524
<b>1993</b>	88,451	10,547	<b>98,998</b>	10,872	27,310	134,357	32,753	<b>205,292</b>	<b>304,290</b>	102,291	64,076	30,730	<b>197,097</b>	<b>501,387</b>	392,588
<b>1994</b>	97,640	12,488	<b>110,128</b>	11,891	25,322	150,597	43,138	<b>230,948</b>	<b>341,076</b>	141,297	85,040	28,457	<b>254,794</b>	<b>595,870</b>	300,121
<b>1995</b>	98,364	13,312	<b>111,676</b>	11,535	27,180	158,096	43,938	<b>240,749</b>	<b>352,425</b>	145,171	102,257	26,900	<b>274,328</b>	<b>626,753</b>	196,089
<b>1996</b>	104,306	13,579	<b>117,885</b>	12,509	28,616	163,046	46,931	<b>251,102</b>	<b>368,987</b>	143,651	69,180	24,080	<b>236,911</b>	<b>605,898</b>	308,522
<b>1997</b>	112,629	13,434	<b>126,063</b>	10,568	26,622	150,400	24,309	<b>211,899</b>	<b>337,962</b>	85,510	46,789	17,529	<b>149,828</b>	<b>487,790</b>	212,752
<b>1998</b>	94,063	11,934	<b>105,997</b>	12,325	23,446	147,697	35,102	<b>218,570</b>	<b>324,567</b>	94,217	43,267	12,785	<b>150,269</b>	<b>474,836</b>	119,917
<b>1999</b>	83,775	10,404	<b>94,179</b>	8,279	23,884	178,287	30,097	<b>240,547</b>	<b>334,726</b>	82,069	42,587	13,447	<b>138,103</b>	<b>472,829</b>	108,120
<b>2000</b>	94,661	4,650	<b>99,311</b>	8,060	32,114	228,197	34,611	<b>302,982</b>	<b>402,293</b>	69,304	47,156	15,259	<b>131,719</b>	<b>534,012</b>	110,633
<b>2001</b>	106,929	5,269	<b>112,198</b>	6,776	28,204	250,135	36,712	<b>321,827</b>	<b>434,025</b>	102,456	55,422	20,024	<b>177,902</b>	<b>611,927</b>	113,774
<b>2002</b>	125,145	6,163	<b>131,308</b>	9,731	30,263	228,176	33,204	<b>301,374</b>	<b>432,682</b>	115,044	54,808	26,618	<b>196,470</b>	<b>629,152</b>	107,171
<b>2003</b>	118,265	5,791	<b>124,056</b>	8,412	52,255	256,084	27,411	<b>344,162</b>	<b>468,218</b>	89,939	43,366	22,198	<b>155,503</b>	<b>623,721</b>	96,442
<b>2004</b>	113,103	5,486	<b>118,589</b>	5,783	64,490	239,581	26,061	<b>335,915</b>	<b>454,504</b>	118,707	40,299	28,108	<b>187,114</b>	<b>641,618</b>	94,071
<b>2005</b>	114,507	5,573	<b>120,080</b>	5,821	46,191	233,565	23,300	<b>308,877</b>	<b>428,957</b>	85,483	37,935	26,262	<b>149,680</b>	<b>578,637</b>	81,395
<b>2006</b>	111,715	5,208	<b>116,923</b>	4,607	44,783	213,567	19,858	<b>282,815</b>	<b>399,738</b>	96,436	32,620	30,223	<b>159,279</b>	<b>559,017</b>	100,378
<b>2007</b>	113,854	5,658	<b>119,512</b>	5,208	54,475	244,251	22,061	<b>325,995</b>	<b>445,507</b>	137,006	32,498	31,273	<b>200,777</b>	<b>646,284</b>	104,642
<b>2008</b>	99,013	4,751	<b>103,764</b>	4,089	48,759	224,700	16,743	<b>294,291</b>	<b>398,055</b>	163,438	32,503	28,064	<b>224,005</b>	<b>622,060</b>	102,959
<b>2009</b>	75,724	3,596	<b>79,320</b>	6,150	54,534	152,466	13,291	<b>226,441</b>	<b>305,761</b>	195,353	35,535	19,623	<b>250,511</b>	<b>556,272</b>	96,292

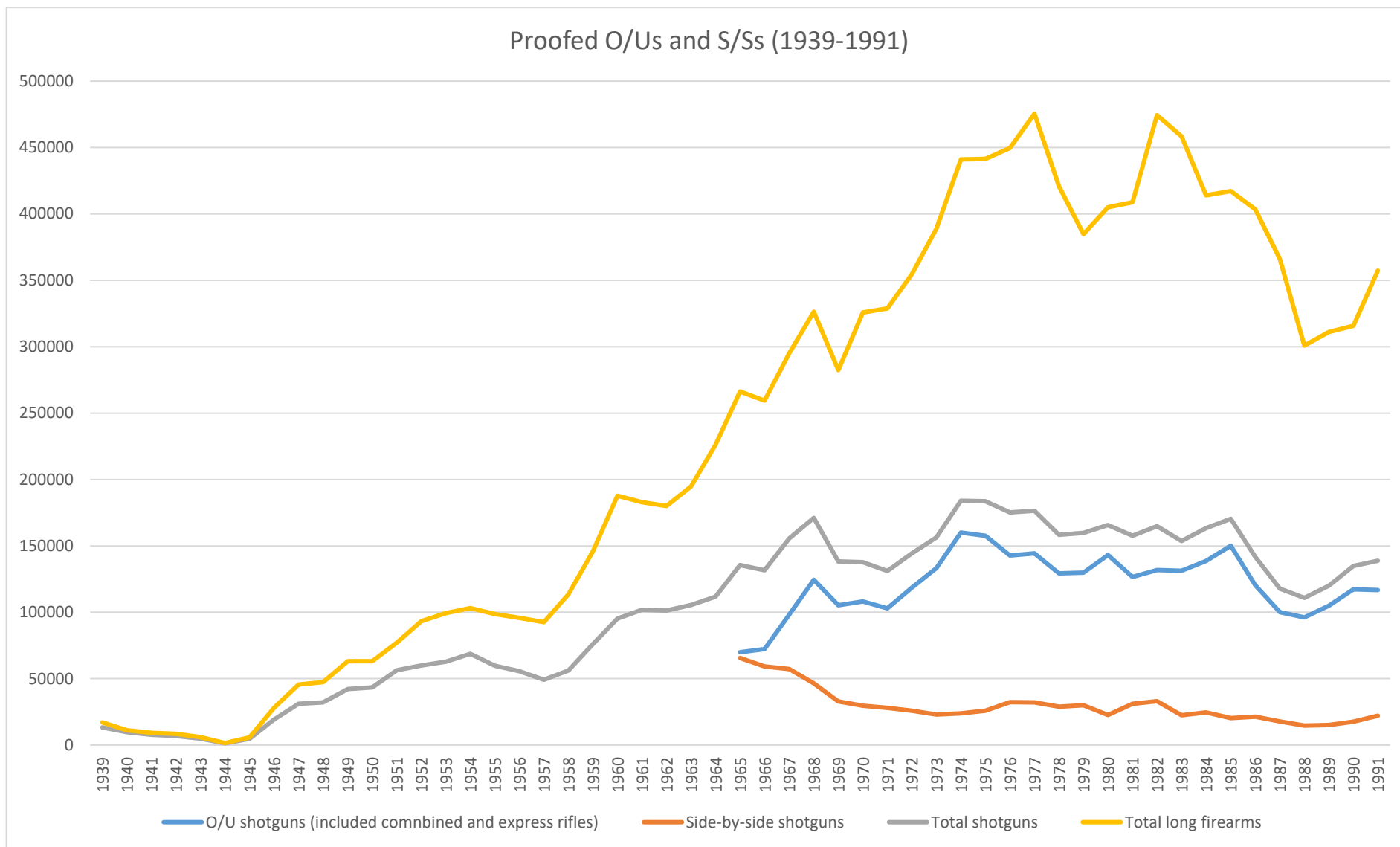


Chart 1.1 – Source: data (Pagani and Camarlinghi 2010; Bontempi 1970) processed by the author

Proofed single and semiautomatic shotguns and replicas (1939-1991)

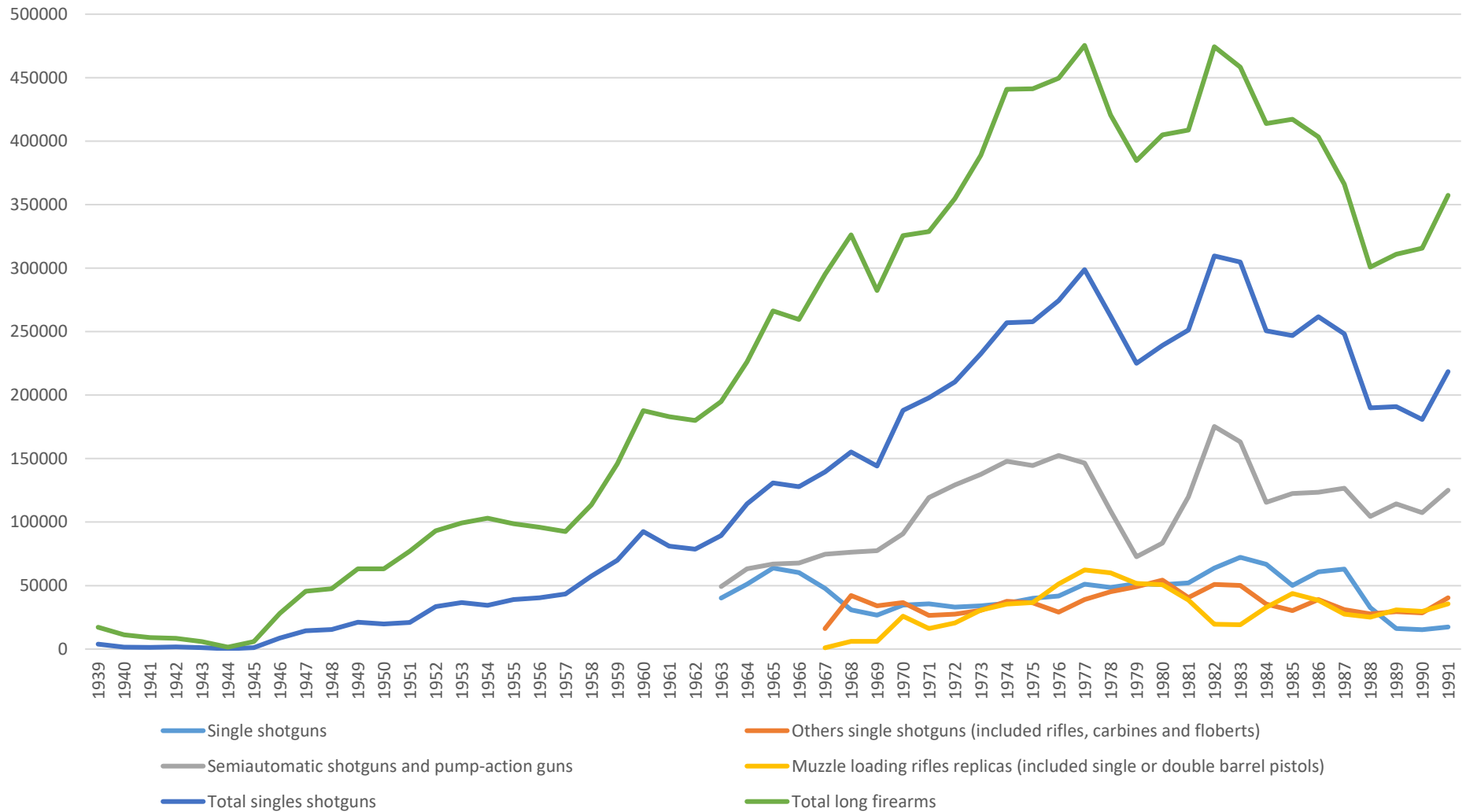


Chart 1.2 – Source: data (Pagani and Camarlinghi 2010) processed by the author

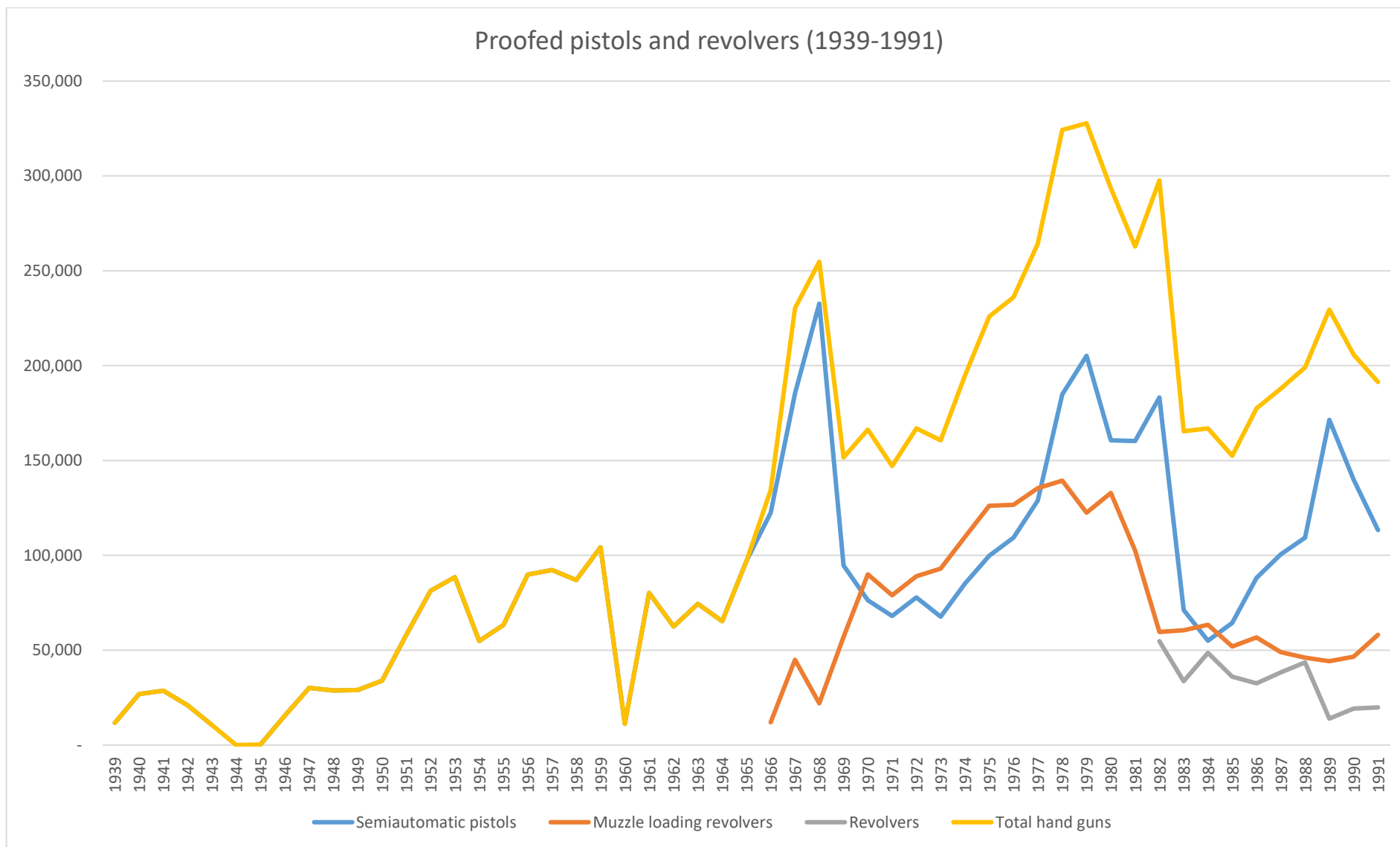


Chart 1.3 – Source: data (Pagani and Camarlinghi 2010) processed by the author

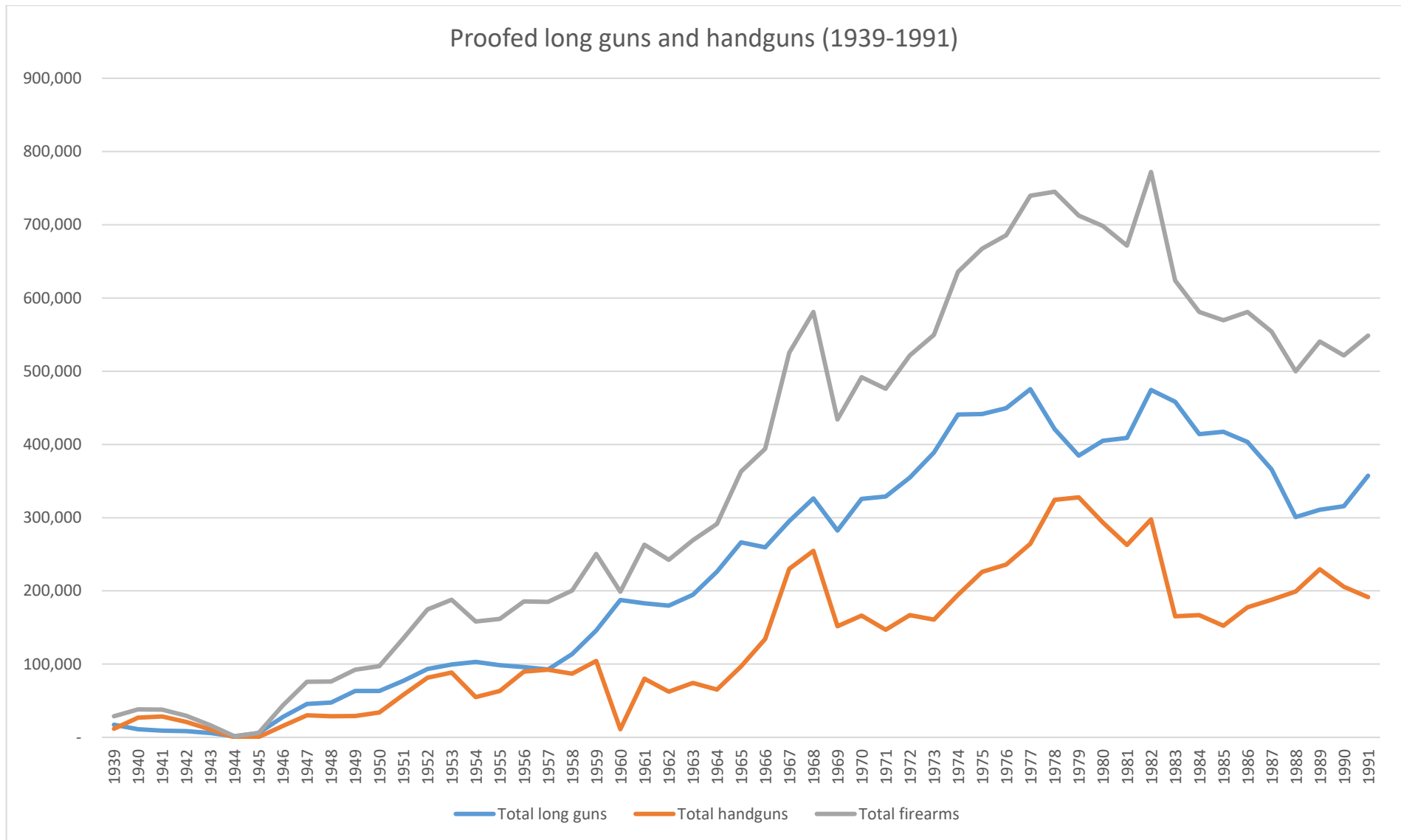


Chart 1.4 – Source: data (Pagani and Camarlinghi 2010) processed by the author

## Appendix 2

### *Workforce in the Firearms Industry*

*(Province of Brescia, 1951-1981)*

### *Geographical Concentration and Production Specialization*

#### Sources:

- Industry and services census by Istat, 1951.
- Industry and services census by Istat, 1961.
- Industry and services census by Istat, 1971.
- Industry and services census by Istat, 1981.
- Archivio Storico della Camera di Commercio di Brescia, Carteggio 1943-1963 – Categorie XXII-XXXII, boxes 867-868, 902-911, 913-914, 919, 928, 934, 938, 940, 944, 947, 949, 954-955, 958-959, 963, 969, 973, 980, 989.

#### N.B.:

This appendix includes a database with data regarding the workforce and firms in the firearms industry, as well as the manufacturing and mechanical engineering sectors in the province of Brescia. The data were employed to calculate the indices of geographical concentration and production specialization in firearms manufacturing for each municipality in the province.

The geographical concentration index provides information about the percentage and relative importance of each municipality on the regional workforce<sup>1</sup> in the sector. This is obtained by dividing the number of the employed workforce in the gun industry in a given municipality by the number of the employed workforce in the same industry in the entire region.

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<sup>1</sup> In this case the broader region chosen corresponds to the provincial territory since most or a large share (depending on the year) of the national firearms industry workforce is located there as can be inferred by comparing provincial and national data.

The production specialization index shows the degree of specialization of a given area with respect to an industry that has significant relevance in the economic activities of the same area. In other words, it is possible to identify areas characterized by the prevalence of a specific type of production. This index (IPS) is calculated as follows:

$$IPS = \frac{\left(\frac{A_{ij}}{A_{iv}}\right)}{\left(\frac{A_{vj}}{A_{\infty}}\right)}$$

Where:  $A_{ij}$ = number of employees in the  $i$ -th municipality in the  $j$ -th sector;  $A_{iv}$ = number of employees in the  $i$ -th municipality in the manufacturing industry;  $A_{vj}$ = number of employees in the region in the  $j$ -th sector;  $A_{\infty}$ = number of employees in the region in the manufacturing sector.

Given the nature of its structure, the index has a lower bound equal to zero, but no upper bound. Despite some distortions, this index represents a simple method for the analysis of the sectorial specialization of a given territory compared to the average of the much wider area around it. A value of over 1 indicates specialization in the sector in question. In order to obtain more comparability for the data they are normalized by creating a range of values between -1 and +1 as follows:

$$IPS_N = \frac{IPS - 1}{IPS} + 1$$

Data regarding manufacturing and the mechanical engineering sectors were taken from official statistics. Those for the firearms industry were found in the archives for the years 1951 and 1961 and taken from official statistics for 1971 and 1981. For 1951 summarizing tables of the census were available, for 1961 it was necessary to go through all the questionnaires filled in by each firm of all the municipalities in the province. For the first two censuses (1951, 1961) original documents had to be used because the official statistics produced by Istat do not provide such refined data.

Two charts regarding the local units and the workforce employed in the firearms industry of three central Val Trompia municipalities (Gardone Val Trompia, Marcheno and Sarezso) are included.



Table 2.1 - Indices of Concentration and Specialization of the gun industry in the municipalities in the province of Brescia in 1951. Source: data processed by the author

Municipalities	Workers per sector			Indices on a regional basis		Gun making		Local units in gun making
	Manufacturing (a)	Mechanical (b)	Gun making (c)	Concentration	Specialization	Manufacturing (c/a)	Mechanical (c/b)	
Gardone V.T.	3,057	2,501	2,254	68.93%	0.90	73.73%	90.12%	92
Brescia	2,3738	12,639	934	28.56%	0.01	3.93%	7.39%	33
Sulzano	105	30	26	0.80%	0.73	24.76%	86.67%	1
Lumezzane	3,770	3,021	25	0.76%	-0.70	0.66%	0.83%	4
Collebeato	39	16	14	0.43%	0.81	35.90%	87.50%	2
Sarezzo	701	125	4	0.12%	-0.74	0.57%	3.20%	3
Angolo	20	2	2	0.06%	0.45	10.00%	100.00%	1
Marcheno	60	5	2	0.06%	-0.07	3.33%	40.00%	1
Nave	620	81	2	0.06%	-0.84	0.32%	2.47%	2
Ospitaletto	1,547	26	2	0.06%	-0.93	0.13%	7.69%	1
Villa Carcina	3,038	670	2	0.06%	-0.97	0.07%	0.30%	1
Castenedolo	128	22	1	0.03%	-0.66	0.78%	4.55%	1
Manerbio	2,148	59	1	0.03%	-0.98	0.05%	1.69%	1
Rezzato	1,297	207	1	0.03%	-0.96	0.08%	0.48%	1
BS (province)	85,349	25,790	3,270	100.00%	0.00	3.83%	12.68%	144
Italy	3,498,220	1,488,568	4,892	-	-	0.14%	0.33%	183

Table 2.2 - Indices of Concentration and Specialization of the gun industry in the municipalities in the province of Brescia in 1961. Source: data processed by the author

Municipalities	Workers per sector			Indices on a regional basis		Gun making		Local units in gun making
	Manufacturing (a)	Mechanical (b)	Gun making (c)	Concentration	Specialization	Manufacturing (c/a)	Mechanical (c/b)	
Gardone V.T.	3,941	3,033	2,477	57.43%	0.89	62.85%	81.67%	143
Brescia	37,730	22,240	1,483	34.38%	0.01	3.93%	6.67%	38
Ghedi	549	164	115	2.67%	0.69	20.95%	70.12%	1
Lumezzane	7,154	6,051	75	1.74%	-0.57	1.05%	1.24%	7
Collebeato	283	188	58	1.34%	0.69	20.49%	30.85%	1
Sarezzo	1,073	505	54	1.25%	0.14	5.03%	10.69%	15
Marcheno	225	170	29	0.67%	0.56	12.89%	17.06%	10
Manerbio	2,759	169	8	0.19%	-0.86	0.29%	4.73%	3
Castenedolo	200	34	4	0.09%	-0.31	2.00%	11.76%	1
Nuvolera	149	11	2	0.05%	-0.48	1.34%	18.18%	1
Pezzaze	31	9	2	0.05%	0.26	6.45%	0.00%	1
Prevalle	286	215	2	0.05%	-0.69	0.70%	0.93%	1
Bovezzo	146	99	1	0.02%	-0.70	0.68%	0.00%	1
Concesio	686	189	1	0.02%	-0.93	0.15%	0.53%	1
Erbusco	338	59	1	0.02%	-0.86	0.30%	1.69%	1
Mazzano	257	98	1	0.02%	-0.82	0.39%	1.02%	1
BS	112,621	47,132	4,313	100,00%	0.00	3.83%	9.15%	226
Italy	4,498,004	2,212,682	5,367	-	-	0.12%	0.24%	229

Table 2.3 - Indices of Concentration and Specialization of the gun industry in the municipalities in the province of Brescia in 1971. Source: data processed by the author

Municipalities	Workers per sector			Indices on a regional basis		Gun making		Local units in gun making
	Manufacturing (a)	Mechanical (b)	Gun making (c)	Concentration	Specialization	Manufacturing (c/a)	Mechanical (c/b)	
Gardone V.T.	4,244	3,350	2,535	52.2%	0.90	59.7%	75.7%	107
Brescia	41,114	23,948	1,698	35.0%	0.11	4.1%	7.1%	22
Sarezzo	1,996	1,448	203	4.2%	0.51	10.2%	14.0%	10
Marcheno	557	302	156	3.2%	0.79	28.0%	51.7%	16
San Paolo	398	63	47	1.0%	0.56	11.8%	74.6%	1
Calcinato	1,774	489	40	0.8%	-0.19	2.3%	8.2%	1
Collebeato	641	559	33	0.7%	0.22	5.1%	5.9%	2
Lumezzane	8,220	6,843	33	0.7%	-0.78	0.4%	0.5%	5
Rezzato	2,759	843	19	0.4%	-0.65	0.7%	2.3%	1
Concesio	1,325	623	15	0.3%	-0.49	1.1%	2.4%	2
Gussago	1,393	568	15	0.3%	-0.51	1.1%	2.6%	1
Manerbio	2,462	448	14	0.3%	-0.71	0.6%	3.1%	2
Lodrino	77	67	13	0.3%	0.67	16.9%	19.4%	6
Bovegno	106	26	9	0.2%	0.44	8.5%	34.6%	1
Tavernole s/M.	144	55	8	0.2%	0.26	5.6%	14.5%	4
Prevalle	579	405	4	0.1%	-0.65	0.7%	1.0%	2
Gottolengo	723	155	3	0.1%	-0.78	0.4%	1.9%	1
Castenedolo	1,139	367	2	0.04%	-0.90	0.2%	0.5%	2
Polaveno	30	18	1	0.02%	0.01	3.3%	5.6%	1
Nuvolera	147	21	1	0.02%	-0.66	0.7%	4.8%	1
Mazzano	543	231	1	0.02%	-0.89	0.2%	0.4%	1
Iseo	596	190	1	0.02%	-0.90	0.2%	0.5%	1
Nave	2,248	344	1	0.02%	-0.97	0.04%	0.3%	1
Villa Carcina	2,371	1,013	1	0.02%	-0.97	0.04%	0.1%	1
BS	147,182	65,068	4,853	100.00%	0.00	3.3%	7.5%	192
Italy	5,308,587	2,904,059	9,504	-	-	0.1%	0.3%	296

Table 2.4 - Indices of Concentration and Specialization of the gun industry in the municipalities in the province of Brescia in 1981. Source: data processed by the author

Municipalities	Workers per sector			Indices on a regional basis		Gun making		Local units in gun making
	Manufacturing (a)	Mechanical (b)	Gun making (c)	Concentration	Specialization	Manufacturing (c/a)	Mechanical (c/b)	
Gardone V.T.	4,433	3,517	2,408	45.2%	0.90	54.3%	68.5%	138
Brescia	38,164	23,419	1,952	36.6%	0.27	5.1%	8.3%	26
Marcheno	1,000	754	249	4.7%	0.79	24.9%	33.0%	31
Sarezzo	3,192	2,463	237	4.4%	0.44	7.4%	9.6%	27
Cologne	1,960	1,121	84	1.6%	0.19	4.3%	7.5%	2
Gussago	1,985	1,147	48	0.9%	-0.09	2.4%	4.2%	4
San Paolo	768	94	31	0.6%	0.16	4.0%	33.0%	1
Lodrino	213	182	26	0.5%	0.61	12.2%	14.3%	13
Collio	93	81	22	0.4%	0.78	23.7%	27.2%	2
Manerbio	2,665	763	21	0.4%	-0.57	0.8%	2.8%	3
Caino	241	32	20	0.4%	0.48	8.3%	62.5%	2
Concesio	1,757	1,098	20	0.4%	-0.44	1.1%	1.8%	4
Calcinato	2,495	1,209	20	0.4%	-0.57	0.8%	1.7%	2
Tavernole s/M.	288	153	19	0.4%	0.39	6.6%	12.4%	7
Collebeato	586	410	19	0.4%	0.05	3.2%	4.6%	1
Lumezzane	9,202	8,570	19	0.4%	-0.87	0.2%	0.2%	6
Desenzano d/G.	2,106	1,318	18	0.3%	-0.55	0.9%	1.4%	1
Montichiari	2,367	965	13	0.2%	-0.68	0.5%	1.3%	1
Villa Carcina	2,352	1,435	12	0.2%	-0.70	0.5%	0.8%	4
Polaveno	226	177	9	0.2%	0.16	4.0%	5.1%	3
Pezzazze	100	73	7	0.1%	0.41	7.0%	9.6%	2
Roè Volciano	700	215	6	0.1%	-0.55	0.9%	2.8%	1
Vestone	1,170	795	6	0.1%	-0.70	0.5%	0.8%	1
Lonato	1,893	624	5	0.1%	-0.83	0.3%	0.8%	1
Marmentino	35	34	4	0.1%	0.59	11.4%	11.8%	3
Bovegno	64	45	4	0.1%	0.36	6.3%	8.9%	3

<i>Continues from the previous page</i>								
Municipalities	Workers per sector			Indices on a regional basis		Gun making		Local units in gun making
	Manufacturing (a)	Mechanical (b)	Gun making (c)	Concentration	Specialization	Manufacturing (c/a)	Mechanical (c/b)	
Ceto	517	78	4	0.1%	-0.58	0.8%	5.1%	1
Nuvolera	423	116	4	0.1%	-0.51	0.9%	3.4%	2
San Zeno N.	744	225	4	0.1%	-0.69	0.5%	1.8%	1
Mairano	200	103	3	0.1%	-0.32	1.5%	2.9%	2
Marone	375	127	3	0.1%	-0.57	0.8%	2.4%	2
Iseo	696	222	3	0.1%	-0.74	0.4%	1.4%	1
Travagliato	920	366	3	0.1%	-0.80	0.3%	0.8%	2
Flero	1,239	874	3	0.1%	-0.85	0.2%	0.3%	1
Vallio Terme	125	44	2	0.04%	-0.29	1.6%	4.5%	1
Verolavecchia	430	135	2	0.04%	-0.72	0.5%	1.5%	1
Cellatica	568	364	2	0.04%	-0.78	0.4%	0.5%	1
Castel Mella	618	256	2	0.04%	-0.80	0.3%	0.8%	1
Prevalle	759	369	2	0.04%	-0.83	0.3%	0.5%	1
Gottolengo	891	346	2	0.04%	-0.86	0.2%	0.6%	2
Coccaglio	988	599	2	0.04%	-0.87	0.2%	0.3%	1
Roncadelle	1,479	723	2	0.04%	-0.91	0.1%	0.3%	1
Rezzato	2,669	1,155	2	0.04%	-0.95	0.1%	0.2%	1
Bovezzo	624	167	1	0.02%	-0.90	0.2%	0.6%	1
Mazzano	1,037	588	1	0.02%	-0.94	0.1%	0.2%	1
Rovato	2,414	1,374	1	0.02%	-0.97	0.04%	0.1%	1
Verolanuova	3,081	1,071	1	0.02%	-0.98	0.03%	0.1%	1
BS	182,985	92,713	5,328	100.0%	0.00	2.9%	5.7%	315
Italy	6,143,378	3,497,785	19,677	-	-	0.3%	0.5%	1,348

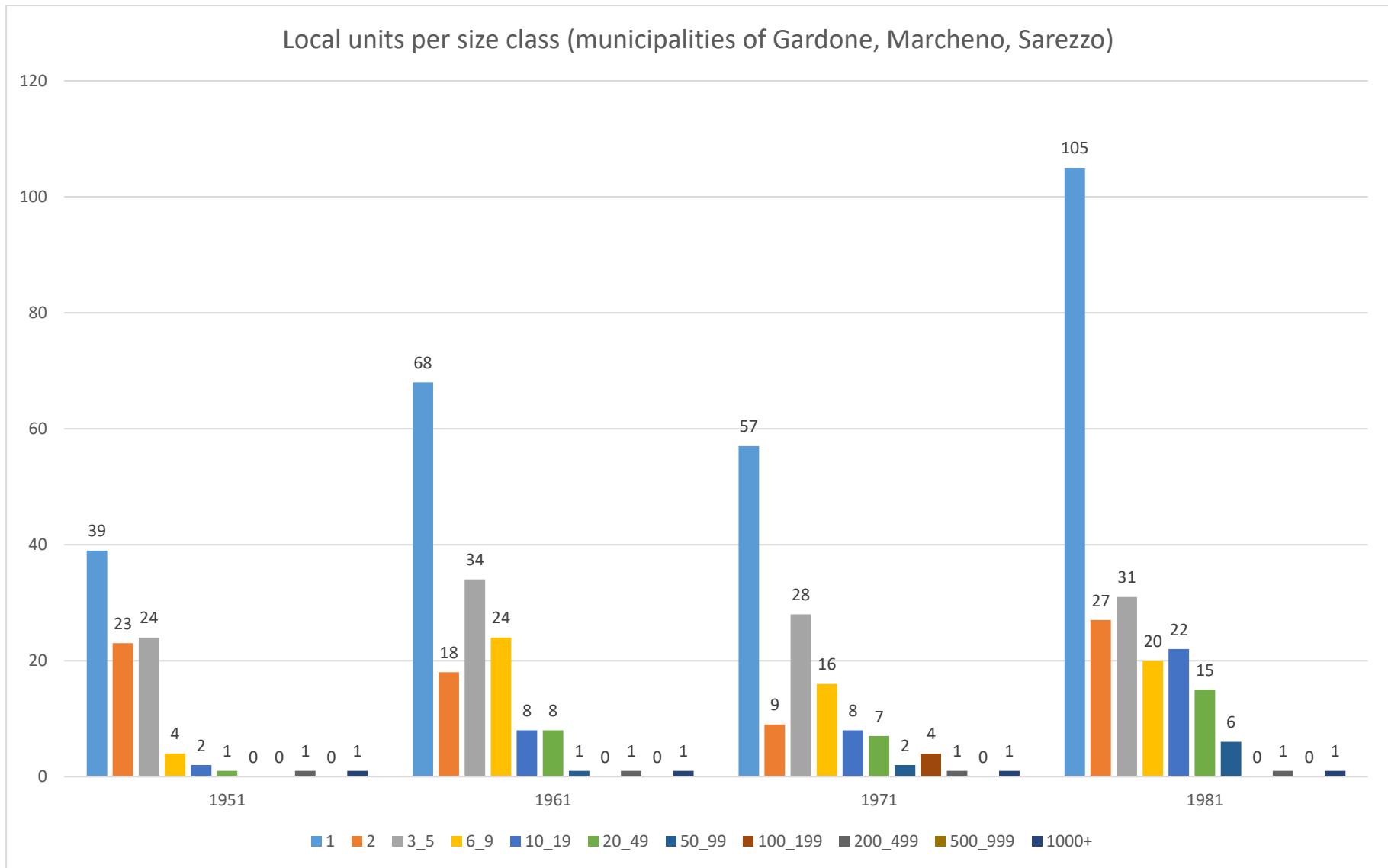


Chart 2.1 - Source: data processed by the author

Workforce per size class (municipalities of Gardone, Marcheno, Sarezzo)

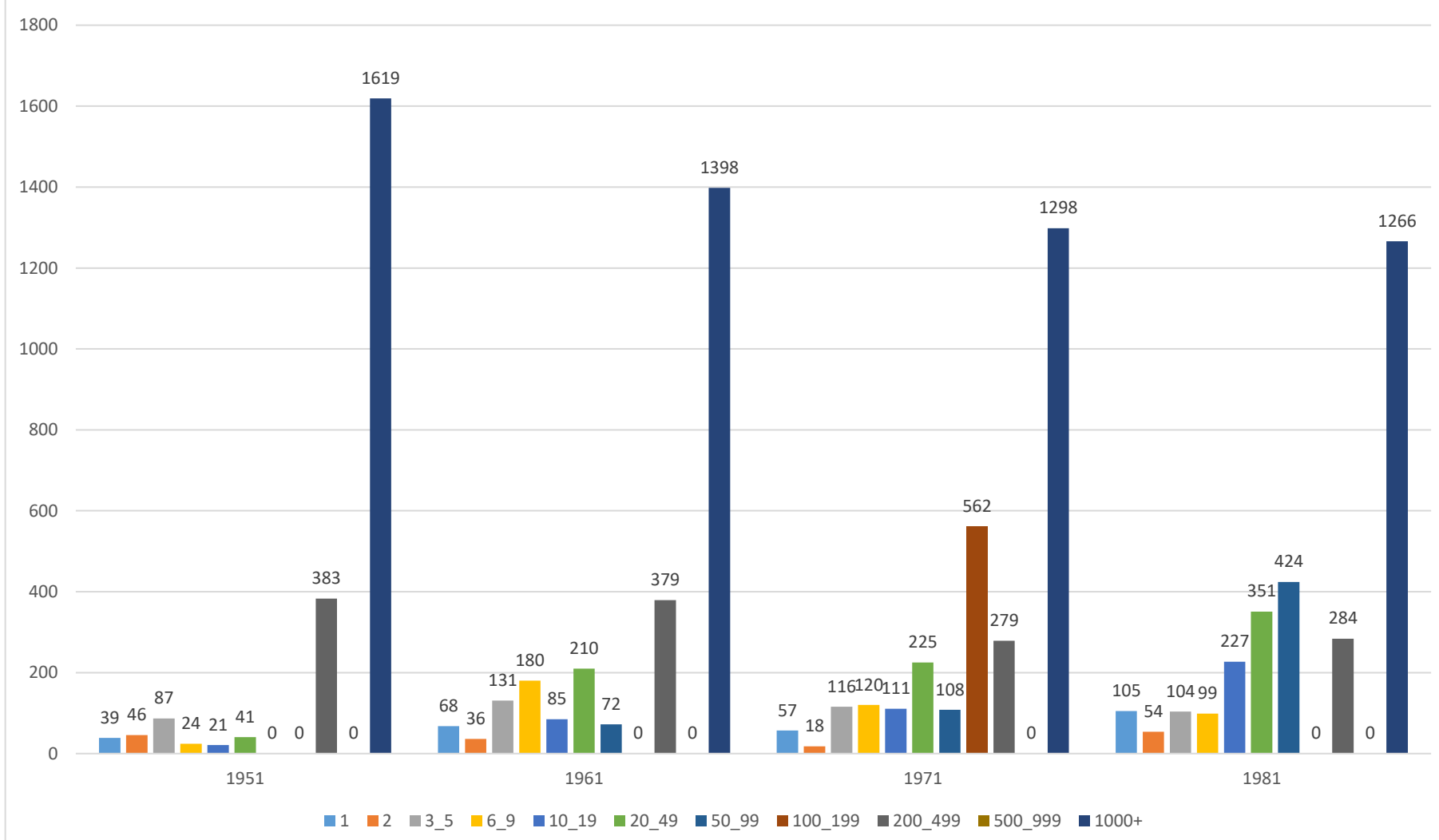


Chart 1.2 - Source: data processed by the author





## Appendix 3

*Firms of the Industrial District (Gardone-Marcheno-Sarezzo, 1961)*

*Istat Industry and Services Census 1961*

### Sources:

- Archivio Storico della Camera di Commercio di Brescia, Carteggio 1943-1963 – Categorie XXII-XXXI, boxes 947, 959 and 980.

### Notes:

This appendix includes the database of firms in Gardone Val Trompia, Marcheno and Sarezzo active in the local gun industry.

For each enterprise, the information included is as follows:

- business name;
- municipality where the firm is seated;
- legal form;
- year of foundation;
- primary activity;
- workforce;
- participation of the owner in the production (continuous, occasional, absent);
- order system (on customer order, with and without pre-order, without pre-order);
- level of mechanization (fully mechanized, partially mechanized, unmechanized);
- production site (suitable premises, home);
- participation of members of the owner's family in the activities of the firm.

Where no information is available it is specified by n.a. (not available).

Several tables and charts to represent the data are included.

<b>Firms</b>	<b>Municipality</b>	<b>Legal form</b>	<b>Year of foundation</b>	<b>Primary activity</b>	<b>Workforce</b>	<b>Participation of the owner in the production</b>	<b>Orders</b>	<b>Mechanization</b>	<b>Production site</b>	<b>Family</b>
Ricetti Domenico e figlio	Gardone V.T.	De facto corporation	1950	Burnishing and polishing	8	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Mularoni Domenica	Gardone V.T.	Sole proprietorship	1961	Burnishing and polishing	2	Occasional	On customer order	Unmechanized	Suitable premises	Yes
Mazzoldi Angelo	Gardone V.T.	Sole proprietorship	1955	Burnishing and polishing	5	Continuous	On customer order	Unmechanized	Suitable premises	No
Galvanicolor di Berardi Mario	Sarezzo	Sole proprietorship	1930	Burnishing and polishing	3	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Belleri Elisabetta	Gardone V.T.	Sole proprietorship	1958	Engraving	1	Occasional	On customer order	Unmechanized	Home	No
Bertasi Giuseppe	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Tempini Giulio	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Lucimec	Gardone V.T.	Sole proprietorship	n.a.	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Guerini Stefano	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Revera Vasco	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Facchini Francesco	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Camossi Giovanni	Gardone V.T.	Sole proprietorship	1959	Engraving	1	n.a.	n.a.	n.a.	Home	No
Morbini Zefferino	Gardone V.T.	Sole proprietorship	1960	Engraving	1	n.a.	n.a.	Unmechanized	Suitable premises	No
Belleri Giovan Battista	Gardone V.T.	Sole proprietorship	1961	Engraving	1	n.a.	n.a.	n.a.	Suitable premises	No
Gallia Bruno	Gardone V.T.	Sole proprietorship	1959	Engraving	1	Continuous	On customer order	Partially mechanized	Home	No
Marocchi Giuseppe	Gardone V.T.	Sole proprietorship	1958	Engraving	4	Continuous	On customer order	Unmechanized	Suitable premises	No
Bertocchi Luigi	Gardone V.T.	Sole proprietorship	1958	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Muffolini Rosina	Gardone V.T.	Sole proprietorship	1960	Engraving	1	n.a.	n.a.	Unmechanized	Home	No
Fontana Angelo	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Giudicati Mario	Gardone V.T.	Sole proprietorship	1959	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Bravi Federico	Gardone V.T.	Sole proprietorship	1958	Engraving	1	Occasional	On customer order	Unmechanized	Home	No
Tagliabue Claudio	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Darini Davide	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Piotti Amore	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Home	No

<b>Firms</b>	<b>Municipality</b>	<b>Legal form</b>	<b>Year of foundation</b>	<b>Primary activity</b>	<b>Workforce</b>	<b>Participation of the owner in the production</b>	<b>Orders</b>	<b>Mechanization</b>	<b>Production site</b>	<b>Family</b>
Turrini Giuseppe	Gardone V.T.	Sole proprietorship	1959	Engraving	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Romelli Firmo	Gardone V.T.	Sole proprietorship	1959	Engraving	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Tolotti Giampietro	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Facchini Vincenzo	Gardone V.T.	Sole proprietorship	1960	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Gamba Arturo	Gardone V.T.	Sole proprietorship	1958	Engraving	1	Occasional	On customer order	Unmechanized	Home	No
Bonsi Matilde	Gardone V.T.	Sole proprietorship	1961	Engraving	1	n.a.	n.a.	n.a.	Home	No
Mazzaroli Aldo Incisore	Sarezzo	Sole proprietorship	1957	Engraving	1	Continuous	On customer order	Unmechanized	Home	No
Soardi Rosa	Gardone V.T.	Sole proprietorship	1960	Firearm parts manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Tavana Antonio & C.	Gardone V.T.	Limited partnership	1958	Firearm parts manufacturing	21	Occasional	With and without pre-order	Unmechanized	Suitable premises	No
Poli Luigi	Gardone V.T.	Sole proprietorship	1959	Firearm parts manufacturing	2	Continuous	Without pre-order	Unmechanized	Suitable premises	No
Passeri Silvio	Gardone V.T.	Sole proprietorship	1960	Firearm parts manufacturing	1	Occasional	On customer order	Unmechanized	Suitable premises	No
Bonomi Giov. Battista	Gardone V.T.	Sole proprietorship	1942	Firearm parts manufacturing	8	Continuous	Without pre-order	Unmechanized	Suitable premises	No
Pederetti Giovanni	Gardone V.T.	Sole proprietorship	1954	Firearm parts manufacturing	2	Continuous	On customer order	Partially mechanized	Home	No
Cristinelli Domenico	Gardone V.T.	Sole proprietorship	1959	Firearm parts manufacturing	6	Continuous	On customer order	Unmechanized	Suitable premises	No
Zadra Vittorio	Gardone V.T.	Sole proprietorship	1940	Firearm parts manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Pintossi Battista	Gardone V.T.	Sole proprietorship	1951	Firearm parts manufacturing	2	Continuous	On customer order	Unmechanized	Suitable premises	No
Zaboni Massimiliano	Gardone V.T.	Sole proprietorship	1958	Firearm parts manufacturing	1	Continuous	On customer order	Unmechanized	Home	No
Pini Santo - officina meccanica	Gardone V.T.	Sole proprietorship	1942	Firearm parts manufacturing	9	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Zambonardi Aldo	Gardone V.T.	Sole proprietorship	1958	Firearm parts manufacturing	1	Occasional	On customer order	Unmechanized	Home	No
Bentivoglio Paolo	Gardone V.T.	Sole proprietorship	1959	Firearm parts manufacturing	5	Continuous	On customer order	Unmechanized	Suitable premises	No
Rapetti Cesare	Gardone V.T.	Sole proprietorship	1924	Firearm parts manufacturing	10	Occasional	On customer order	Unmechanized	Home	Yes
Martinelli Giuseppe	Gardone V.T.	Sole proprietorship	1957	Firearm parts manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No

<b>Firms</b>	<b>Municipality</b>	<b>Legal form</b>	<b>Year of foundation</b>	<b>Primary activity</b>	<b>Workforce</b>	<b>Participation of the owner in the production</b>	<b>Orders</b>	<b>Mechanization</b>	<b>Production site</b>	<b>Family</b>
Galliani Angelo	Gardone V.T.	Sole proprietorship	1959	Firearm parts manufacturing	4	Continuous	On customer order	Unmechanized	Suitable premises	No
Tanfoglio Ugo	Gardone V.T.	Sole proprietorship	1950	Firearm parts manufacturing	3	Continuous	On customer order	Fully mechanized	Suitable premises	No
Soc. d. f. Ma-Zo di Mazzelli & Zoli	Gardone V.T.	De facto corporation	1951	Firearm parts manufacturing	6	Continuous	On customer order	Unmechanized	Suitable premises	No
Società Armigas Comega	Gardone V.T.	Limited partnership	1957	Firearm parts manufacturing	26	Absent	With and without pre-order	Fully mechanized	Suitable premises	No
F.I.A.S. frat. Sabatti	Gardone V.T.	De facto corporation	1961	Firearm parts manufacturing	22	Occasional	With and without pre-order	Unmechanized	Suitable premises	Yes
Gamba Pietro	Gardone V.T.	Sole proprietorship	1948	Firearm parts manufacturing	9	Continuous	On customer order	Unmechanized	Suitable premises	No
Novali Emanuele	Gardone V.T.	Sole proprietorship	1961	Firearm parts manufacturing	7	Continuous	On customer order	Partially mechanized	Suitable premises	Yes
Fausti Luigi	Gardone V.T.	Sole proprietorship	1956	Firearm parts manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Bonomi Giovanni	Gardone V.T.	Sole proprietorship	1942	Firearm parts manufacturing	9	Occasional	With and without pre-order	Unmechanized	Suitable premises	Yes
Tanfoglio Giuseppe	Gardone V.T.	Sole proprietorship	1961	Firearm parts manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Moroni Giuseppe	Gardone V.T.	Sole proprietorship	1945	Firearm parts manufacturing	6	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Guerini Giovanni Battista	Gardone V.T.	Sole proprietorship	1959	Firearm parts manufacturing	1	n.a.	n.a.	n.a.	Home	No
Speranza Giuseppe	Gardone V.T.	Sole proprietorship	1936	Firearm parts manufacturing	2	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Ditta Casari Rinaldo	Gardone V.T.	Sole proprietorship	1958	Firearm parts manufacturing	2	Continuous	On customer order	Partially mechanized	Suitable premises	Yes
Lombardi Santo	Gardone V.T.	Sole proprietorship	1960	Firearm parts manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Saleri Aquilino	Gardone V.T.	Sole proprietorship	1949	Firearm parts manufacturing	3	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Ardesi Ernesto	Marcheno	Sole proprietorship	1959	Firearm parts manufacturing	2	Continuous	On customer order	n.a.	Suitable premises	No
Bottega Artigiana Baldracchi Angiolino	Marcheno	De facto corporation	1959	Firearm parts manufacturing	2	Continuous	On customer order	Unmechanized	Suitable premises	n.a.
Bontempi Mario	Sarezzo	Sole proprietorship	1960	Firearm parts manufacturing	1	Occasional	On customer order	Fully mechanized	Suitable premises	No
Berna Giuseppe	Sarezzo	Sole proprietorship	1959	Firearm parts manufacturing	8	Occasional	With and without pre-order	Unmechanized	Suitable premises	No
Antonini Battista	Sarezzo	Sole proprietorship	1959	Firearm parts manufacturing	5	Continuous	On customer order	Unmechanized	Suitable premises	No

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Guerini Giovanni	Sarezzo	Sole proprietorship	1959	Firearm parts manufacturing	4	Occasional	With and without pre-order	Unmechanized	Suitable premises	Yes
Minini Ernesto	Sarezzo	Sole proprietorship	1959	Firearm parts manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Tanfoglio Francesco	Gardone V.T.	Sole proprietorship	1945	Civilian firearms manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Ghizzardi Giuseppe	Gardone V.T.	Sole proprietorship	1956	Civilian firearms manufacturing	3	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Marocchi Angelo	Gardone V.T.	Sole proprietorship	1961	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Spezzapria Giovanni	Gardone V.T.	Sole proprietorship	1959	Civilian firearms manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Ambrogi Angelo	Gardone V.T.	Sole proprietorship	1955	Civilian firearms manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Aguzzi Francesco	Gardone V.T.	Sole proprietorship	1959	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Botti Giovanni	Gardone V.T.	Sole proprietorship	1950	Civilian firearms manufacturing	1	Continuous	n.a.	Unmechanized	Suitable premises	No
Zoli Vafiro	Gardone V.T.	Sole proprietorship	1961	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Mino Arturo di Mino Andrea	Gardone V.T.	Sole proprietorship	1926	Civilian firearms manufacturing	3	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Bolognini Giovanni	Gardone V.T.	Sole proprietorship	1945	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Manenti Franco	Gardone V.T.	Sole proprietorship	1959	Civilian firearms manufacturing	2	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
Tanfoglio Francesco	Gardone V.T.	Sole proprietorship	1951	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Home	No
F.lli Di Maggio	Gardone V.T.	De facto corporation	1950	Civilian firearms manufacturing	4	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Ferlib di Ferraglio Libero	Gardone V.T.	Sole proprietorship	1955	Civilian firearms manufacturing	5	Continuous	On customer order	Unmechanized	Suitable premises	No
Pedersoli Davide	Gardone V.T.	Sole proprietorship	1955	Civilian firearms manufacturing	10	Occasional	On customer order	Unmechanized	Suitable premises	No
Daffini Giuseppe	Gardone V.T.	Sole proprietorship	1947	Civilian firearms manufacturing	4	Occasional	With and without pre-order	Partially mechanized	Suitable premises	No
I.M.A.C. di Guerini Pietro	Gardone V.T.	Sole proprietorship	1950	Civilian firearms manufacturing	12	Continuous	Without pre-order	Unmechanized	Suitable premises	No
Gasparini Bortolo	Gardone V.T.	Sole proprietorship	1961	Civilian firearms manufacturing	2	Continuous	With and without pre-order	Unmechanized	Home	Yes
Ghizzardi Silverio	Gardone V.T.	Sole proprietorship	n.a.	Civilian firearms manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No

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Pedretti Francesco	Gardone V.T.	Sole proprietorship	1957	Civilian firearms manufacturing	7	Continuous	With and without pre-order	Partially mechanized	Suitable premises	No
Peli Cesare	Gardone V.T.	Sole proprietorship	1955	Civilian firearms manufacturing	7	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Bonsi Giuseppe	Gardone V.T.	Sole proprietorship	1951	Civilian firearms manufacturing	4	Occasional	On customer order	Unmechanized	Suitable premises	No
Calzoni Battista	Gardone V.T.	Sole proprietorship	1945	Civilian firearms manufacturing	3	Continuous	With and without pre-order	Partially mechanized	Home	No
Ditta Maffi Luigi	Gardone V.T.	Sole proprietorship	1954	Civilian firearms manufacturing	3	Continuous	Without pre-order	Unmechanized	Suitable premises	Yes
Lancelotti Angelo	Gardone V.T.	Sole proprietorship	1946	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Italarm di Arini Angelo Battista e Bertagna Pietro	Gardone V.T.	De facto corporation	1951	Civilian firearms manufacturing	10	Continuous	With and without pre-order	Partially mechanized	Suitable premises	No
Ghitti Giuseppe	Gardone V.T.	Sole proprietorship	1959	Civilian firearms manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Gregorelli Vittorio e C.	Gardone V.T.	Limited partnership	1959	Civilian firearms manufacturing	49	Continuous	On customer order	Partially mechanized	Suitable premises	Yes
Fabriani Ernesto	Gardone V.T.	Sole proprietorship	1958	Civilian firearms manufacturing	4	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Benetti Andrea	Gardone V.T.	Sole proprietorship	1954	Civilian firearms manufacturing	4	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
Moretti Pierino	Gardone V.T.	Sole proprietorship	1949	Civilian firearms manufacturing	1	Occasional	On customer order	Unmechanized	Suitable premises	No
Pintossi Giovanni	Gardone V.T.	Sole proprietorship	1945	Civilian firearms manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Timpini Pietro	Gardone V.T.	Sole proprietorship	1950	Civilian firearms manufacturing	1	Continuous	On customer order	Unmechanized	Home	No
Entrata Ivo	Gardone V.T.	Sole proprietorship	1956	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Marchi Angelo	Gardone V.T.	Sole proprietorship	1942	Civilian firearms manufacturing	2	Continuous	With and without pre-order	Unmechanized	Home	Yes
Officina San Marco di Buffoli Angelo	Gardone V.T.	Sole proprietorship	1949	Civilian firearms manufacturing	20	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Bolis M. Alberto	Gardone V.T.	Sole proprietorship	1960	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Ditta Guerini Pintossi A.	Gardone V.T.	Sole proprietorship	1947	Civilian firearms manufacturing	7	Continuous	With and without pre-order	Unmechanized	Home	No
Mutti Domenica	Gardone V.T.	Sole proprietorship	1945	Civilian firearms manufacturing	2	Occasional	Without pre-order	Unmechanized	Suitable premises	Yes

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Zanotti Fabio	Gardone V.T.	Sole proprietorship	1960	Civilian firearms manufacturing	10	Occasional	With and without pre-order	Unmechanized	Suitable premises	No
Belleri Luigi	Gardone V.T.	Sole proprietorship	1946	Civilian firearms manufacturing	2	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
Rubagotti Angelo	Gardone V.T.	Sole proprietorship	1950	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Home	No
Pintossi Pedretti Ongaro	Gardone V.T.	General partnership	1959	Civilian firearms manufacturing	8	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Zanardini Giuseppe	Gardone V.T.	Sole proprietorship	1933	Civilian firearms manufacturing	2	Absent	With and without pre-order	Unmechanized	Suitable premises	Yes
F.lli Tanfoglio fu Domenico	Gardone V.T.	De facto corporation	1953	Civilian firearms manufacturing	7	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
Gnali Graziano	Gardone V.T.	Sole proprietorship	1953	Civilian firearms manufacturing	4	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Cotelli Francesco	Gardone V.T.	Sole proprietorship	1920	Civilian firearms manufacturing	2	Continuous	With and without pre-order	Partially mechanized	Suitable premises	Yes
Manifatture Riunite Armi di Salvinelli Enrico	Gardone V.T.	Sole proprietorship	1950	Civilian firearms manufacturing	8	Continuous	With and without pre-order	Partially mechanized	Suitable premises	Yes
Castellani Bruno	Gardone V.T.	Sole proprietorship	1954	Civilian firearms manufacturing	4	Continuous	With and without pre-order	Partially mechanized	Suitable premises	Yes
Guerini Maddalena	Gardone V.T.	Sole proprietorship	1961	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Ambrogi Angelo	Gardone V.T.	Sole proprietorship	1958	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Marocchi Stefano e figli	Gardone V.T.	De facto corporation	1947	Civilian firearms manufacturing	9	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Cucinotta Pietro	Gardone V.T.	Sole proprietorship	1959	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Granini Angelo	Gardone V.T.	Sole proprietorship	1957	Civilian firearms manufacturing	4	Continuous	With and without pre-order	Partially mechanized	Suitable premises	No
Boniotti Emilio	Gardone V.T.	Sole proprietorship	1959	Civilian firearms manufacturing	5	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
Bernardelli Pietro	Gardone V.T.	Sole proprietorship	1952	Civilian firearms manufacturing	2	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Bignotti Giovanni e figlio di Marco	Gardone V.T.	Sole proprietorship	1960	Civilian firearms manufacturing	3	Continuous	Without pre-order	Unmechanized	Suitable premises	No
Armeria S. Giorgio di Pirlo Giuseppe	Gardone V.T.	De facto corporation	1961	Civilian firearms manufacturing	5	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Pelizzari Angelo	Gardone V.T.	Sole proprietorship	1949	Civilian firearms manufacturing	8	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes

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Daffini Annibale	Gardone V.T.	Sole proprietorship	1949	Civilian firearms manufacturing	2	Continuous	On customer order	Unmechanized	Home	Yes
Tavana Antonio & C. S.A.S.	Gardone V.T.	Limited partnership	1958	Civilian firearms manufacturing	20	Continuous	With and without pre-order	Partially mechanized	Suitable premises	No
Gottardi G. Battista e C. (Fabbrica Armi di Ardesi - Bentivoglio - Gottardi - Galliani)	Gardone V.T.	De facto corporation	1959	Civilian firearms manufacturing	6	Continuous	With and without pre-order	Partially mechanized	Suitable premises	No
Uberti Francesco	Gardone V.T.	Sole proprietorship	1961	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Bolognini Bruno	Gardone V.T.	Sole proprietorship	1960	Civilian firearms manufacturing	9	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Zoli Antonio	Gardone V.T.	Sole proprietorship	1945	Civilian firearms manufacturing	72	Continuous	With and without pre-order	Partially mechanized	Suitable premises	Yes
Spada Ciro	Gardone V.T.	Sole proprietorship	1961	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Gitti Umberto e C.	Gardone V.T.	Sole proprietorship	1911	Civilian firearms manufacturing	22	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
Abbiatico Renato	Gardone V.T.	Sole proprietorship	1959	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Pedersoli Pietro di Sabatti Teodora	Gardone V.T.	Sole proprietorship	1957	Civilian firearms manufacturing	7	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Bernardelli Leonida	Gardone V.T.	Sole proprietorship	1947	Civilian firearms manufacturing	10	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
F.lli Sabatti di Sabatti Giovanni	Gardone V.T.	Sole proprietorship	1949	Civilian firearms manufacturing	4	Continuous	With and without pre-order	Partially mechanized	Suitable premises	Yes
Spada G. Battista	Gardone V.T.	Sole proprietorship	1947	Civilian firearms manufacturing	2	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
Le Armerie Italiane dei frat. Gamba	Gardone V.T.	De facto corporation	1955	Civilian firearms manufacturing	27	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
Bertuzzi Nicola	Gardone V.T.	Sole proprietorship	1950	Civilian firearms manufacturing	1	Absent	With and without pre-order	Unmechanized	Suitable premises	No
M.A.V.I. di S. Salvinelli	Gardone V.T.	De facto corporation	1955	Civilian firearms manufacturing	24	Absent	With and without pre-order	Unmechanized	Suitable premises	Yes
Zanoletti Pietro	Gardone V.T.	Sole proprietorship	1954	Civilian firearms manufacturing	10	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Angelo Zoli e figli	Gardone V.T.	De facto corporation	1958	Civilian firearms manufacturing	13	Continuous	On customer order	Unmechanized	Suitable premises	No
Gamba Giovanni	Gardone V.T.	Sole proprietorship	1961	Civilian firearms manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Giovanelli Luigi	Gardone V.T.	Sole proprietorship	1960	Civilian firearms manufacturing	1	Occasional	With and without pre-order	Unmechanized	Suitable premises	No



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Fratelli Piotti	Gardone V.T.	De facto corporation	1961	Civilian firearms manufacturing	4	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Cotelli Francesco	Gardone V.T.	Sole proprietorship	1949	Civilian firearms manufacturing	2	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Gitti Pierino	Gardone V.T.	Sole proprietorship	1945	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Bragadini Giovanni	Gardone V.T.	Sole proprietorship	1959	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Giacomelli Pietro	Gardone V.T.	Sole proprietorship	1951	Civilian firearms manufacturing	7	Continuous	On customer order	Unmechanized	Home	Yes
Sabatti Attilio	Gardone V.T.	Sole proprietorship	1960	Civilian firearms manufacturing	4	Occasional	On customer order	Unmechanized	Home	No
Zoli & Rizzini F.Ili	Gardone V.T.	De facto corporation	1959	Civilian firearms manufacturing	4	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Sabatti Giovanni	Gardone V.T.	Sole proprietorship	1950	Civilian firearms manufacturing	4	Occasional	On customer order	Unmechanized	Suitable premises	Yes
Gitti Giuseppe	Gardone V.T.	Sole proprietorship	1946	Civilian firearms manufacturing	9	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Contessa Mario	Marcheno	Sole proprietorship	1961	Civilian firearms manufacturing	1	Continuous	On customer order	n.a.	Suitable premises	No
Caem Giulio	Marcheno	Sole proprietorship	1956	Civilian firearms manufacturing	1	Continuous	On customer order	n.a.	Suitable premises	No
Fausti Davide e F.Ili	Marcheno	De facto corporation	1960	Civilian firearms manufacturing	5	Continuous	On customer order	n.a.	Suitable premises	Yes
Fausti Giovanni e F.Ili	Marcheno	General partnership	1960	Civilian firearms manufacturing	6	Continuous	With and without pre-order	Partially mechanized	Suitable premises	Yes
Zubani Marino e F.Ili Armi	Marcheno	De facto corporation	1961	Civilian firearms manufacturing	5	Continuous	On customer order	n.a.	Suitable premises	No
Fausti Albano - armaiolo	Marcheno	Sole proprietorship	1960	Civilian firearms manufacturing	3	Continuous	On customer order	Unmechanized	Suitable premises	No
Varini Giuliano	Sarezzo	Sole proprietorship	1953	Civilian firearms manufacturing	3	Occasional	On customer order	Unmechanized	Suitable premises	No
Ditta O.S.C.A.R. di F.Ili Belleri	Sarezzo	De facto corporation	1954	Civilian firearms manufacturing	3	Occasional	With and without pre-order	Partially mechanized	Suitable premises	No
Lancelotti Angelo	Sarezzo	Sole proprietorship	1959	Civilian firearms manufacturing	2	Continuous	With and without pre-order	Partially mechanized	Suitable premises	Yes
Guerini Pierino	Sarezzo	Sole proprietorship	1945	Civilian firearms manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Belleri Antonio	Sarezzo	Sole proprietorship	1949	Civilian firearms manufacturing	7	Continuous	With and without pre-order	Partially mechanized	Suitable premises	Yes
Amitalia di Lucchini Stefano	Sarezzo	Sole proprietorship	1948	Civilian firearms manufacturing	9	Continuous	With and without pre-order	Partially mechanized	Suitable premises	Yes

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Borghesi Girolamo	Sarezzo	Sole proprietorship	1955	Civilian firearms manufacturing	6	Continuous	On customer order	Unmechanized	Suitable premises	No
Rizzini Luigi	Gardone V.T.	Sole proprietorship	1960	Inletting	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Bonsi Giacomo	Gardone V.T.	Sole proprietorship	1960	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Losio Battista	Gardone V.T.	Sole proprietorship	1958	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Civini Bortolo	Gardone V.T.	Sole proprietorship	1958	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Mozzoni Davide	Gardone V.T.	Sole proprietorship	1960	Inletting	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Cristinelli Pietro	Gardone V.T.	Sole proprietorship	1960	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Cristinelli Giovanni	Gardone V.T.	Sole proprietorship	1960	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Sabatti Pasquino	Gardone V.T.	Sole proprietorship	1961	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Mensi Giovanni	Gardone V.T.	Sole proprietorship	1960	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Lechi Giuseppe	Gardone V.T.	Sole proprietorship	1960	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Sabatti Angelo	Gardone V.T.	Sole proprietorship	1960	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Sabatti Guido	Gardone V.T.	Sole proprietorship	1959	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Sabatti Ettore	Gardone V.T.	Sole proprietorship	1960	Inletting	1	Continuous	On customer order	Unmechanized	Home	No
Rizzinelli Giovanni	Marcheno	Sole proprietorship	1957	Inletting	3	Continuous	On customer order	n.a.	Suitable premises	No
Belleri Ezelindo	Sarezzo	Sole proprietorship	1961	Inletting	1	Occasional	On customer order	Fully mechanized	Suitable premises	No
Rota Luciano	Sarezzo	Sole proprietorship	1959	Inletting	2	Occasional	On customer order	Unmechanized	Home	Yes
Belleri Matilde	Gardone V.T.	Sole proprietorship	1960	Checkering	1	Continuous	n.a.	n.a.	Home	No
Revera Silvana	Gardone V.T.	Sole proprietorship	1961	Checkering	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Saleri Irma	Gardone V.T.	Sole proprietorship	n.a.	Checkering	1	Continuous	n.a.	n.a.	Home	No
Riviera Maddalena	Gardone V.T.	Sole proprietorship	1960	Checkering	1	Continuous	n.a.	n.a.	Suitable premises	No
Adorni Carolina	Gardone V.T.	Sole proprietorship	n.a.	Checkering	1	Occasional	On customer order	Unmechanized	Home	No
Omodei Anna Maria	Gardone V.T.	Sole proprietorship	1959	Checkering	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Setti Annunciata	Gardone V.T.	Sole proprietorship	1958	Checkering	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Pedretti Rosa	Gardone V.T.	Sole proprietorship	1959	Checkering	1	Continuous	On customer order	Unmechanized	Home	No
Bonomi Silvana	Gardone V.T.	Sole proprietorship	1959	Checkering	1	n.a.	n.a.	n.a.	Home	No
Gatta Pierina	Gardone V.T.	Sole proprietorship	1961	Checkering	1	Occasional	On customer order	Unmechanized	Home	No

<b>Firms</b>	<b>Municipality</b>	<b>Legal form</b>	<b>Year of foundation</b>	<b>Primary activity</b>	<b>Workforce</b>	<b>Participation of the owner in the production</b>	<b>Orders</b>	<b>Mechanization</b>	<b>Production site</b>	<b>Family</b>
FIAP - Fabbrica Italiana Attrezzi Parrucchiere	Gardone V.T.	Limited liability company	1947	Mechanical manufacturing	3	Continuous	With and without pre-order	Partially mechanized	Suitable premises	No
FAMA di Gardoncini Teresa	Gardone V.T.	Sole proprietorship	1950	Mechanical manufacturing	2	Occasional	On customer order	Unmechanized	Suitable premises	No
Defendini	Gardone V.T.	General partnership	1961	Mechanical manufacturing	4	Continuous	On customer order	Unmechanized	Suitable premises	No
Livmar	Gardone V.T.	De facto corporation	1960	Mechanical manufacturing	4	Continuous	On customer order	Unmechanized	Home	No
Pasinelli Andrea	Gardone V.T.	Sole proprietorship	1957	Mechanical manufacturing	7	Continuous	On customer order	Unmechanized	Suitable premises	No
Zubani e Belleri	Gardone V.T.	De facto corporation	1960	Mechanical manufacturing	2	Continuous	On customer order	Unmechanized	Suitable premises	No
Zanetti Giuseppe	Gardone V.T.	Sole proprietorship	1961	Mechanical manufacturing	2	Continuous	On customer order	Unmechanized	Suitable premises	No
Coccoli Mario	Gardone V.T.	Sole proprietorship	1959	Mechanical manufacturing	5	Continuous	On customer order	Unmechanized	Suitable premises	No
Bertarini Domenico	Gardone V.T.	Sole proprietorship	1960	Mechanical manufacturing	4	n.a.	n.a.	n.a.	Suitable premises	No
Temponi Silvio	Gardone V.T.	Sole proprietorship	1961	Mechanical manufacturing	1	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
MIVAL	Gardone V.T.	Joint stock company	1948	Mechanical manufacturing	213	Absent	With and without pre-order	Unmechanized	Suitable premises	No
Marianini Alessio	Sarezzo	Sole proprietorship	1954	Mechanical manufacturing	4	Continuous	On customer order	Unmechanized	Suitable premises	No
Giacomelli e Faustiloni	Sarezzo	De facto corporation	1960	Mechanical manufacturing	3	Continuous	On customer order	Unmechanized	Suitable premises	No
D'Anna Armando	Sarezzo	Sole proprietorship	1960	Mechanical manufacturing	1	Continuous	On customer order	Partially mechanized	Home	No
Reboni Carlo	Sarezzo	General partnership	1947	Mechanical manufacturing	7	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Sanzogni Battista e figli snc	Sarezzo	General partnership	1952	Mechanical manufacturing	17	Continuous	With and without pre-order	Unmechanized	Suitable premises	No
Corti Giuseppe	Sarezzo	Sole proprietorship	1958	Mechanical manufacturing	5	Continuous	On customer order	Unmechanized	Suitable premises	No
Condor srl	Sarezzo	Limited liability company	1942	Mechanical manufacturing	20	Absent	With and without pre-order	Unmechanized	Suitable premises	No
Pasotti Angelo	Sarezzo	Sole proprietorship	1960	Mechanical manufacturing	4	Continuous	On customer order	Partially mechanized	Suitable premises	No
Montini Angelo	Sarezzo	Sole proprietorship	1949	Mechanical manufacturing	10	Continuous	On customer order	Unmechanized	Suitable premises	Yes

<b>Firms</b>	<b>Municipality</b>	<b>Legal form</b>	<b>Year of foundation</b>	<b>Primary activity</b>	<b>Workforce</b>	<b>Participation of the owner in the production</b>	<b>Orders</b>	<b>Mechanization</b>	<b>Production site</b>	<b>Family</b>
Dabrazzi & Bettezza	Sarezzo	De facto corporation	1959	Mechanical manufacturing	7	Continuous	On customer order	Unmechanized	Suitable premises	No
Guerini e Bertoli	Sarezzo	De facto corporation	1958	Mechanical manufacturing	7	Continuous	On customer order	Unmechanized	Suitable premises	No
Guali Marino	Sarezzo	Sole proprietorship	1958	Mechanical manufacturing	2	Continuous	On customer order	Unmechanized	Suitable premises	No
Bertoli F.lli	Sarezzo	De facto corporation	1961	Mechanical manufacturing	2	Continuous	On customer order	Partially mechanized	Suitable premises	No
Cinelli Dante	Sarezzo	Sole proprietorship	1961	Mechanical manufacturing	1	Continuous	On customer order	Partially mechanized	Suitable premises	No
Facoletti F.lli	Sarezzo	De facto corporation	1958	Mechanical manufacturing	4	Continuous	On customer order	Unmechanized	Suitable premises	No
Zanetti Stefano	Sarezzo	Sole proprietorship	1956	Mechanical manufacturing	5	Continuous	On customer order	Unmechanized	Suitable premises	No
Officina Meccanica Zanagnolo & Botti	Sarezzo	De facto corporation	1957	Mechanical manufacturing	16	Continuous	On customer order	Unmechanized	Suitable premises	No
Officina Meccanica OMUC di Ugolini Cotelli	Sarezzo	De facto corporation	1959	Mechanical manufacturing	2	Continuous	On customer order	Partially mechanized	Suitable premises	No
Stamperia di Sarezzo	Sarezzo	Limited liability company	1961	Mechanical manufacturing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
S.p.A. Vincenzo Bernardelli	Gardone V.T.	Joint stock company	1936	Production of firearms	379	Absent	With and without pre-order	Partially mechanized	Suitable premises	Yes
S.p.A. P. Beretta	Gardone V.T.	Joint stock company	1680	Production of firearms	1398	Absent	With and without pre-order	Partially mechanized	Suitable premises	Yes
Brignoli Silvio	Gardone V.T.	Sole proprietorship	1960	Repairing and assembling	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Rizzini Guido	Gardone V.T.	Sole proprietorship	1960	Repairing and assembling	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Pedrazzini Eugenio	Gardone V.T.	Sole proprietorship	1950	Repairing and assembling	3	Continuous	On customer order	Unmechanized	Suitable premises	No
Ermete Varischi	Gardone V.T.	Sole proprietorship	1930	Repairing and assembling	8	Continuous	With and without pre-order	Partially mechanized	Suitable premises	No
Vezzola Walter	Gardone V.T.	Sole proprietorship	1959	Repairing and assembling	1	Continuous	On customer order	Unmechanized	Home	No
Telò Renato	Gardone V.T.	Sole proprietorship	1959	Repairing and assembling	2	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Bettoni Luigi Giacomo	Gardone V.T.	Sole proprietorship	1958	Repairing and assembling	1	Occasional	On customer order	Unmechanized	Home	No
Rampini Luigi	Gardone V.T.	Sole proprietorship	1959	Repairing and assembling	3	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes

<b>Firms</b>	<b>Municipality</b>	<b>Legal form</b>	<b>Year of foundation</b>	<b>Primary activity</b>	<b>Workforce</b>	<b>Participation of the owner in the production</b>	<b>Orders</b>	<b>Mechanization</b>	<b>Production site</b>	<b>Family</b>
Guerini Franco	Gardone V.T.	Sole proprietorship	1959	Repairing and assembling	1	n.a.	n.a.	n.a.	Home	No
Zanardini Giuseppe Luigi	Gardone V.T.	Sole proprietorship	1960	Repairing and assembling	1	n.a.	n.a.	n.a.	Home	No
Peli Battista	Gardone V.T.	Sole proprietorship	1960	Repairing and assembling	1	Continuous	On customer order	Unmechanized	Home	No
Rizzini Aurelio	Gardone V.T.	Sole proprietorship	1959	Repairing and assembling	1	Continuous	On customer order	Unmechanized	Home	No
Contessa Guido	Sarezzo	Sole proprietorship	1959	Repairing and assembling	1	Continuous	On customer order	Partially mechanized	Suitable premises	No
Zatti Pietro	Gardone V.T.	Sole proprietorship	n.a.	Smoothing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Artigiana Pulitori di Tiboni & Peli	Gardone V.T.	De facto corporation	1959	Smoothing	4	Continuous	On customer order	Unmechanized	Suitable premises	No
Firno Franco	Gardone V.T.	Sole proprietorship	1960	Smoothing	4	n.a.	n.a.	n.a.	Suitable premises	Yes
Arini Eugenio	Gardone V.T.	Sole proprietorship	1960	Smoothing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Ditta Artigiana Ardesi Giuseppe	Marcheno	Sole proprietorship	1961	Smoothing	5	Continuous	On customer order	n.a.	Suitable premises	n.a.
Scanzi Giovanni - Forbitura Metalli	Marcheno	Sole proprietorship	1955	Smoothing	2	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Ravarini Mario	Sarezzo	Sole proprietorship	1959	Smoothing	1	Occasional	On customer order	Unmechanized	Suitable premises	No
Bombesi Pietro	Sarezzo	Sole proprietorship	1955	Smoothing	4	Continuous	On customer order	Unmechanized	Suitable premises	No
Ghidini Angelo	Sarezzo	Sole proprietorship	1961	Smoothing	2	Continuous	On customer order	Fully mechanized	Suitable premises	No
Tirelli Giacomo	Gardone V.T.	Sole proprietorship	1952	Stock manufacturing	4	Occasional	With and without pre-order	Partially mechanized	Suitable premises	Yes
Cotelli Silvio	Gardone V.T.	Sole proprietorship	1961	Stock manufacturing	3	Continuous	With and without pre-order	Unmechanized	Suitable premises	Yes
Castoldi Palmiro	Marcheno	Sole proprietorship	1958	Stock manufacturing	1	Occasional	On customer order	Partially mechanized	Home	No
Melzani Massimo Giacomo	Gardone V.T.	Sole proprietorship	1958	Stock polishing	1	Continuous	On customer order	Unmechanized	Home	No
Maboni Santa	Gardone V.T.	Sole proprietorship	1960	Stock polishing	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Lancelotti Giacomo	Gardone V.T.	Sole proprietorship	1959	Stock polishing	1	Continuous	On customer order	Unmechanized	Home	No
Tiboni Francesco	Gardone V.T.	Sole proprietorship	1924	Woodworking	2	Continuous	Without pre-order	Unmechanized	Suitable premises	No

<b>Firms</b>	<b>Municipality</b>	<b>Legal form</b>	<b>Year of foundation</b>	<b>Primary activity</b>	<b>Workforce</b>	<b>Participation of the owner in the production</b>	<b>Orders</b>	<b>Mechanization</b>	<b>Production site</b>	<b>Family</b>
Fracassi Giovanni	Marcheno	Sole proprietorship	1945	Woodworking	6	Continuous	n.a.	Fully mechanized	Suitable premises	Yes
Ceresoli Francesco	Marcheno	Sole proprietorship	1961	Woodworking	1	Continuous	On customer order	n.a.	Suitable premises	No
Almici Bortolo	Marcheno	Sole proprietorship	1946	Woodworking	1	Continuous	On customer order	n.a.	Suitable premises	No
Fratelli Baresi	Marcheno	De facto corporation	1955	Woodworking	5	Occasional	With and without pre-order	Unmechanized	Suitable premises	No
Fausti Egiolio	Marcheno	Sole proprietorship	1952	Woodworking	1	Continuous	On customer order	Partially mechanized	Suitable premises	No
Guarneri Ernesto	Marcheno	Sole proprietorship	1936	Woodworking	2	Absent	On customer order	n.a.	Suitable premises	Yes
Pintossi Raffaele	Sarezzo	Sole proprietorship	1959	Woodworking	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Faleghi Giuseppe	Sarezzo	Sole proprietorship	1961	Woodworking	1	Continuous	On customer order	Unmechanized	Suitable premises	No
Benini Francesco	Sarezzo	Sole proprietorship	n.a.	Woodworking	3	Continuous	On customer order	Unmechanized	Suitable premises	No
Guizzi Mario	Sarezzo	Sole proprietorship	1951	Woodworking	3	Continuous	On customer order	Partially mechanized	Suitable premises	No
Bonera Angelo	Sarezzo	Sole proprietorship	1923	Woodworking	3	Continuous	With and without pre-order	Fully mechanized	Suitable premises	No
Cinelli Giacomo	Sarezzo	Sole proprietorship	1954	Woodworking	2	Continuous	On customer order	Unmechanized	Suitable premises	No
Taghetti Giacomo	Sarezzo	Sole proprietorship	1950	Woodworking	3	Continuous	On customer order	Unmechanized	Suitable premises	Yes
Zanagnolo Giuseppe	Sarezzo	Sole proprietorship	1950	Woodworking	4	Continuous	On customer order	Unmechanized	Suitable premises	No

Type of activity	Firms	Workforce	Production site		Presence of relatives in the firm		
			Suitable premises	Home	Yes	No	n.a.
Civilian firearms manufacturing	101	593	91	10	33	67	0
Firearms production	2	1777	2	0	2	0	0
Firearm parts manufacturing	38	197	33	5	9	28	1
Repairing and assembling	13	25	7	6	2	11	0
Burnishing and polishing	4	18	4	0	3	1	0
Engraving	28	31	9	19	1	27	0
Inletting	16	19	4	12	1	15	0
Checkering	10	10	4	6	0	10	0
Smoothing	9	24	9	0	2	6	1
Stocks manufacturing	6	11	3	3	2	4	0
Mechanical engineering	30	365	28	2	2	28	0
Woodworking	15	38	15	0	3	12	0
Total	272	3108	209	63	61	209	2

Table 3.1 - Source: data processed by the author

Type of activity	Mechanization of the productive process			Orders				Participation of the owner in the production			
	Absent	Partial or full	n.a.	On customer order	With and without pre-order	Without pre-order	n.a.	Continuous	Occasional	Absent	n.a.
Civilian firearms manufacturing	79	18	4	28	68	4	1	87	11	3	0
Firearms production	0	2	0	0	2	0	0	0	0	2	0
Firearm parts manufacturing	30	6	2	25	10	2	1	27	9	1	1
Repairing and assembling	9	2	2	9	2	0	2	10	1	0	2
Burnishing and polishing	4	0	0	4	0	0	0	3	1	0	0
Engraving	24	1	3	23	0	0	5	20	3	0	5
Inletting	14	1	1	16	0	0	0	14	2	0	0
Checkering	6	0	4	6	0	0	4	7	2	0	1
Smoothing	6	1	2	8	0	0	1	7	1	0	1
Stocks manufacturing	4	2	0	4	2	0	0	4	2	0	0
Mechanical engineering	23	6	1	24	5	0	1	26	1	2	1
Woodworking	8	4	3	11	2	1	1	13	1	1	0
Total	207	43	22	158	91	7	16	218	34	9	11

Table 3.2 - Source: data processed by the author



Type of activity	Firms per size class												
	1	2-5	6-10	11-20	21-30	31-50	51-100	101-200	201-300	301-500	501-1000	1001-1500	Total
Civilian firearms mfg.	32	38	22	4	3	1	1	0	0	0	0	0	101
Firearms production	0	0	0	0	0	0	0	0	0	1	0	1	2
Firearm parts manufacturing	12	13	10	0	3	0	0	0	0	0	0	0	38
Repairing and assembling	9	3	1	0	0	0	0	0	0	0	0	0	13
Burning and polishing	0	3	1	0	0	0	0	0	0	0	0	0	4
Engraving	27	1	0	0	0	0	0	0	0	0	0	0	28
Inletting	14	2	0	0	0	0	0	0	0	0	0	0	16
Checkering	10	0	0	0	0	0	0	0	0	0	0	0	10
Smoothing	3	6	0	0	0	0	0	0	0	0	0	0	9
Stocks manufacturing	4	2	0	0	0	0	0	0	0	0	0	0	6
Mechanical engineering	4	17	5	3	0	0	0	0	1	0	0	0	30
Woodworking	5	9	1	0	0	0	0	0	0	0	0	0	15
Total	120	94	40	7	6	1	1	0	1	1	0	1	272

Table 3.3 - Source: data processed by the author

Type of activity	Workforce per size class												
	1	2-5	6-10	11-20	21-30	31-50	51-100	101-200	201-300	301-500	501-1000	1001-1500	Total
Civilian firearms mfg.	32	125	177	65	73	49	72	0	0	0	0	0	593
Firearms production	0	0	0	0	0	0	0	0	0	379	0	1398	1777
Firearm parts manufacturing	12	38	78	0	69	0	0	0	0	0	0	0	197
Repairing and assembling	9	8	8	0	0	0	0	0	0	0	0	0	25
Burning and polishing	0	10	8	0	0	0	0	0	0	0	0	0	18
Engraving	27	4	0	0	0	0	0	0	0	0	0	0	31
Inletting	14	5	0	0	0	0	0	0	0	0	0	0	19
Checkering	10	0	0	0	0	0	0	0	0	0	0	0	10
Smoothing	3	21	0	0	0	0	0	0	0	0	0	0	24
Stocks manufacturing	4	7	0	0	0	0	0	0	0	0	0	0	11
Mechanical engineering	4	57	38	53	0	0	0	0	213	0	0	0	365
Woodworking	5	27	6	0	0	0	0	0	0	0	0	0	38
Total	120	302	315	118	142	49	72	0	213	379	0	1398	3108

Table 3.4 - Source: data processed by the author

### FIRMS PER TYPE OF ACTIVITY

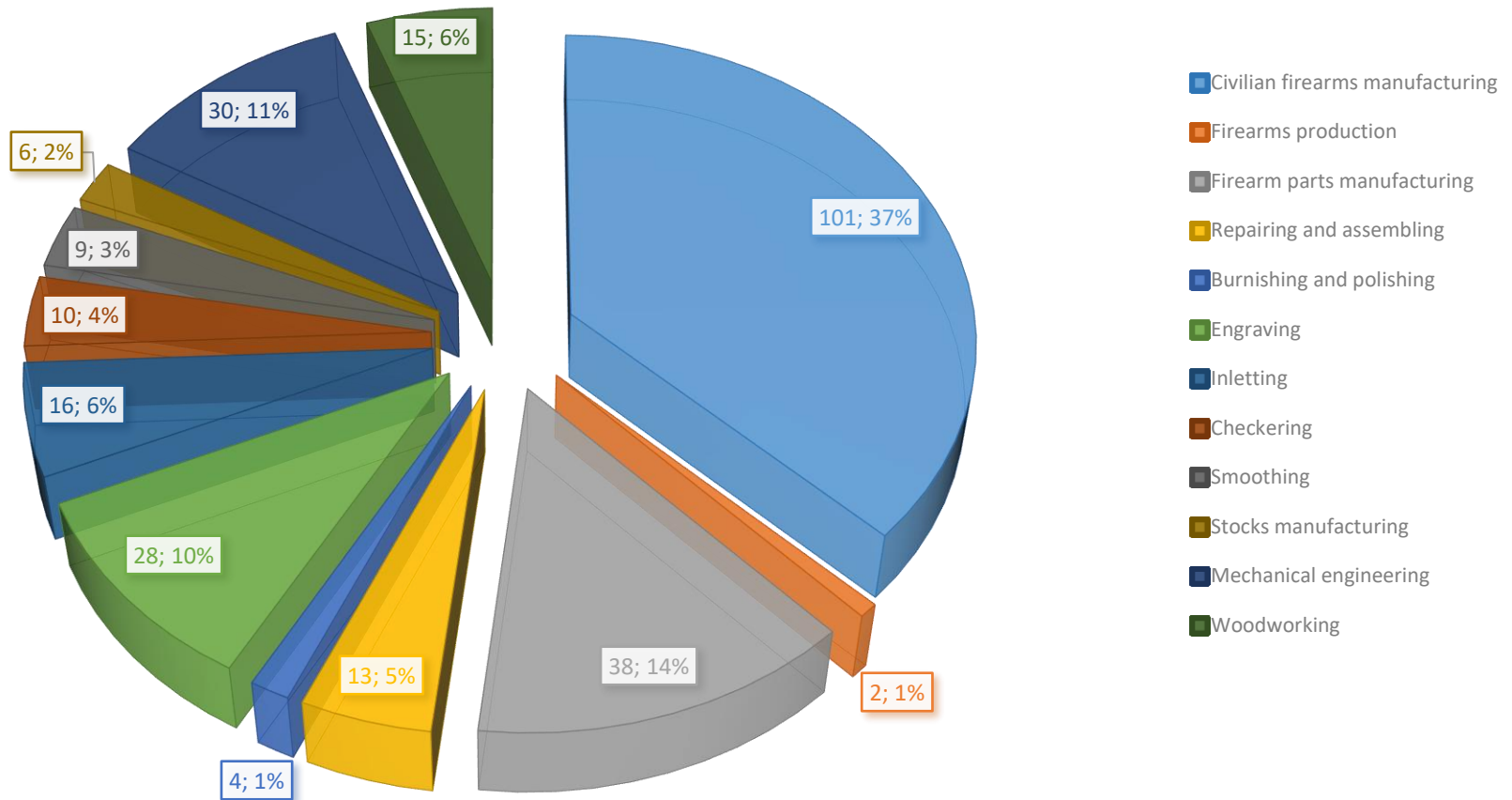


Chart 3.1 - Source: data processed by the author

### EMPLOYEES PER TYPE OF ACTIVITY

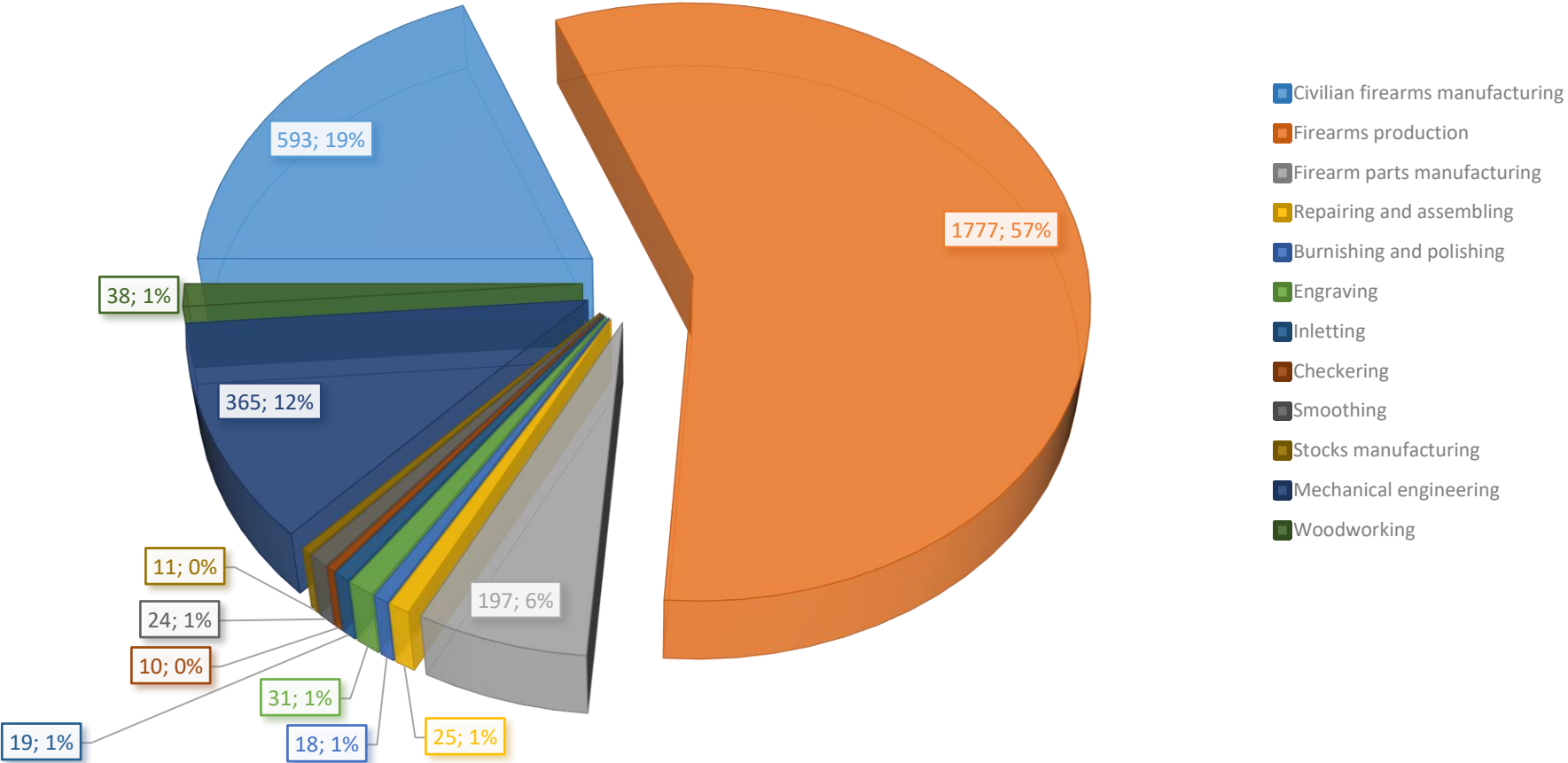


Chart 3.2 - Source: data processed by the author

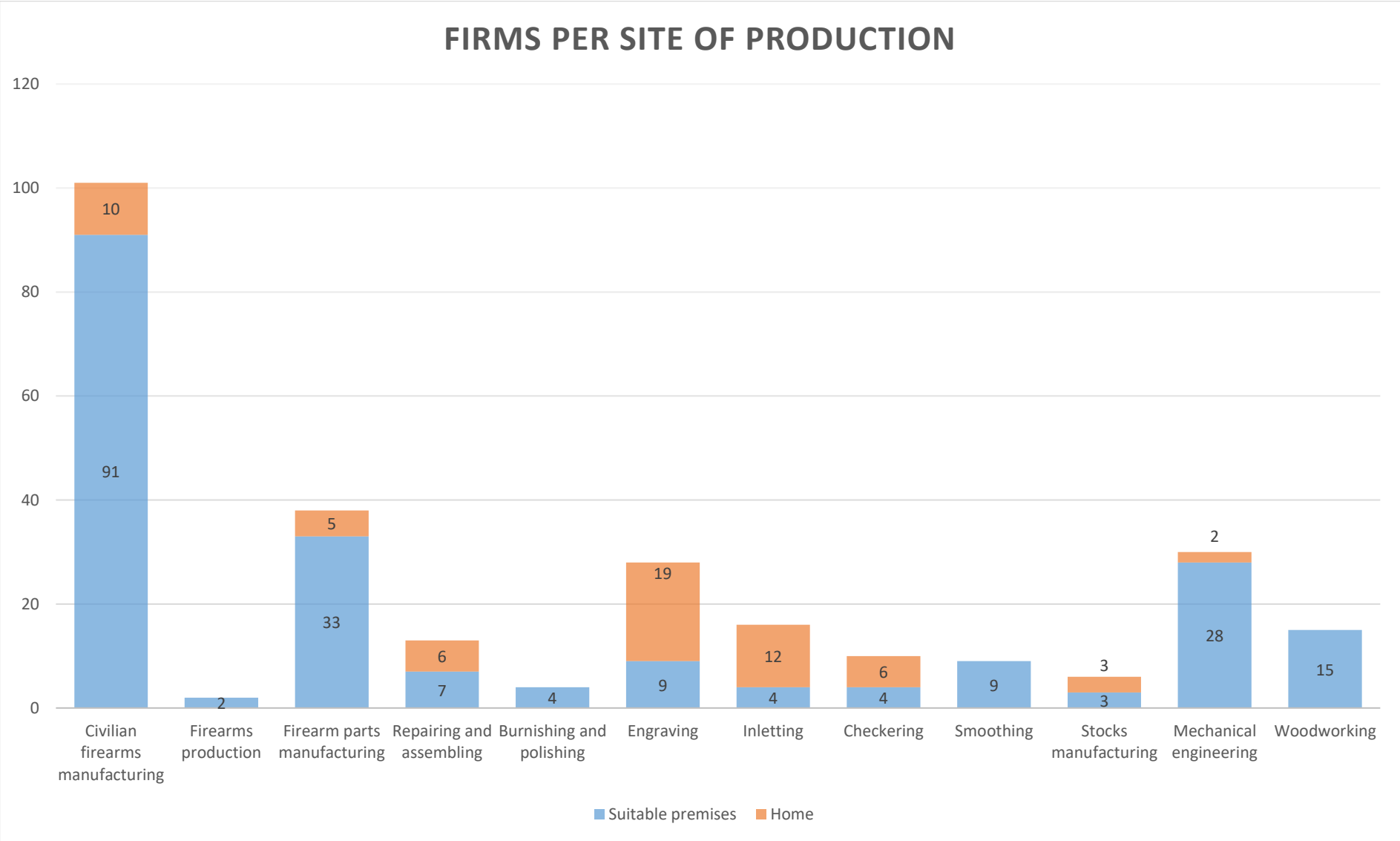


Chart 3.3 - Source: data processed by the author

### PRESENCE OF RELATIVES IN THE FIRM

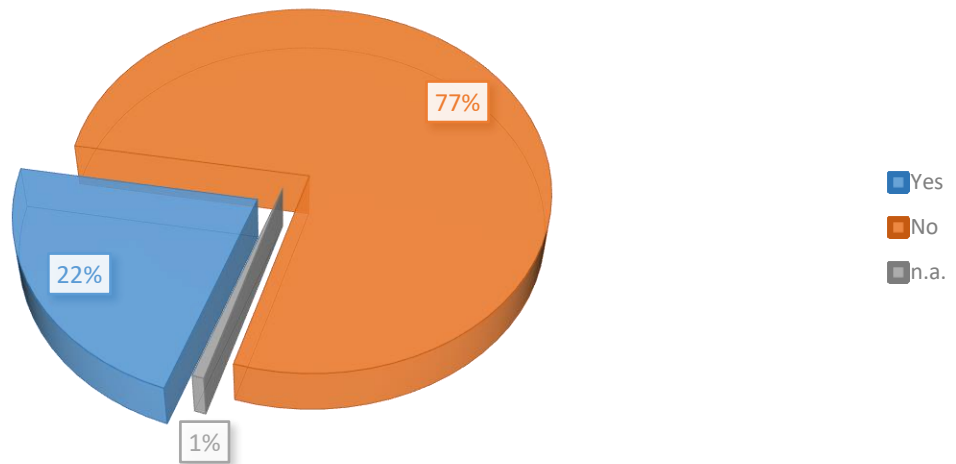


Chart 3.4 - Source: data processed by the author

### PRESENCE OF RELATIVES IN THE FIRMS (FIRMS WITH WORFORCE = 1 EXCLUDED)

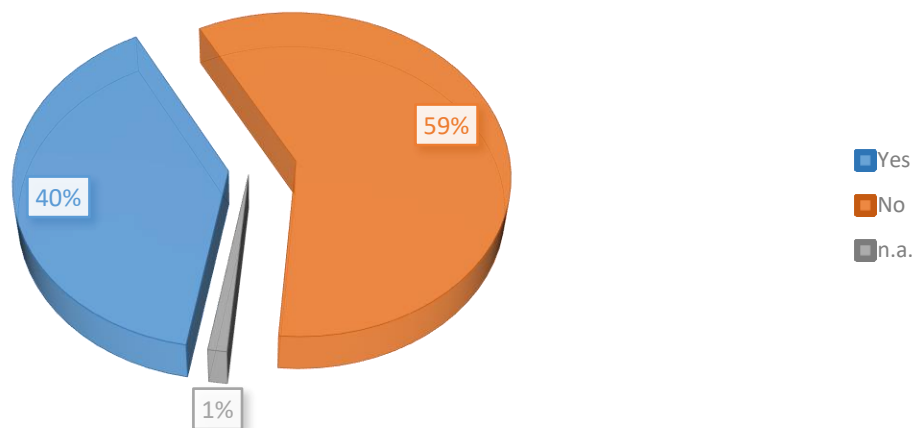


Chart 3.5 - Source: data processed by the author

### LEVEL OF MECHANIZATION OF THE FIRMS

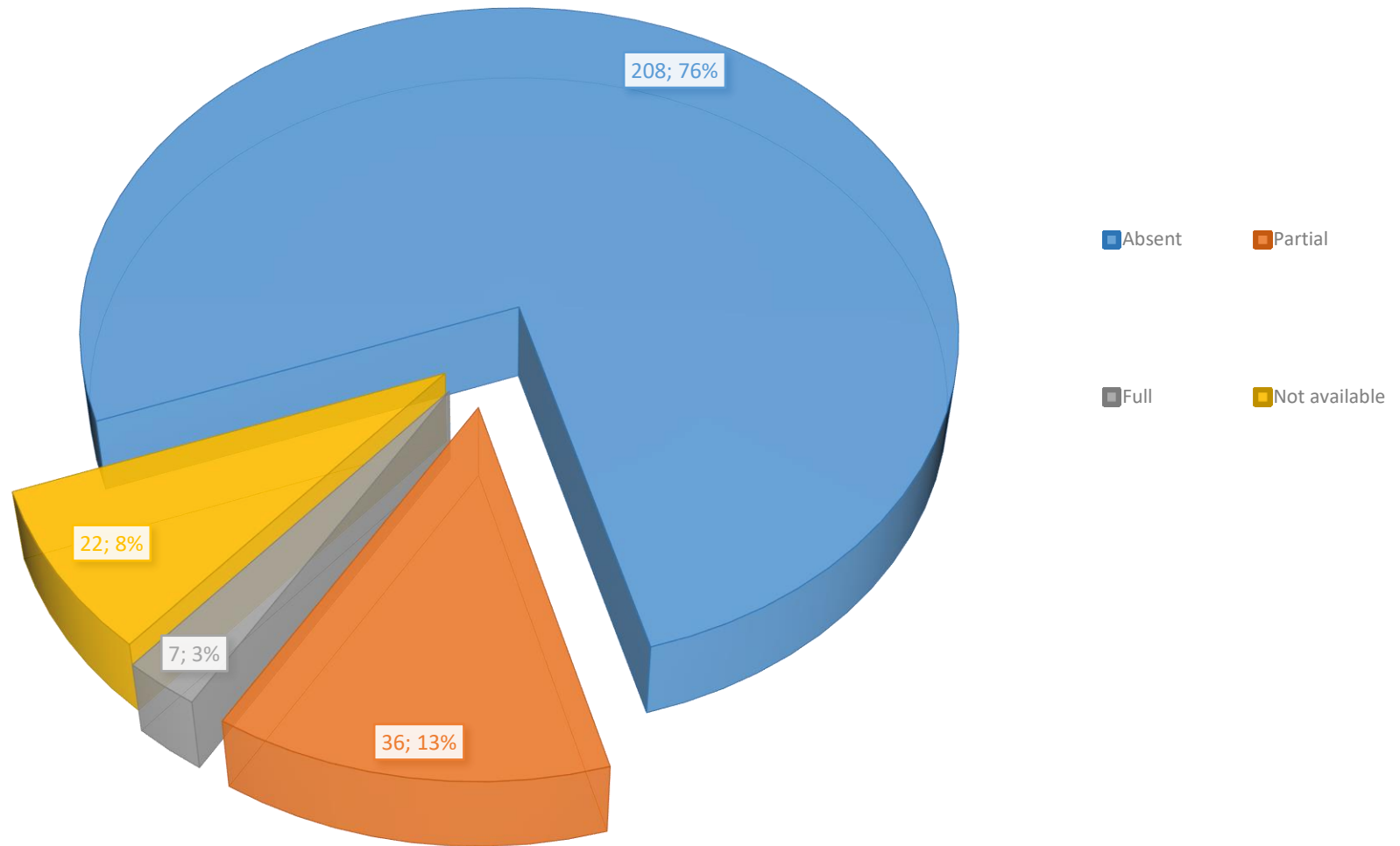


Chart 3.6 - Source: data processed by the author

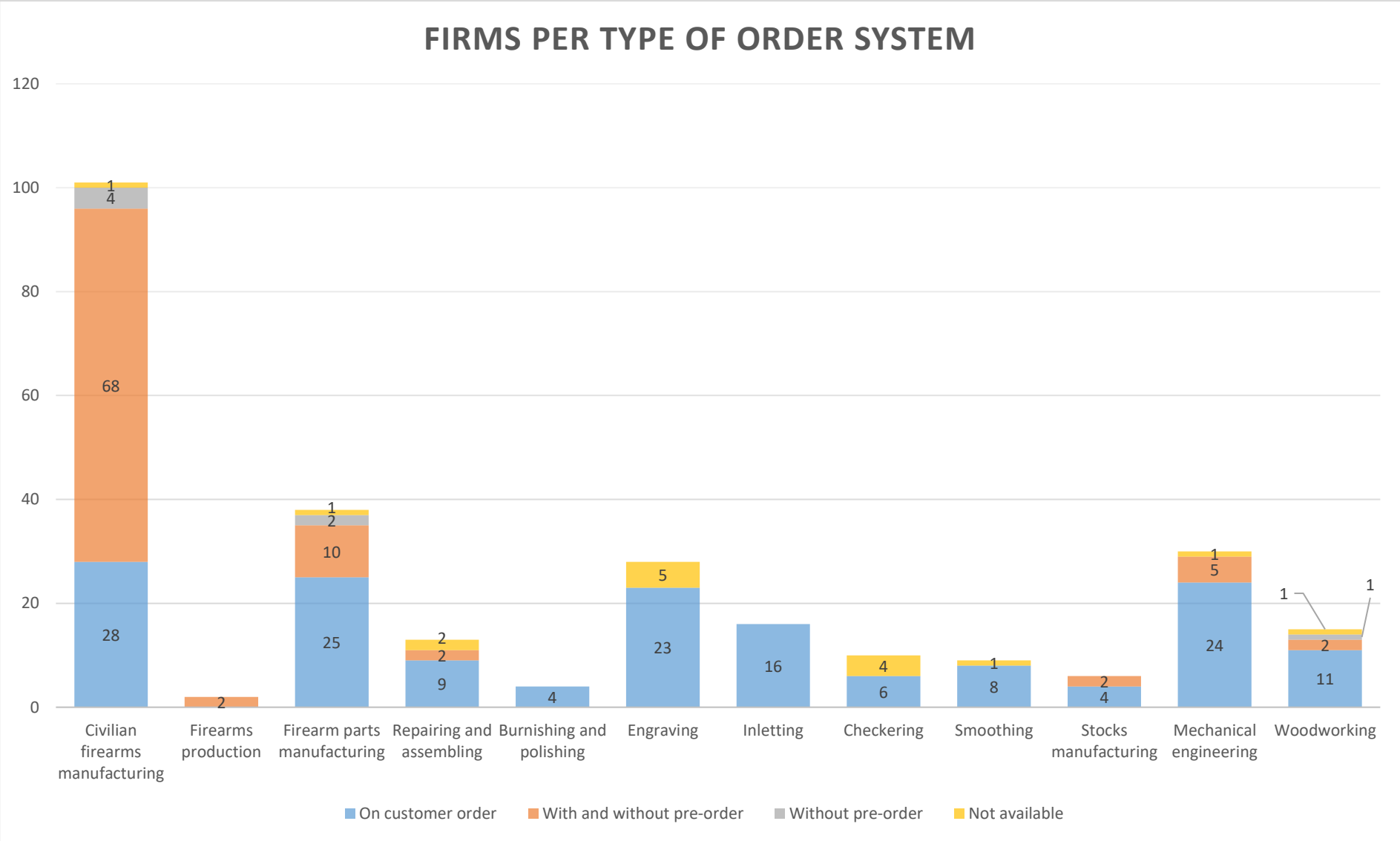


Chart 3.7 - Source: data processed by the author



### FIRMS PER TYPE OF PARTICIPATION OF THE OWNER IN PRODUCTION

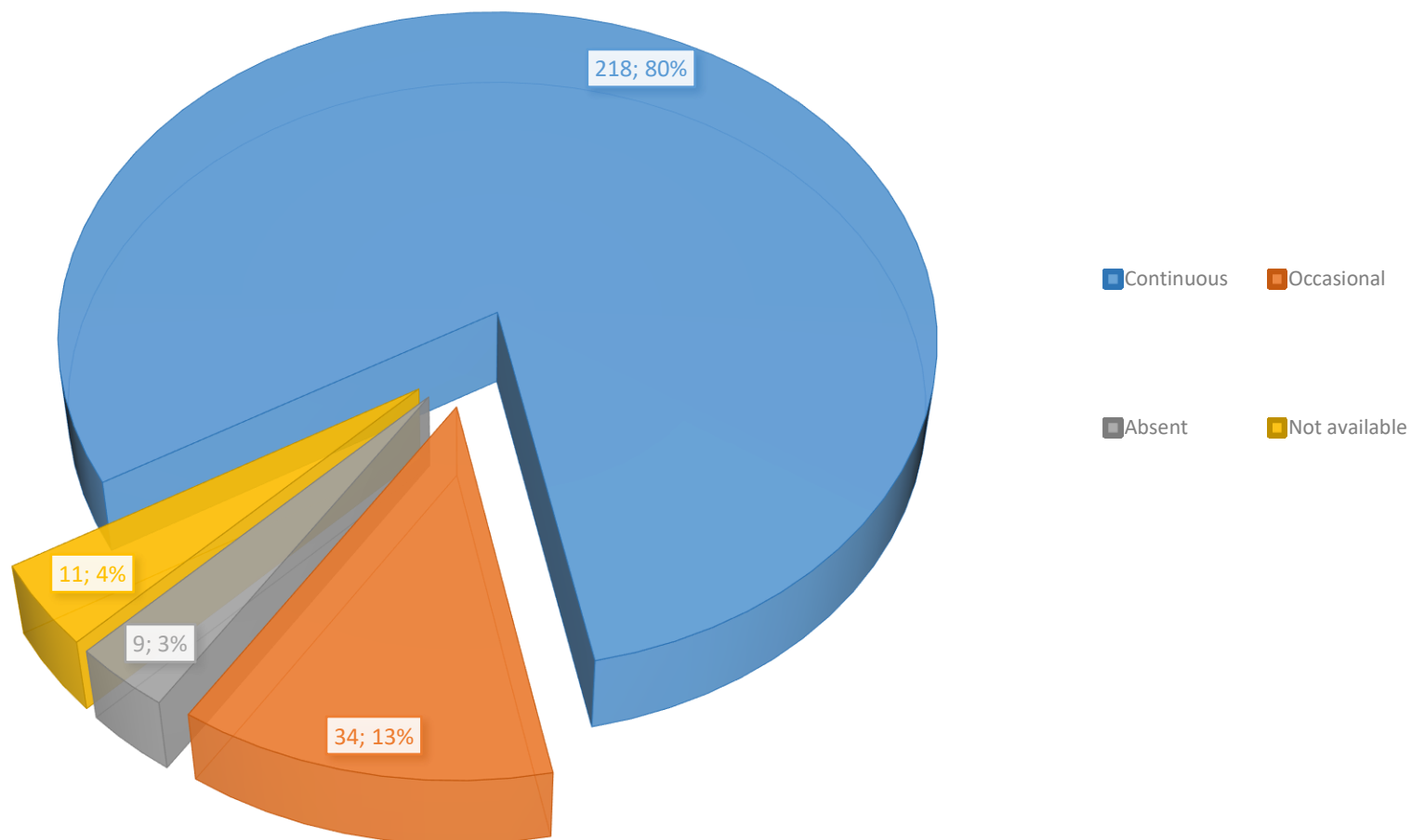


Chart 3.8 - Source: data processed by the author



## Appendix 4

*Data and Information regarding the Capacities of Plants:  
Firearms and Ammunition Industry – Province of Brescia – 1952*

Sources:

- Archivio Storico della Camera di Commercio di Brescia, Carteggio 1943-1963  
– Categorie X-XXI, box 261, files 4 and 5.

N.B.:

This appendix includes ten questionnaires collected in 1952. The subject of the survey was the capacity of the largest firearms and ammunition plants in the province of Brescia. The questionnaires were filled in by the Brescia Chamber of Commerce in collaboration with the local industrial association (Associazione Industriale Bresciana) at the request of the Italian Ministry of Defense. The main aspects investigated were: products, size of the plant, power sources, energy supply, raw materials, labor force.

Since the appendix contains the transcription of an original source, the original language (Italian) was maintained.

1 luglio 1952  
On. MINISTERO DELLA DIFESA  
Ufficio Centrale Approvvigionamenti  
e Produzioni Militari

Raccomandata

Riservata

R.491            2

Fabbriche d'armi

= ROMA =

37    19.4.1952

44    30.4.1952

56    6.5.1952

77    8.5.1952

85    12.5.1952

Alleg. 10

Con la presente nota si ha il pregio di riscontrare le richieste di codesto On. Ministero di cui alle note successivamente pervenute alla scrivente ed indicate a riferimento.

I dati e le notizie che interessano sono stati raccolti da questa camera con la collaborazione riservata della locale Associazione Industriale che solo ora ha fornito gli elementi necessari per dare risposta alle richieste anzidette.

Dall'elenco delle aziende, indicato in un primo tempo, abbiamo raccolto le notizie solo delle Ditte maggiori, ripotate in allegato: per le altre non è stato ritenuto possibile, almeno in questa occasione, perché si tratta di Ditte di struttura ben diversa dalle prime, e non di entità tale da poter assumere notevoli lavori in proprio: inoltre l'indagine, qualora dovesse riferirsi anche a entità di queste dimensioni e caratteristiche, sarebbe da farsi anche per molte altre, qui non nominate, del tutto simili: ciò a tacere del fatto che alcune, come ad esempio la Soc. Castelli, la Soc.A. Armi Automatiche, hanno da tempo cessato ogni attività produttiva.

Queste aziende fanno parte di quella struttura minore industriale, interessantissima e importante assai, che fa corona alle maggiori aziende industriali della provincia, per le quali hanno sempre lavorato in subcommesse, per la produzione di attrezzamento o di parti, formando insieme un complesso produttivo bene articolato. Pensiamo che anche nel presente e per il futuro la loro funzione non sarà dissimile da quella avuta nel passato, tanto più se si tiene conto dei criteri, che si stanno affermando, di affidare lavori completi in appalto.

Naturalmente si rimane a disposizione di codesto On. Ministero qualora ritenga di chiedere ulteriori dati, o comunque di ottenere quelli relativi all'ultima categoria, nel qual caso peraltro si ritiene necessario allargare notevolmente il campo di indagine.

Questa Camera tuttavia ritiene opportuno fornire elementi complessivi di massima idonei a rappresentare un quadro generale in merito alla importanza complessiva e alle caratteristiche della produzione di armi nella Provincia.

A questo fine è da segnalare l'esistenza di una decina di minori officine specializzate per la fabbricazione di armi, la cui occupazione operai va da 10 a 50 dipendenti, che sarebbero in grado di raddoppiare e, in qualche caso, di triplicare la loro attuale occupazione.

Esiste poi un numeroso gruppo di officine a carattere artigianale, una cinquantina in tutto, che possono eseguire, non la fabbricazione dell'arma completa, ma soltanto talune operazioni del ciclo per la produzione di armi; officine, queste, che occupano ciascuna un piccolo numero di operai e svolgono attività di carattere pressoché artigianale.

Infine, nei periodi di più intensa attività del ramo di produzione di cui trattasi, ad esso concorre anche una notevole parte del numeroso stuolo di medi e piccoli stabilimenti di meccanica generica che sogliono assumere subcommesse, anche notevoli, dagli stabilimenti maggiori, per la produzione di parti d'armi e di munizionamento.

Con questo fenomeno nei periodi di punta viene interessato e coinvolto nella produzione armiera pressoché l'intero settore dell'industria meccanica bresciana.

Per maggiore precisazione di può tener presente che le fabbriche maggiori attualmente occupano circa 3.350 dipendenti per la produzione di armi, nel 1943 ne occupavano circa 28.400 (vedi specchio allegato). Complessivamente, l'intero settore dedicato alla produzione di armi nell'anno 1943 di punta massima giungeva a 45-50 mila addetti, oggi ridotti a 5.000.

Tali cifre imponenti documentano non solo l'importanza e la potenzialità – ben note a codesto Ministero – che il settore armiero bresciano ha assunto nel quadro nazionale ma anche la gravità della crisi che lo ha colpito in questo dopoguerra, succeduto ad un decennio di continua ed eccezionale espansione, crisi che ha trascinato e mantiene tuttora l'intera vita economica della nostra provincia in condizioni eccezionalmente difficili per le quali il fenomeno della disoccupazione raggiunge le massime punte nazionali (tasso provinciale di disoccupazione 8,42% abitanti presenti; di fronte ad un tasso nazionale del 4,07%).

In relazione a quanto sopra ed a delucidazione dei dati allegati devesi infine osservare che alcune delle maggiori fabbriche hanno sospeso ogni produzione d'armi arrestando i relativi reparti e limitando o cercando di orientare le direttive aziendali verso altre produzioni, sempre e nel complesso tuttavia con radicali riduzioni nel numero degli operai occupati.

Con osservanza

IL SEGRETARIO GENERALE  
(Pietro Rovetta)

IL PRESIDENTE  
(Dr. Giulio Bruno Togni)

	<u>ANNO 1943</u>		<u>ATTUALMENTE</u>	
	Addetti per produzione d'armi	Altre produzioni	Addetti per produzione d'armi	Altre produzioni
BREDA MECCANICA BRESCIANA – Brescia	5.800	0	710	0
S.p.A. METALLURGICA BRESCIANA GIÀ TEMPINI – Brescia	4.500	1.500	0	1.300
S.p.A. OM – Brescia	1.500	2.500	0	3.300
S.A. FABBRICA NAZIONALE D'ARMI – Brescia	2.650	0	470	0
ARMERIE GNUTTI -Lumezzane (S.p.A. Serafino e Andrea Eredi Gnutti)	3.000	0	0	500
FABBRICA ARMI ESERCITO (ora Metalmeccanica Italiana V.T.) – Gardone V.T.	2.500	0	0	300
S.A. BERNARDELLI VINCENZO – Gardone V.T.	700	0	500	0
S.A. Fabbrica d'Armi PIETRO BERETTA – Gardone V.T.	3.000	0	1,625	0
S.A. LUIGI Franchi – Brescia	300	0	100	0
F.LLI MARZOLI & C. – Palazzolo s/O	2.000	1.000	0	2.100
S.A. Officine CARLO GNUTTI & Figli – Lumezzane	1.800	0	0	430
S.p.A. Officine Meccaniche SALERI – Lumezzane	600	0	0	170

FABBRICA D'ARMI PIETRO BERETTA – GARDONE V.T.  
DATI RELATIVI ALLA POTENZIALITÀ DELLO STABILIMENTO

- a) Principali prodotti dello stabilimento e relativa capacità di produzione sia con l'attuale numero di maestranze che con il massimo delle maestranze impiegabili:  
Armi da caccia – pistole autom. – armi da difesa e da tiro – mitragliatori e mitragliatrici.
- b) Superficie totale:  
mq. 24.000
- c) Superficie coperta:  
mq. 20.000
- d) Potenza di motori installati:  
HP 1.300
- e) Consumo orario massimo di energia elettrica:  
800 Kw.
- f) Consumo medio giornaliero:  
14.000 Kwh.
- g) Ente fornitore dell'energia elettrica:  
propria e società Elettrica Bresciana
- h) Energia elettrica autoproducibile:  
Kw. 1.200
- i) Energia meccanica autoproducibile:  
n.n.
- j) Consumo giornaliero di combustibile:  
nafta Q.li 5 – carbone Q.li 10
- k) Capacità dei depositi di combustibile:  
per nafta mc. 227 – per carbone Q.li 3.000
- l) Quantitativo giornaliero (8 ore lavorative) di materiali che possono essere lavorati o trasformati:  
possono essere lavorati o trasformati: Q.li 20 di acciaio
- m) Principali Enti sub-fornitori di materie prime e semilavorati:  
le principali acciaierie nazionali ed estere



n) Personale normalmente impiegato:

impiegati 125 – operai 1500

o) Massimo personale che può essere impiegato con le attuali attrezzature:

il 15% in più di quello attuale

## BREDA MECCANICA BRESCIANA

### DATI RELATIVI ALLA POTENZIALITÀ DELLO STABILIMENTO

- a) Principali prodotti dello stabilimento e relativa capacità di produzione sia con l'attuale numero di maestranze che con il massimo delle maestranze impiegabili:  
fucili automatici da caccia – telai Cotton – attrezzamenti vari per ditte italiane ed estere – pezzi d'arma da guerra e lavorazioni meccaniche varie. La capacità di produzione con l'attuale numero di maestranza non può essere genericamente indicata trattandosi di lavorazioni variabilissime
- b) La superficie totale dello stabilimento è di mq. 127.250.
- c) La superficie coperta è di mq. 30.000 circa.
- d) La potenza dei motori installati è di circa Kw 2.000 (in essa sono esclusi forni-saldatrici-vasche-ecc.)
- e) Il consumo orario massimo di energia elettrica è:  
gennaio 1952 Kwh 900  
maggio 1952 Kwh 750  
media gen. maggio Kwh 800
- f) Il consumo medio giornaliero di energia elettrica è:  
gennaio 1952 Kwh 11.500  
maggio 1952 Kwh 8.000  
media genn.-maggio Kwh 9.750
- g) L'Ente fornitore dell'energia elettrica è la Soc. Elettrica Bresciana.
- h) Energia elettrica autoproducibile: (n. 5 gruppi elettrogeni con alternatore da 55 KVA cad. – totale KVA 275).
- i) Energia meccanica autoproducibile (niente)
- j) Consumo giornaliero di combustibile:  
carbone: da novembre a marzo media ql. 70  
nafta per forni: da aprile ad ottobre media ql. 50
- k) Capacità dei depositi di combustibile:  
n. 3 serbatoi della capacità complessiva di mc. 48  
di riserva n. 1 serbatoio usufruibile in caso di emergenza di mc. 20.
- l) Quantitativo giornaliero (8 ore lavorative) di materiali che possono essere lavorati o trasformati:

non può essere genericamente indicato trattandosi di lavorazioni variabilissime.

- m) Il principale Ente sub-fornitore di materie prime e semilavorate è la S.p.A. Breda Siderurgica di Sesto S. Giovanni.
- n) Personale normalmente impiegato: attualmente n. 739 persone fra dirigenti-impiegati-operai
- o) Il massimo personale che può essere impiegato con le attuali attrezzature è di n. 1.000 persone.

FABBRICA NAZIONALE D'ARMI – Brescia

DATI RELATIVI ALLA POTENZIALITÀ DELLO STABILIMENTO

- a) Armi da guerra – armi civili, munizionamento (solo parti meccaniche) motori, gruppi elettrogeni (escluso parte elettrica), gruppi e parti per autocarro e moto scooters – lavori vari di meccanica (media e piccola) attrezzature.  
Forza attuale operai 383 – Capienza massima 2.800 circa.  
La capacità produttiva può quindi essere dedotta in ore data la notevole varietà delle produzioni possibili e la dovuta cumulabilità dei vari tipi.
- b) mq. 24.319
- c) mq. 17.408
- d) Motori per circa 850 macchine utensili medie
- e) 400 Kwh (medio)
- f) 4.000 Kwh
- g) S.E.B.
- h) Attualmente zero
- i) Attualmente zero
- j) I combustibili vengono consumati soltanto per riscaldamento invernale (carbone – nafta). Per uso industriale vengono impiegati quasi esclusivamente forni elettrici.
- k) Notevole per l'eventuale deposito di carbone e in relazione a quanto detto al punto j)
- l) La domanda non ha significato nel nostro caso trattandosi di industria per lavorazioni meccaniche e non siderurgiche.
- m) S.I.A.U. – Falck – Cogne – Sisma – Breda ed altre primarie acciaierie.
- n) Vedi punto a).
- o) Vedi punto a).

VINCENZO BERNARDELLI S.A. – GARDONE VAL TROMPIA (Brescia)

a) PRODUZIONE E MANO D'OPERA

1. Le lavorazioni principali in atto sono: fucili da caccia, pistole, automatiche nei cal. 6,35-7, 65-9 corto, fucile mitragliatore calibro 9 lungo.
2. Si possono eseguire le seguenti eventuali lavorazioni: spolette di tipo meccanico di ogni qualità, sono già attrezzate e di immediata lavorazione le spolette di tipo 1.0.40 e I.R. 81; armi portatili diverse, sono di immediata lavorazione parti diverse di moschetto 91, parti diverse di mitragliatrici, parti di motori Alfa Rome 126-128.
3. L'attuale produzione nell'orario normale di lavoro (8 ore giornaliere) è di 20 fucili da caccia, 60 pistole automatiche, 5 fucili mitragliatori.
4. La produzione con orario continuativo di turni con attività di 24 ore potrebbe passare da 20 fucili da caccia, 250 pistole automatiche, 25 fucili mitragliatori e dopo un periodo di addestramento tali quantitativi potranno essere aumentati. La lavorazione delle spolette nei già attrezzati tipi 1.0.40 e I.R. 81 potrà raggiungere e superare dopo un necessario periodo di preparazione le 1.000 spolette giornaliere, raggiungendo successivamente le 2.000 giornaliere.

b) SUPERFICIE TOTALE:

La ditta dispone di area fabbricabile per mq. 12.650  
cortili per mq. 2.050.

c) SUPERFICIE COPERTA:

Area costruita ad un piano mq. 1.400  
area costruita a due piani mq. 2.320  
mq. 3.720  
Totale superficie mq. 18.420

d) POTENZA DI MOTORI INSTALLATI:

La potenza complessiva dei motori installati sulle varie macchine è di complessivi H.P. 675.

e) CONSUMO ORARIO MASSIMO DI ENERGIA ELETTRICA:

L'attuale consumo orario massimo di energia elettrica è di 200 Kwh. In caso di intensificazione produttiva tale consumo si aumenterà indubbiamente in proporzione dei macchinari installati e potrà raggiungere 300/400 Kwh a seconda le necessità.

f) CONSUMO MEDIO GIORNALIERO:

L'attuale consumo medio giornaliero di Kwh 2.000 in caso di intensificazione si sposterà proporzionalmente ai maggiori impianti.

g) FORNITURA E PRODUZIONE DI ENERGIA ELETTRICA:

Forza motrice impiegata:

Autoprodotta in fabbrica HP 30

Ritirata da: Unione Elettrice Gardone-Inzino (Società del Gruppo Bernardelli) HP 100

Società Elettrica Bresciana HP 200

h) ENERGIA MECCANICA AUTOPRODUCIBILE:

Non abbiamo impianti del genere.

i) CONSUMO GIORNALIERO DI COMBUSTIBILE:

Attualmente il consumo è limitato, ma in relazione allo sviluppo produttivo si rendono necessari consumi adeguati.

j) CAPACITÀ DEI DEPOSITI DI COMBUSTIBILE:

Per combustibili solidi abbiamo possibilità di depositi vasti proporzionati all'area libera adiacente allo stabilimento. Per i combustibili liquidi i nostri depositi sono limitati, ma essendo di imminente arrivo la tubazione del metano si rendono inutili depositi prestabiliti.

k) MATERIALI CHE POSSONO ESSERE TRASFORMATI:

I consumi e trasformazioni di materiale sono limitati nel campo armi mentre sono più complessi per le spolette e risultano proporzionati ai programmi di lavoro.

l) PRINCIPALI SUB-FORNITORI DI MATERIE PRIME E SEMILAVORATI:

Le materie prime principali sono di produzione italiana, il ferro e l'acciaio vengono forniti dalle Acciaierie Cogne e Breda, i trafilati ed i profilati di ferro sono prodotti dalle acciaierie-ferriere Redaelli e F.I.A.V. Mazzacchera, l'alluminio è prodotto dai diversi stabilimenti dipendenti della Montecatini. Dall'Estero vengono normalmente ritirati invece gli acciai rapidi ed il rame ed altri metalli da lega, lo stesso dicasi per il carbone e l'olio combustibile.

m) PERSONALE ATTUALMENTE IMPIEGATO E DI POSSIBILE IMPIEGO

Attualmente sono impiegati con lavoro ad orario normale (ore giornaliere): operai n. 467, impiegati n. 32, con lavoro ad orario continuativo di 24 ore giornaliere il personale può essere aumentato anche a 1.000 persone ed oltre.

Non è possibile precisare il rapporto tra uomini e donne perché questo dipende dalla natura del lavoro da eseguire.

Trattandosi di lavorazione di armi portatili le donne possono servire parzialmente alla lavorazione di macchine mentre gli uomini sono indispensabili oltre che per una parte delle operazioni di macchine anche per il montaggio e collaudo; trattandosi invece di lavorazioni di spolette anche il montaggio può essere fatto dalle donne provette.

#### AVVERTENZA

Nella eventualità di dover assumere personale per lavori bellici è indispensabile, per chiare ragioni, lasciare alla ditta la libertà di assumere il personale che dia fiducia ed affidamento, con la possibilità di licenziarlo senza ostacoli alla fine del lavoro.

#### PARTECIPAZIONE A GARE

Il Ministero della Difesa per i tre rami: Guerra, Aviazione, Marina ha fatto eseguire rigidi controlli e sopralluoghi presso le ditte prima di inscrivere nell'albo dei fornitori.

Invece alle diverse gare indette dagli Enti militari vengono invitate ditte artigiane non attrezzate e impreparate tecnicamente per specifici lavori o dissestate finanziariamente.

Soc. LUIGI FRANCHI – Brescia

DATI RELATIVI ALLA POTENZIALITÀ DELLO STABILIMENTO

- a) La Soc. Luigi Franchi produce attualmente fucili da caccia ad una o due canne nei vari calibri, nonché fucili automatici a 4-5 colpi cal. 12 costruiti con concetti di serie. Ha attualmente in forza un centinaio di operai coi quali produce circa 3.000 fucili all'anno di cui 1.800 automatici. Potrebbe impiegare da 250-300 operai, triplicando tale produzione.
- b) Lo Stabilimento occupa un'area di 920 mq. area interamente coperta.
- c) La superficie coperta risulta di 920 mq. a pianterreno e 892 mq. al primo piano. Un totale quindi di 1.812 mq.
- d) Ha installato n. 82 macchine di produzione e n. 18 macchine per attrezzature e calibri. Ha una potenza installata di circa 400 Kw.  
La Ditta è autosufficiente per produrre completamente tutte le parti di un fucile da caccia o di un'arma da guerra automatica o a ripetizione, relativi calibri e attrezzature.
- e) Il consumo orario massimo di energia elettrica è attualmente di 500 Kwh mentre ovviamente se tutte le macchine fossero in funzione il consumo sarebbe proporzionato ai Kw installati.
- f) Il consumo medio giornaliero è di energia motrice Kwh 450 – energia luce 45-50 Kwh.
- g) L'energia elettrica è fornita dai Servizi Municipalizzati di Brescia.
- h) È installato nell'interno dello stabilimento un gruppo elettrogeno con motore monocilindrico “Modag” della potenza di 18 Kw che nei periodi di scarsità di energia elettrica ha sempre funzionato come integrazione alla energia fornita dai Servizi Municipalizzati. Essendo lo stabilimento in condizioni di essere tra breve collegato alla rete del Metano verrà attuata la trasformazione di tale motore per il funzionamento a metano.
- i) Non si produce energia meccanica in quanto il motore sopra citato è direttamente accoppiato ad un generatore di energia trifase.
- j) Il consumo giornaliero di combustibile è di q.li 3-4 nella stagione invernale per il riscaldamento e normalmente si ha un piccolo consumo di carbone per le fucine. Si ha un considerevole consumo di gas illuminante per i bagni di brunitura, anche per i quali sarà operata la trasformazione a metano.
- k) Nessuna possibilità di depositi di combustibili liquidi, mentre si ha un deposito per il carbone della capacità di 100-150 q.li.



- l) Non si può rispondere a questa domanda perché in una produzione così varia e così frazionata come quella delle armi è impossibile prevedere il consumo giornaliero di materie prime.
- m) I principali fornitori di materie prime sono:  
Acciaierie Cogne – Milano  
Trafilerie Mazzacchera – Milano  
English Steel Corporation – Sheffield (Inghilterra)  
Acciaierie Gebruder Boehler e Kapfenberg.
- n) Il personale oggi impiegato è costituito da:  
n. 3 dirigenti  
n. 11 impiegati  
n. 101 operai.
- o) Il personale che potrebbe essere impiegato con le attuali attrezzature è di 15 impiegati e 300-350 operai.

DATI RELATIVI ALLA POTENZIALITÀ DELLO STABILIMENTO

- 1) In passato la nostra azienda ebbe ad eseguire grosse commesse di sciabole, baionette di tipo pieghevole, culatte per fucili Mod. 91 e otturatori per Mitra Beretta.  
Le produzioni massime furono di:
  - n. 500 baionette al giorno
  - n. 800 culatte al giorno
  - n. 250 otturatori per mitra Beretta al giorno
- 2) Dopo la guerra nonostante ogni ns. sforzo non è stato possibile finora ottenere alcuna commessa di armi o parti di armi belliche.
- 3) È necessità assoluta per l'azienda realizzare al più presto possibile lavorazioni di armi o parti di armi per la difesa, onde integrare il diagramma della fatturazione che oggi è del tutto stagionale per i fucili da caccia, cosa che porta alla necessità di immobilizzare ingentissimi capitali per parecchi mesi all'anno in attesa della stagione di vendita.
- 4) La Soc. ha in questi anni compiuto ogni sforzo per rimodernare ed integrare il macchinario onde essere pronta ad eseguire lavorazioni di carattere bellico di serie secondo la più accurata precisione nella produzione di serie. Si rammenta a questo proposito: Torni Minganti a Revolver, Torni Utita a copiare apparecchiatura elettronica ad alta frequenza per brasature e trattamenti termici etc.

S. & A. EREDI GNUTTI – LUMEZZANE S. S. (BRESCIA)  
DATI RELATIVI ALLA POTENZIALITÀ DELLO STABILIMENTO

- a) 1) Principali prodotti dello stabilimento: barre, fili, nastri, tubi, profilati e stampati di rame e di ottone, e alluminio.  
2) Capacità di produzione con l'attuale numero di maestranze: tonn. 1.000 mensili.  
3) Capacità di produzione con il massimo delle maestranze impiegate: tonn. 1.600 mensili.
- b) Superficie totale occupata: mq. 76.954
- c) Superficie coperta: mq. 17.912
- d) Potenza dei motori installati: HP 5.860
- e) Consumo orario massimo d'energia elettrica: Kwh 6.000
- f) Consumo medio giornaliero d'energia elettrica: Kwh 40.000
- g) Ente fornitore dell'energia elettrica: Società Elettrica Bresciana
- h) Energia elettrica autoproducibile: nulla
- i) Energia meccanica autoproducibile: nulla
- j) Consumo giornaliero di combustibile: tonn. 4 di olio combustibile, tonn. 1 di carbone
- k) Capacità dei depositi di combustibile: tonn. 250
- l) Quantitativo giornaliero di materiali che possono essere lavorati o trasformati (8 ore lavorative):
  - 1) tonn. 15 di barra trafilata di rame e ottone in misure diverse
  - 2) tonn. 5 di filo di rame e ottone nei diametri da mm. 0,10 a mm. 9
  - 3) tonn. 10 di nastro e piatto di rame e ottone negli spessori da mm. 0,12 a mm. 25
  - 4) tonn. 5 di tubo fi rame e ottone nei diametri fino a mm. 180
  - 5) tonn. 5 di stampati a caldo di rame e ottone diversi da barra
- m) Principali enti sub-fornitori di materie prime:
  - 1) per il rame: Ditte diverse estere
  - 2) per l'alluminio: S.A. Alluminio – S.A.V.A.
  - 3) per lo zinco: Soc. Montevecchio – AMMI – Milano
- n) Personale normalmente impiegato: Operai n. 440 – Impiegati n. 50
- o) Massimo personale che può essere impiegato con le attuali attrezzature: n. 800
- p) N.N.

DITTA FRATELLI MARZOLI & C. – PALAZZOLO S/O (Brescia)  
DATI RELATIVI ALLA POTENZIALITÀ DELLO STABILIMENTO

- a) Principali prodotti dello stabilimento e relativa capacità di produzione sia con l'attuale numero di maestranze che con il massimo delle maestranze impiegabili: Macchinario per l'industria tessile
- b) Superficie totale: mq. 55.820
- c) Superficie coperta: mq. 39.800
- d) Potenza di motori installati: Kw. 1.000
- e) Consumo orario massimo di energia elettrica: Kwh 1.100
- f) Consumo medio giornaliero: Kwh 8.000
- g) Ente fornitore dell'energia elettrica: Centrali idroelettriche proprie di Urago d'Oglio e Palosco
- h) Energia elettrica autoproducibile e meccanica: Kw. 200 prodotti in caso di emergenza da due gruppi elettrogeni accoppiati con alternatori
- i) Consumo giornaliero di combustibile: N.N.
- j) Capacità dei depositi combustibili: N.N.
- k) Quantitativo giornaliero di materiali che possono essere lavorati o trasformati: Non si può precisare data la grande varietà di macchinario tessile in lavorazione
- l) Principali Enti sub-fornitori di materie prime e semilavorati: N.N.
- m) Personale normalmente impiegato: Operai n. 1973 – Impiegati 142
- n) Massimo personale che può essere impiegato con le attuali attrezzature: Quello indicato alla precedente lettera m)
- o) Altre eventuali notizie: N.N.

DATI RELATIVI ALLA POTENZIALITÀ DELLO STABILIMENTO

- a) Principali prodotti dello stabilimento e relativa capacità di produzione: autocarri (da 25 a 35 unità), trattori agricoli (3/4 unità), motori Diesel vari.
- b) Superficie totale: 224.730 mq.
- c) Superficie coperta: 106.469 mq.
- d) Potenza di motori installati: circa 9.000 KW
- e) Consumo orario massimo di energia elettrica: circa 4.000 KWO
- f) Consumo medio giornaliero: circa 60.000 KWO
- g) Ente fornitore dell'energia elettrica: Soc. Elettrica Bresciana
- h) Energia elettrica autoproducibile: 0
- i) Energia meccanica autoproducibile: 0
- j) Consumo giornaliero di combustibile: media di 100 q.li nafta; prossima entrata in esercizio del metano per circa 9.000 mc/giorno
- k) Capacità dei depositi di combustibile: 630 mc.
- l) Quantitativo giornaliero (8 ore lavorative) di materiali che possono essere lavorati o trasformati: circa 90 tonn.
- m) Principali Enti sub-fornitori di materie prime e semilavorati: Fiat – Ferriere, Cogne, SIAU, Magona, Pirelli, S.A. Alluminio, RIV, VIS, Magneti Marelli, Fonderie varie
- n) Personale normalmente impiegato: 3.300 unità
- o) Massimo personale che può essere impiegato con le attuali attrezzature: circa 4.000 unità
- p) Altre eventuali notizie: attrezzature per la produzione di autocarri ad uso militare, trattori, motori marini

METALLURGICA BRESCIANA (GIÀ TEMPINI) – BRESCIA  
DATI RELATIVI ALLA PRODUZIONE DELLO STABILIMENTO

SEZIONE METALLURGICA

Lamiere: di ottone comune e speciale (per stampaggio ecc.)

Nastri, Bandelle, Piattine: di rame (per conduttori, avvolgimenti, ecc.), di ottone e di bronzo comuni e speciali (per stampaggio minuterie, ecc.)

Tubi, Barre, Sagomati, Profilati: di rame (per caldaie, condensatori, bollitori, conduttori), di ottone e di bronzo comuni e speciali (per décolletage radiatori inneschi, nipples, minuterie ecc.), di alluminio (per ornamenti ecc.)

Fili, Fili Capillari, Corde: di rame (per conduttori, avvolgimenti, trolley ecc.), di ottone e di bronzo comuni e speciali (per linee telefoniche reti metalliche ecc.)

SEZIONE SIDERURGICA

Lamiere: di acciaio speciale (per stampaggio ecc), di acciaio inossidabile (resistente alla corrosione e al calore), di acciaio semirapido-rapido e superrapido (per utensili)

Bordone, Vergella, Filo Trafilato, Barrette: di acciaio speciale (per elettrodi rivestiti, per saldature ecc.)

Barre, Dischi fucinati, Barre sottili rettificate, Barre trattate e rettificate: di acciaio semirapido-rapido e superrapido (per utensili)

Moietta: di acciaio speciale dolce (per stampaggio ecc.)

Seghe, Dischi, Segmenti: di acciaio rapido e superrapido (per taglio a freddo metalli)

METALLURGICA BRESCIANA (già TEMPINI) – Brescia  
DATI RELATIVI ALLA POTENZIALITÀ DELLO STABILIMENTO

a) Principali prodotti dello stabilimento

1) Semilavorati di acciai speciali

Lamiere di acciaio speciale, di acciaio inossidabile e di acciaio semirapido, rapido e superrapido.

Bordone, vergella, filo trafilato e barrette di acciaio speciale.

Barre, dischi fucinati, barre rettificate e barrette trattate e rettificate di acciaio semirapido, rapido e superrapido.

Moietta di acciaio speciale dolce.

2) Semilavorati di rame e sue leghe

Nastri, bandelle, piattine, tubi, barre, sagomati, profilati, fili, corde ecc. nonché lamierini in ottone.

A complemento di quanto sopra si allega uno specchio da cui risultino tutti i prodotti di nostra fabbricazione.

3) Produzione mensile

di semilavorati di rame e sue leghe: attuale ton. 550/650, massimo realiz. ton 800/1000

di semilavorati di acciai speciali; attuale ton. 1000/1200, massimo realiz. ton. 1400/1600

4) Personale attualmente a carico

Operai n. 1198, Impiegati n. 159

Non si ritiene di indicare il personale occorrente per realizzare le produzioni massime, essendo tale dato variabile in relazione al tipo di semilavorati da produrre.

b) Superficie totale: mq. 123.340

c) Superficie coperta: mq. 80.000 circa

d) Potenza di motori installati: Kw. 13.000

e) Consumo orario massimo di energia elettrica: Kwh. 8.000

f) Consumo medio giornaliero: Kwh. 125.000

g) Ente fornitore dell'energia elettrica: Soc. Elettrica Bresciana

h) Energia elettrica autoproducibile: -----

i) Energia meccanica autoproducibile: -----

- j) Consumo giornaliero di combustibile: Metano mc. 12.000, Nafta ton. 2
- k) Capacità dei depositi di combustibile: mc. 940 (serbatoi nafta)
- l) Le materie prime per i semilavorati di rame e sue leghe vengono acquistate direttamente da noi in Italia od all'Estero o forniti dai nostri clienti in conto trasformazione.  
Per gli acciai, impieghiamo rottami di provenienza nazionale ed estera assegnatici dal C.A.M.P.S.I.D.E.R.
- m) Per la produzione di materiale bellico siamo attrezzati per il munizionamento in genere.



## Appendix 5

### *Interviews with Entrepreneurs of the Industrial District:*

*Cristina Abbiatico, Pierangelo Pedersoli, Giuseppe Pirlo, Luigi Zanardini*

#### N.B.:

This Appendix gives the transcriptions of four interviews of entrepreneurs in the industrial districts of Gardone Val Trompia. The major objectives behind these interviews were:

1. verify the reliability of the written sources where no authoritative background was provided;
2. gather information regarding specific aspects of the history of the local production system which are poorly reported on in the existing literature;
3. grasp intangible aspects of the culture and social life of the community under investigation;
4. collect feedback on partial results while the research was in progress.

In order to accomplish these goals, interviews with a semi-structured approach were conducted (Miller and Glassner 1997; Sala 2010). The topics were carefully selected in advance taking the cue from the literature on industrial districts, the history of Val Trompia and the information available on the interviewees. The conversations were built on open-end questions to enable Abbiatico, Pedersoli, Pirlo and Zanardini to freely reconstruct events and anecdotes of their lives in the community of Gardone Val Trompia and the local gun trade.

Each transcription is preceded by a short introduction where general information regarding the interviewee is provided to explain their role in the local production system and to highlight the most salient aspects of their contribution to the research. All the interviews were carried out during the Ph.D. research program [US], precisely as follows:

- the interview with Pierangelo Pedersoli took place in Gardone Val Trompia on February 23, 2016;

- the interview with Cristina Abbiatico took place in Gardone Val Trompia on August 17, 2016;
- the interview with Giuseppe Pirlo took place in Gardone Val Trompia on October 6, 2016;
- the interview with Luigi Zanardini took place in Marcheno on October 12, 2016.

In order not to lose significant shades of meaning and to avoid any semantic obstacle in the transcription, the original language (Italian) was maintained.

## **5.1 Interview with Pierangelo Pedersoli**

Gardone Val Trompia – February 23, 2016

### *Introduction*

Pierangelo Pedersoli is chief executive officer and owner of the family business Davide Pedersoli & C. specialists in the production of historical firearm replicas. The company, founded in 1957 by Davide Pedersoli, father of Pierangelo, started with the manufacture of hunting shotguns, over-and-under shotguns featuring a specific patent and side-by-side shotguns. In 1960 the firm started the production of muzzle loading guns, which, after ten years, took over as the predominant product of the company. In 1973, the production of traditional hunting shotguns was discontinued to concentrate on the manufacture of historical muzzle-loading guns and accessories as well as expanding powder flask production which started in 1960, at the beginning of the muzzle-loading era.

Today, the company retains its family character and firearms production ranges from dueling pistols to revolvers, from target guns to infantry muskets from various European countries, as well as famous American icons in the evolution of firearms from flintlock to the first use of metallic cartridges.

Mr. Pedersoli also holds several important institutional positions in the Italian firearms world. He has been President of the Consorzio Armaioli Italiani since 1988, a member of the Consultative Committee on Firearms (for the Italian Ministry of Interior) since 1989, a member of the Board of Directors of the Italian National Testing Body, President of the gun making section of the Confederation of Craft Industry since 2000 and a member of the scientific committee of the firearms museum in Gardone Val Trompia since 2011.

Pierangelo was born in Gardone Val Trompia and in 1975, after a period of military service, he started work for the family business. His long experience and important successes in the firearms industry make him a very interesting and reliable witness of the life of the local system of production of Gardone. Thanks to Pedersoli's holistic vision of the small arms industry and his proud local roots, this interview

gives a comprehensive description of the development of both the gun sector and Val Trompia in the latter half of the last century.

### *Transcription*

#### **Innanzitutto le chiedo di presentarsi.**

Sono Pierangelo Pedersoli, amministratore della Davide Pedersoli; sono laureato in economia e commercio e prima della laurea in economia ho frequentato l'Istituto Tecnico Meccanico. Sono anche Presidente del Consorzio Armaioli Italiani, prima Consorzio Armaioli Bresciani.

La Davide Pedersoli è un'azienda del settore armiero, nata nel 1957, che all'inizio era specializzata nella produzione di fucili tradizionali, cioè di fucili da caccia sovrapposti. Dagli anni '60 inizia anche una nuova linea di produzione che consiste nella costruzione di riproduzioni funzionanti di armi del Settecento e dell'Ottocento; questo avviene in concomitanza con il 100° anniversario della Guerra Civile americana che prevedeva appunto di presentare sul mercato internazionale, soprattutto sul mercato americano, delle riproduzioni di armi di quel periodo storico. Io sono entrato in azienda nel 1975, dopo un periodo di servizio militare da ufficiale, e ho preso le redini dell'azienda scegliendo di abbandonare la produzione del fucile da caccia sovrapposto, che fino ad allora era stata parallela a quella di armi ad avancarica, per concentrarmi completamente sulla costruzione delle riproduzioni di armi storiche.

Oggi abbiamo un'azienda di oltre 40 dipendenti che produce repliche di armi che vanno dai primi del Settecento al 1880, esportate per il 90% nel mondo intero. I nostri mercati principali sono soprattutto negli Stati Uniti, verso i quali va più o meno il 50% della produzione. Ad ogni modo in tutti i Paesi occidentali, quindi anche Europei, siamo abbastanza presenti, sempre sotto il brand Pedersoli che oggi è molto conosciuto. Abbiamo avuto anche recentemente una tesi di laurea universitaria che si è basata sulla risposta da parte della clientela in merito al grado di soddisfazione dei nostri prodotti da cui sono emersi risultati molto soddisfacenti. Il 98,3% dei contattati riacquisterebbe un prodotto Pedersoli: credo che sia un dato decisamente importante considerato che sono state inviate, tutte negli Stati Uniti,

più di 6000 e-mail di contatto alle quali hanno risposto in più di 2000. Il brand Pedersoli oggi è associato per l'85% a un concetto di qualità e in altre percentuali alla precisione del tiro, etc., però nel concetto di qualità sono incluse tutte le caratteristiche positive dei nostri prodotti.

Come dicevo poc'anzi, sono Presidente del Consorzio Armaioli dal 1988, costantemente rieletto con elezioni ogni quattro anni. Da quando sono diventato presidente abbiamo aumentato notevolmente il numero degli associati passando da 14/15 associati ai circa 110 attuali. Il CONARMI, che prima aveva una valenza soprattutto locale, oggi invece è un'associazione che ha una sua importanza anche a livello internazionale. Svolgiamo, con altre associazioni, un'attività sindacale a favore del settore armiero soprattutto per quanto concerne le normative sia nazionali che internazionali, in modo particolare europee, che direttamente ci coinvolgono. Per quanto concerne, invece, l'ambito locale promuoviamo attività di sviluppo del nostro settore, per esempio abbiamo riattivato il Corso Armaioli presso l'Istituto d'Istruzione Superiore Carlo Beretta: dico riattivato in quanto era stato chiuso dopo il 1975, periodo degli anni di piombo, in cui parlare di produzione di armi era molto difficile. Oggi le cose non sono cambiate molto e riteniamo che ci sia molta ignoranza in materia, soprattutto da parte dell'opinione pubblica e dei media (i media non di settore) che per demagogia non ci sostengono assolutamente. Tutto ciò nonostante i nostri continui sforzi volti a dimostrare come il nostro sia di fatto un settore venatorio, un settore sportivo, un settore collezionistico e, in casi come quelli della Pedersoli, addirittura un settore che può rientrare nelle attività culturali: moltissime delle nostre armi, per esempio, sono state utilizzate in ambito cinematografico per film molto importanti: l'ultimo in ordine temporale è stato *Revenant*.

### **Tornando alla sua azienda, chi la fondò?**

L'azienda venne fondata da mio papà, Davide Pedersoli, ex dipendente della ditta Beretta, dove lavorava in un reparto molto specializzato: quello deputato alla realizzazione di calibri per la misurazione e il controllo dei semilavorati. Era un grande lavoratore e appassionato di armi, brevettò un fucile sovrapposto con percussioni parallele e decise di iniziarne la produzione da solo. Pertanto uscì dalla

Beretta e iniziò una sua piccola produzione molto artigianale ma fortunatamente, stante il fatto che era un importante meccanico (le scuole tecniche Zanardelli e l'esperienza in Beretta gli avevano dato una grande conoscenza sia della meccanica che della manualità), quasi immediatamente si rese conto che con le sole mani era difficile fare grandi produzioni. Decise quindi di acquistare le prime macchine (fresatrici, torni) e iniziò una produzione un poco più avanzata di quella tradizionale. Da subito iniziò a lavorare per il mercato sebbene mio papà non fosse un grande venditore. Questa era una condizione comune a tutte le aziende bresciane, e gardonesi in modo particolare: avevamo gente molto brava a lavorare, con delle ottime conoscenze delle dinamiche di un'arma, ma dal punto di vista commerciale eravamo proprio a quota zero. Io ricordo mio papà che mi raccontava di quando con mia mamma girava l'Italia in macchina per andare a vendere i suoi primi fucili presso le armerie: il risultato tuttavia era che, invece di vendere i fucili, immancabilmente finiva per comprare alcune cartucce. Ad ogni modo quelli erano tempi d'oro per cui, fortunatamente, erano più i clienti che cercavano le aziende che viceversa. Cominciarono i primi contatti con Francia e Australia e, sicuramente, mio papà già allora esportava la maggior parte della sua produzione, nonostante qualcosa andasse anche in Italia. Anche quando siamo entrati nel campo della riproduzione di armi antiche erano gli stranieri che venivano a proporci cosa fare e, più o meno, questa era la storia di tutti: qui c'erano dei grandi lavoratori che conoscevano alcune tipologie di armi, poi arrivavano il francese di Saint-Étienne, l'inglese di Birmingham o il belga di Liegi (che nel frattempo avevano dismesso la produzione di armi) che, attratti dai bassi costi di produzione, decidevano di commissionare lavori ai locali. Per certi versi ciò fu anche alla base di un processo di trasferimento di conoscenze e tecnologie che dal secondo dopoguerra permise all'Italia di tornare in auge nella produzione di armi leggere.

Negli anni '50-'60 il fucile sovrapposto era soprattutto l'arma della grande azienda, la Beretta, oppure di qualche estroso, come poteva essere mio papà, mentre gli altri producevano soprattutto doppiette. La differenza stava nel fatto che il sovrapposto era un prodotto più industrializzato della doppietta; quindi veniva fabbricato nella grande azienda dove l'industrializzazione era un dato di fatto, costante e continuativo, mentre nella piccola azienda ciò avveniva raramente. Poteva fare

questo tipo di fucile una persona come mio papà che aveva le capacità e le conoscenze tecniche, mentre gli altri continuavano il vecchio sistema produttivo dalla doppietta perché era estremamente artigianale. In seguito la situazione mutò, quasi tutte le aziende del settore cominciarono a produrre fucili sovrapposti abbandonando la doppietta: secondo un fenomeno di imitazione delle aziende a loro vicine e più “avanzate”, sostanzialmente tutti i produttori si adeguarono ai tempi implementando le loro tecnologie con nuove macchine. Gardone Val Trompia divenne così un centro importantissimo per la produzione di questi fucili che venivano e vengono esportati in tutto il mondo.

**Questo passaggio al fucile sovrapposto con l'intenzione di non essere secondi ai concorrenti quando lo collocherebbe?**

Io direi negli anni '60, in particolare tra il 1964 e il 1965: un periodo di grandi cambiamenti e possibilità. Faccio questo ragionamento: mio papà uscì dalla Beretta nel 1957 quando io avevo 7 anni, aprì una società con un amico, che durò per 4 o 5 anni, e iniziò lavorando alla morsa. Solo otto anni più tardi mio papà aveva un'officina con 8 macchine utensili e concludeva il trasferimento in una nuova sede che è poi una parte embrionale di quella attuale. Pertanto in pochi anni realizzò moltissimo e sicuramente guadagnò anche. Non solo, iniziò anche l'attività di riproduzione delle armi che certamente gli diede una spinta importante visto che, in quel momento, non erano tantissimi quelli che si dedicavano a questo mercato.

**Come lei ha già detto a Gardone c'è una grande concentrazione di aziende che si dedicano alla lavorazione delle armi, ma tutta la provincia di Brescia è conosciuta per la sua specializzazione in questo settore. Saprebbe identificare nel contesto provinciale delle aree omogenee? In altre parole, è possibile identificare in Val Trompia un nucleo che si distingue rispetto al resto della produzione provinciale?**

Che ci sia un nucleo oggi in Val Trompia è fuori discussione. Il nucleo iniziale riguardava soprattutto Gardone Val Trompia, poi è chiaro che negli anni, anche solo per i nuovi sistemi di comunicazione, non è più stato necessario rimanere legati esclusivamente a questo nucleo. Il nucleo una volta era fondamentale in quanto

c'erano delle capacità manuali della lavorazione che erano specifiche di questa zona, la quale a sua volta era suddivisa in 3 o 4 micro nuclei. Per esempio nella zona di Magno c'erano gli incassatori, nella zona di Inzino c'erano quelli che facevano le lavorazioni con la forgia, in Gardone venivano realizzati soprattutto gli assemblaggi: erano delle vere e proprie specializzazioni. Perché proprio lì? Difficile da spiegare, probabilmente perché originariamente c'erano due o tre artigiani che sono stati in grado di formare una serie di apprendisti che, a loro volta, hanno aperto una loro piccola attività nella stessa zona. Con gli anni '60 e soprattutto '70, la lavorazione però si espanse, anche per una mera esigenza di spazi: rimase e tutt'oggi rimane il nome "Gardone Val Trompia", perché sin dalle origini questo era il paese che produceva le armi, però nacquero e ancora ai nostri giorni esistono numerose aziende nei comuni limitrofi di Marcheno e di Sarezzo. Non solo, grazie alle nuove tecnologie che hanno ridotto l'importanza della manodopera specializzata, ha avuto luogo un fenomeno di decentramento che ha portato ditte a stabilire la propria sede nei comuni di Gussago, Brescia, Flero. Ad ogni modo tale decentramento ha avuto un impatto comunque limitato poiché in Gardone sono presenti delle attività collaterali di cui tutte le aziende di armi leggere hanno bisogno. Tra queste attività collaterali possiamo menzionare: il Banco Nazionale di Prova (l'unico esistente in Italia, fatta eccezione per un branch dello stesso presente a Urbino per la prova delle armi della ditta Benelli); la Scuola Armaioli che abbiamo riaperto come Consorzio Armaioli Italiani, partecipando ai costi di gestione e fornendo personale dei nostri associati al fine di collaborare alla formazione dei ragazzi (oggi gli studenti sono circa 90, fanno stage nelle nostre aziende e sono simbolo di un rinnovato senso di appartenenza al settore da parte del contesto locale, un senso di appartenenza che negli anni passati era andato indebolendosi); da ultimo possiamo menzionare certe lavorazioni, come quelle del legno ed i trattamenti termici, o professioni, quali quelle degli incisori e dei pulitori, che sono concentrate in Gardone.

### **Negli anni '60 -'70 si ricorda da dove proveniva la manodopera?**

La manodopera è sempre stata soprattutto locale, sebbene vi fossero diverse persone che venivano dal sud Italia. La maggior parte era gente della Valle, non esclusivamente di Gardone: venivano da Collio, San Colombano, Polaveno,



Tavernole, Marcheno, Sarezzo, qualcuno, ma pochi (essendo quello un altro centro d'attrazione), da Lumezzane; raramente provenivano dai comuni sotto Sarezzo.

### **In quegli anni come era strutturato il processo produttivo?**

Negli anni '60-'70 le aziende che producevano tutto il prodotto erano molto rare, più che altro c'erano delle aziende che producevano alcune parti che venivano vendute nello stato semigrezzo e acquistate dalle piccole aziende che le trasformavano in un prodotto finito, magari personalizzandolo. Queste parti venivano denominate "serie" che poteva essere un composto della bascula, un composto del manicotto, eventualmente parti di meccanica interna. Le aziende che producevano e vendevano la "serie" erano diverse; due esempi sono quelli delle ditte Sabatti e Marocchi: erano aziende che magari producevano la loro linea di fucili ma che avevano una capacità tecnica tale da poter produrre un certo quantitativo extra da vendere ad altre piccole ditte. Queste ultime, a loro volta, compravano da altre aziende specializzate i tubi e da altre ancora i calci grezzi, da ultimo assemblavano il tutto realizzando lavorazioni di saldatura, levigatura, incassatura, etc. Tuttavia, piano piano, le aziende si resero conto che, sebbene i fucili venissero personalizzati, le serie erano molto simili e non era possibile distinguere il proprio prodotto da quello di chi si riforniva della medesima "serie". Ecco allora, soprattutto nella seconda metà degli anni '80, nascere delle produzioni specifiche all'interno delle piccole ditte che finiscono con il produrre in proprio anche le parti basilari dell'arma, talvolta mettendo a punto anche brevetti specifici. Negli anni '80, del resto, il comparto stava vivendo anni difficili e la diversificazione apparve come una strada inevitabile per poter sopravvivere: vennero messi a punto nuovi calibri, si iniziò a dedicare maggiore attenzione alla canna rigata (la specializzazione gardonese è sempre stata la canna liscia), si tentò di industrializzare la produzione della doppietta e, soprattutto, si iniziò a puntare sull'utilizzo sportivo dei fucili introducendo il fucile da piattello.

### **Aziende che realizzavano lavorazioni di meccanica "generica" partecipavano al processo produttivo?**

Erano naturalmente presenti aziende "generiche". A queste normalmente veniva

richiesta la produzione di alcune parti a disegno, tuttavia non avevano competenze tali da poter intervenire direttamente nella produzione e ciò rappresentava un forte limite, in un settore come quello delle armi, dove la balistica, materia assai complessa, è di primaria importanza.

### **Del gran numero di aziende presenti in Val Trompia quante svolgevano lavorazioni per conto di Beretta?**

Tantissime, ce n'erano e ce ne sono ancora tante. Oggi devono avere specifiche certificazioni che un tempo non erano necessarie, ma ancora oggi sono molte le aziende che lavorano per Beretta. Una volta erano soprattutto contoterzisti; oggi non è disdicevole nemmeno per Beretta acquistare il prodotto di un'altra azienda e venderlo con il proprio brand, sebbene rimangano casi isolati e sempre studiati e collaudati dalla Beretta stessa.

### **Che cosa mi può dire a proposito della lavorazione a domicilio?**

La lavorazione a domicilio una volta era in auge, così come importante era la lavorazione post orario di lavoro. Giuseppe Zanardelli diceva che a Gardone ogni famiglia era un'officina. Io rimasi stupefatto quando venni a sapere che il "becchino" del paese aveva una licenza di fabbricazione armi e, come seconda attività, lavorava i fucili.

A domicilio come contoterzisti lavoravano gli incassatori, le zigrinatrici (erano tutte donne), i lucidatori, gli incisori, i pulitori; poi c'erano quelli che, una volta terminata la loro giornata lavorativa in Beretta, o presso una delle tante altre aziende locali, facevano qualche fucile o qualche riparazione in casa. Tutto il paese viveva per l'attività di lavorazione delle armi ed era usuale vedere persone spostarsi per il paese con una scatola di cartone con all'interno parti d'arma sciolte da consegnare al committente o al lavorante di turno.

### **Immagino che talvolta questa attività venisse svolta anche senza un'apposita licenza e in nero...**

"Grigio" dai... più volte abbiamo domandato se per fare quelle lavorazioni fosse necessaria una licenza di fabbricazione o di riparazione armi e venne risposto in

maniera negativa. Tuttavia queste erano affermazioni fatte dalla Questura e non dal Ministero dell'Interno per cui non necessariamente il Questore successivo avallava la stessa regola. Ancora oggi, sebbene le lavorazioni a domicilio non siano più praticate ed il discorso riguardi solo le piccole aziende, c'è un dibattito aperto in merito alla necessità o meno di una licenza di riparazione per svolgere lavorazioni sulle singole parti. Io insisto nel sostenere che una licenza non serva perché a quel contoterzista non consegno l'arma intera ma un solo componente e comunque io, titolare di Licenza di Pubblica Sicurezza e dell'azienda committente, mi assumo la responsabilità e rispondo in prima persona per il materiale consegnato loro.

**Per quel che riguarda la rappresentanza sindacale nelle aziende del comparto armiero com'è la situazione in Val Trompia e come si è evoluta nel corso del tempo?**

La Val Trompia è sempre stata molto sindacalizzata. Direi che negli anni '70 noi produttori ci siamo resi conto che il sindacato non difendeva il settore armiero, ovviamente difendeva il posto di lavoro ma una certa parte del sindacato era anche contraria al fatto che noi continuassimo la produzione armiera. Forse anche il sindacato era stato condizionato da quel falso perbenismo per cui si dava la colpa al settore delle armi per tutti i problemi legati agli anni di piombo; una logica che ancora oggi è purtroppo forte e che si concretizza in normative sempre più restrittive per il nostro settore di fronte a ogni evento tragico come i fatti del 13 novembre 2015 di Parigi.

Tornando ai sindacati io reputo che, sebbene essi abbiano fatto la loro parte, in certi casi abbiano esagerato o, in altri ancora, che i dipendenti abbiano prevalso sul sindacato stesso. Ciò è avvenuto soprattutto in alcune situazioni amministrative e un esempio è quello del Banco Nazionale di Prova. Quest'ultimo, infatti, è una sorta di imbuto dove tutti devono passare: è capitato di trovarsi in situazioni in cui o davamo ai suoi 40/50 dipendenti ciò che volevano o si rifiutavano di realizzare la prova delle armi obbligatoria per la commercializzazione, bloccando di fatto tutto il comparto. Abbiamo fatto battaglie importanti, sollevando anche la questione in merito all'ammissibilità dello sciopero in un servizio pubblico come quello della prova forzata delle armi. Tuttavia ancora oggi il problema non ha trovato una

soluzione e si stanno valutando strade come quella di creare banchi alternativi.

### **La presenza dell'arsenale come incideva sul contesto locale?**

Quella dell'arsenale era certamente una bella realtà che occupava un discreto numero di persone e dipendeva dall'arsenale di Terni. Sebbene vi fosse una certa quota di produzione interna, esso provvedeva soprattutto all'assemblaggio e al collaudo di tutte le armi militari prodotte soprattutto dalla Beretta. Da lì sono uscite tante persone dotate di esperienza e sempre da lì provenivano molti di quelli che facevano il cosiddetto lavoro serale. Tuttavia progressivamente le mansioni sono state spostate a Terni e la sede locale ha perso completamente la sua importanza intorno alla fine degli anni '70.

### **Qual è stato il ruolo del comune nello sviluppo della specializzazione produttiva?**

Io faccio riferimento ancora agli anni '70, in particolare al 1975: in quel periodo noi non siamo stati difesi. Di fronte a una stretta senza precedenti sul piano legislativo e a una campagna mediatica che ci dipingeva come la fonte di tutti i mali, molta gente si è lasciata condizionare: nessuno voleva più iscrivere i propri figli alla scuola armaioli e anche l'Amministrazione Comunale, fatta eccezione per qualche riunione nei momenti più difficili, non si è battuta più di tanto. In fondo questa è la ragione per cui è nato il Consorzio proprio in quegli anni: di fronte a una nuova normativa che ci costringeva a cambiare radicalmente le nostre abitudini, e al tentativo di introdurre nuove pesanti tasse, si è sentita l'esigenza di un Consorzio che facesse attività sindacale.

Ci furono alcuni personaggi del mondo delle istituzioni che certamente si batterono per gli interessi del settore: tra questi Giuseppe Grazioli, sindaco di Gardone Val Trompia per quasi 20 anni, ma in genere ci siamo sempre scontrati con politici che qui parlavano in un certo modo e poi a Roma, isolati in un contesto ostile alle armi, non ci rappresentavano.

Posso portare anche un esempio delle difficoltà con cui gli artigiani armaioli dovettero avere a che fare: in Commissione Consultiva Centrale delle Armi, costituita proprio secondo la normativa del 1975 presso il Ministero dell'Interno, la

produzione medio-piccola era vagamente rappresentata. Le aziende più grosse avevano rappresentati dalla retorica molto più aulica rispetto ai nostri che ascoltavano e ascoltavano, ma non riuscivano ad incidere sulle decisioni. Dal 1988, quando sono stato eletto Presidente, ritengo che le cose siano un po' cambiate.

Non abbiamo lesinato impegno nemmeno sul piano mediatico: pagando viaggio, vitto e alloggio, a inizio anni '90 abbiamo portato un giornalista del Giornale di Brescia allo Shot Show chiedendogli di fare uno spaccato del mondo armiero americano e della reputazione delle aziende bresciane negli Stati Uniti e nel resto del mondo. A seguito di questa visita sono stati pubblicati una serie di articoli che non dico abbiano ribaltato la visione delle cose, ma certamente hanno riacceso quel senso di appartenenza che stava andando perso.

### **Qual è stato il ruolo delle banche nel sistema produttivo locale?**

Le nostre banche di riferimento erano la Cariplo e il Credito Agrario Bresciano. Chiaro che la banca fa il proprio lavoro, fa le proprie scelte, ma tutto sommato ritengo che le banche locali, prima delle grandi aggregazioni, abbiano abbastanza aiutato le aziende.

Ci sono stati fallimenti, però abbastanza limitati se facciamo un confronto con altre realtà come quella di Lumezzane. Le aziende locali non hanno mai avuto né grandi exploit né grandi crolli e ciò è in parte dovuto anche al fatto che tutti i nostri prodotti sono immatricolati e siamo pertanto impegnati al massimo della legalità. Dove tutto è tracciato, come nel settore armiero, è difficile non lavorare alla luce del sole, anzi direi impossibile. Qui non ci sono mai state delle grandi aziende, piuttosto aziende solide e patrimonializzate: non ci sono neppure case faraoniche.

Comunque, per lo meno fino alla stagione delle grandi agglomerazioni, le banche hanno svolto il loro compito, anche se non si può dire che si siano mai distinte per particolari iniziative a favore delle associazioni. Oggi, poi, è sempre necessario lottare per ridurre i costi che impongono alle aziende.

Da ultimo mi preme ricordare che l'agenzia di Gardone Val Trompia di UBI Banca spa è la più importante del gruppo perché qui c'è una grande raccolta, non ci sono grosse sofferenze e permane un'economia che si è mantenuta sufficientemente costante negli anni, sebbene anche a Gardone la crisi del 2008 si sia fatta sentire.

Per di più, la nostra economia si è basata, e ancora oggi si regge, su degli affezionati appassionati del settore armiero (cosa non da poco) e sull'esportazione.

Un capitolo a parte è rappresentato invece dalle banche etiche, che da alcuni anni ci chiedono un impegno a non produrre armi da guerra, ma senza che loro stesse conoscano effettivamente la normativa in materia di armi comuni e da guerra. Ovviamente questo impegno deve essere scritto, cosa che come Presidente del Consorzio non ho mai sottoscritto, più per una questione di principio, anche perché sicuramente le mie armi e quelle dei nostri associati, difficilmente potrebbero essere associate al concetto di guerra. Credo invece che, parlando di etica, debbano essere le banche a farsi un esame di coscienza e studiare le normative italiane: potrebbero apprendere che, quando una licenza viene rilasciata dal Ministero dell'Interno e degli Esteri, significa che i funzionari, compresi i Servizi Segreti, hanno fatto tutte le verifiche che autorizzano l'azienda produttrice all'operazione e che il falso perbenismo della banca etica è privo di senso.

### **Il Banco di Prova ha dato un contributo alla produzione dal punto di vista tecnologico?**

Faccio una premessa: io siedo nel consiglio d'amministrazione del Banco Nazionale di Prova e credo che se questa istituzione non esistesse bisognerebbe crearla. Il BNP è certamente un punto di riferimento e, anche tramite l'adesione al CIP, ha permesso ai produttori di fare importanti passi nella direzione della standardizzazione dei prodotti. In altre parole, noi produttori, dovendoci adeguare a determinati requisiti, abbiamo finito per creare un prodotto mediamente valido sotto il profilo qualitativo. Da ultimo, non bisogna dimenticare che il Banco di Prova offre una serie di servizi alle aziende: svolge ricerche specifiche sui materiali di produzione, fa delle prove su prototipi e fornisce suggerimenti di carattere tecnico.

### **Che cosa mi può dire a proposito dell'idea di famiglia all'interno del contesto locale in cui lei è cresciuto?**

Io sono figlio d'arte e ho scelto autonomamente di fare il lavoro di mio padre. Lo stesso vale per mio figlio. Credo che questo sia il risultato di una cerchia familiare

all'interno della quale è possibile vivere un senso d'appartenenza molto forte e ritengo che questo sia un aspetto molto importante non solo per il mio specifico caso ma per tutta la realtà gardonese. Se guardiamo al Consorzio, tra i suoi associati sono moltissime le aziende che sono alla seconda, terza o anche quarta generazione.

**La grande azienda, e in particolar modo Beretta, ha interpretato anche un ruolo di rappresentante del resto del comparto?**

La Beretta parla per sé, diciamolo chiaramente, però è evidente che svolga un po' il ruolo di "mamma" del settore e che da questa cosa noi produttori medio-piccoli traiamo dei vantaggi. Non si può dimenticare anche il fatto che molti degli imprenditori delle ditte artigiane hanno imparato il mestiere all'interno della Beretta e in certi casi, una volta aperta la loro attività, hanno mantenuto una relazione con l'azienda, magari in un rapporto di contoterzismo.

A proposito di questo tema mi sembra sia da sottolineare anche il fatto che il CONARMI lavora spesso in collaborazione con l'Anpam, ovvero l'altra associazione di categoria alla quale fa riferimento la grande azienda. Con questa realtà i rapporti negli ultimi anni sono andati intensificandosi e, in tal senso, si può fare l'esempio di Sigma (Sistema Integrato Gestione Movimentazione Armi). Il Consorzio Armaioli Italiani, avendo a disposizione dei contributi da parte di Regione Lombardia che dovevano essere spesi per la filiera, ha pensato di migliorare le comunicazioni e i rapporti con la Questura di Brescia informatizzando tutto il sistema per la richiesta e gestione dei permessi di vendita, trasporto, esportazione etc. Tre anni fa, partendo dalla creazione di una Rete d'impresa in cui è entrata anche la Fabbrica d'Armi Pietro Beretta spa, sono stati investiti più di 600.000€ per creare un portale online che sta dando grandi soddisfazioni e che ha semplificato consistentemente la parte burocratica del nostro lavoro. È un'operazione, questa, di grande trasparenza e, credo sia opportuno sottolinearlo, uno dei pochi casi in Italia in cui è il privato a supportare il pubblico. Altre occasioni di collaborazione con la grande azienda sono state la sponsorizzazione della scuola armaioli, ma anche alcune questioni organizzative legate alla partecipazione a fiere ed eventi internazionali.

**Per concludere: se dovesse identificare i tratti caratterizzanti, sia in senso positivo che negativo, del sistema produttivo locale, quali indicherebbe?**

Direi quelle che sono le caratteristiche italiane: la fantasia, il design e la capacità lavorativa; e se anche è vero che la gente della Val Trompia può avere all'apparenza un carattere introverso, è altrettanto vero che è anche molto propositiva, generosa e costante. Noi produciamo un prodotto finito che è pensato per il divertimento della gente, a dispetto di tutto quello che dicono i nostri detrattori. Produciamo per la caccia, per il tiro al piattello o, ancora, per le rievocazioni storiche, certamente non per la morte. Realizziamo prodotti di alta qualità, una qualità che dagli anni '50 in poi è andata sempre più crescendo anche grazie al lavoro di veri e propri artisti quali i locali maestri incisori. Siamo conosciuti nel mondo intero per il nostro lavoro e la passione che ci mettiamo: continueremo a volare in alto nonostante questo dia fastidio a molti che rimangono ancorati a una mentalità miope e sciocca.



## 5.2 Interview with Cristina Abbiatico

Gardone Val Trompia – August 17, 2016

### *Introduction*

Cristina Abbiatico was chief executive officer of her family business, FAMARS, an Italian gun maker that produced bespoke shotguns and rifles. The company, founded in 1967 by Mario Abbiatico (her father) and Remo Salvinelli, became well-known in the firearms world for its patented detachable-lock designs and handcrafted woodworking and engraving.

Cristina, born in 1965, grew up in Gardone Val Trompia, and joined the firm to fill her father's shoes when she was only 19. Since the 1980s, with Remo Salvinelli manufacturing the guns and Cristina managing the commercial side, FAMARS popularity grew immeasurably. The company used to carry out all the production in its factory in Gardone and produced no more than 110 guns in a year.

FAMARS was considered one of the top-quality Italian gun manufacturers and the success of its guns played a significant role in making the art of Italian bulino engraving famous. Mario Abbiatico also wrote several books regarding firearms engraving, he published: *Grande Incisione su Armi d'Oggi* in 1976, *Modern Firearms Engraving* in 1980 and *L'incisione delle Armi Sportive* in 1982. Finally, in 1985, a year after his death, FAMARS published his last book, entitled *Fra la Mia Gente*, including interesting information regarding several gunsmiths and the social life of Gardone Val Trompia in the 20th century.

### *Transcription*

#### **Innanzitutto le chiedo di presentarsi.**

Mi chiamo Cristina Abbiatico, sono nata il 7 gennaio del 1965 a Brescia e sono cresciuta a Gardone Val Trompia. Sono diplomata al liceo linguistico e finito il liceo sono entrata subito nel campo lavorativo perché in quell'anno, il 1984, era morto mio padre, pertanto sono subentrata a lui nell'azienda di famiglia. La nostra era un'azienda che operava nel settore delle armi, nata nel 1967, e che all'inizio,

così come tante altre aziende della zona, ha iniziato assemblando parti e semilavorati realizzati da altre ditte. In seguito, tra il 1973 e il 1974, è stato deciso di prendere come punto di riferimento la produzione inglese, la più quotata sia dal punto di vista qualitativo che del valore di mercato, puntando molto sulla qualità dei prodotti e, pertanto, iniziando a utilizzare parti realizzate all'interno della nostra fabbrica e/o in maniera industriale.

### **Quando venne presa la decisione strategica di puntare sulla qualità dei prodotti?**

Tra il 1973 e il 1974. All'inizio, come dicevo, si realizzava soprattutto un'attività di assemblaggio, poi si è iniziato con il fucile a cani esterni, il cosiddetto "comune", che però era stato fatto già in modo un po' alternativo, ovvero con estrattore e armamento automatico.

### **L'azienda come nacque?**

L'azienda venne fondata nel 1967 da mio papà, Mario Abbiatico, e da Remo Salvinelli. Quest'ultimo era il figlio di un incisore amico di mio padre e, sebbene non avesse ancora alcuna esperienza quando la società venne aperta, ebbe poi modo di acquisire numerose competenze, soprattutto legate alla produzione, all'interno della stessa azienda. Mentre mio padre si occupava della parte commerciale.

### **Lei invece con che compiti entrò in azienda?**

Era una ditta a livello familiare, quindi non vi erano molti incarichi dirigenziali o particolari schemi organizzativi: mio papà seguiva il commerciale per cui anch'io ho continuato ad occuparmi dello stesso ambito. Io ho proseguito con lo stesso Salvinelli fino a quando nel 1989 è subentrato un altro socio, un cliente che decise di entrare solo, però, a livello finanziario.

### **Che cosa si ricorda della sua infanzia e gioventù a Gardone Val Trompia?**

Gardone Val Trompia e, in particolare la frazione di Inzino, me li ricordo come un agglomerato di alcune famiglie molto amiche, tutte legate al settore delle armi; sebbene non ci sia mai stata a Gardone una collaborazione vera e propria, come era

a Lumezzane dove si andava tutti insieme sul mercato a comprare l'acciaio. Comunque ricordo dei buoni rapporti tra la gente e i nuclei familiari del paese.

Un altro aspetto che mi è sempre rimasto impresso sono quelle micro strutture che oggi non esistono più. Ad esempio, c'era chi faceva la brunitura delle canne in piccoli laboratori che assomigliavano più che altro a delle cantine da cui uscivano fumi e odori di ogni tipo: sembrava di entrare in un girone dell'inferno. Facevano le "tartarughe" alla vecchia maniera: c'erano Ricetti e Mandora che avevano la loro ricetta speciale per donare quella particolare colorazione blu-verde che si vede sui fucili antichi, una ricetta che non fa ricorso a nulla di chimico ma richiede l'utilizzo di ossa di mucca e altri materiali coriacei. Tutte cose che oggi non sono più legali e che oggi sono state sostituite da trattamenti chimici che vengono effettuati sotto strettissimi controlli.

Un'ulteriore cosa che ricordo molto bene che oggi non c'è più, o che se è ancora presente lo è in maniera molto ridotta rispetto al passato, sono gli operai di aziende come Beretta che alla sera lavoravano a casa loro: nei garage o in qualche angolo della casa c'era una morsa e in questo modo la gente si guadagnava il secondo stipendio. Ovviamente, come dicevo, anche questo è andato scomparendo: nel bene e nel male. Nel bene perché non era una pratica legale. Nel male perché è stato un fenomeno che comunque è stato cruciale nello sviluppo del comparto armiero locale, soprattutto per le aziende artigiane che, solitamente, non potendo permettersi dipendenti specializzati su singole operazioni, avevano i due operai per il montaggio, spesso membri della famiglia, e poi si affidavano a figure esterne per fare altre lavorazioni. Un altro aspetto negativo del venir meno di questo fenomeno è legato alla particolare mentalità della gente valtrumplina che non ama molto trasmettere le proprie conoscenze ed esperienze: è andata così perdendosi questa componente molto manuale del lavoro che anche grazie al lavoro a casa, generalmente affidato ai lavoratori più dotati, aveva sempre rappresentato un tratto distintivo della produzione locale. A proposito di questa particolare mentalità del luogo, posso raccontare che all'interno della mia azienda abbiamo dovuto assumere i nipoti dell'incassatore e dell'operaio che faceva l'ejector perché erano disponibili a insegnare il mestiere di famiglia solo a loro.

**In sostanza si può dire che l'esternalizzazione di fasi del processo produttivo era pratica diffusa...**

Sì, certamente! Per realizzare un fucile sportivo non basta un operaio, ci sono tante operazioni da svolgere che necessitano di competenze specifiche e un operaio si può specializzare su una di queste operazioni. L'azienda artigiana, pertanto, assumeva il lavoratore che faceva il montaggio finale e le altre operazioni intermedie le esternalizzava. Non c'era abbastanza volume di lavoro per poter assumere una persona specializzata in un'operazione sola; inoltre, passando gli anni, alcune figure diventavano numericamente sempre più esigue. Ad esempio, c'è stato il periodo della mancanza degli incassatori. L'incassatura è un lavoro di grandissima precisione, di responsabilità (perché sul fucile di qualità il calcio ha un costo importante) e non riconosciuto da un punto di vista artistico come nel caso dell'incisione. Per tutta questa serie di motivi c'è stato un periodo in cui gli addetti a questa mansione erano rimasti veramente in pochi. Adesso grazie alla scuola e alla formazione in Beretta la situazione è un po' cambiata. C'è anche da dire che per quel che riguarda questo tipo di mansione ho sempre visto poca intraprendenza: pochi incassatori hanno avuto il coraggio di mettersi in proprio e, questo, nonostante sulle lavorazioni del legno le opportunità di fare del nero non mancassero. Gli incisori invece, quanto a imprenditorialità, hanno sempre dimostrato maggiore dinamismo anche perché c'era, e c'è tutt'oggi, un abisso tra quello che un incisore guadagna da dipendente o da lavoratore in proprio.

**Le armi ricoprivano un ruolo importante nella vita delle persone?**

Le armi e la loro lavorazione erano tutto per Gardone e la sua gente. La vita allora era scandita dal suono della sirena della Beretta: la sirena suonava a mezzogiorno e tutti alle 12:15 pranzavano e lo stesso avveniva alle ore 18:00 con la cena. Anche oggi l'attività armiera riveste un ruolo importante e influenza gli aspetti della vita del paese se si pensa che tutte le aziende chiudono ad agosto perché in quel mese chiude il Banco di Prova; anni fa tutto ruotava intorno a questo settore e, in particolare, alla Beretta. Del resto la Beretta è sempre stata la grande "mamma" del sistema produttivo locale e il titolare era molto legato al contesto locale: addirittura il titolare faceva il padrino ai figli dei suoi capiofficina e dei suoi dipendenti. Inoltre

si era creata una grande sintonia anche grazie al fatto che la famiglia proprietaria avesse contribuito alla creazione di luoghi di aggregazione e utilità sociale come il cinema, la casa di riposo, la mensa, la colonia per i bambini in Maniva. Poi, nel tempo, le cose sono un po' cambiate con la creazione della holding, c'è stato anche un vero e proprio allontanamento fisico dal paese. Ad ogni modo anche gli attuali componenti della famiglia sono persone molto stimate e sono molto disponibili quando hai a che fare con loro.

Anche il Banco di Prova è sempre stato un centro nevralgico del contesto locale perché era e ancora oggi è lo snodo da cui tutti devono passare. Per fare un paragone il Banco era un po' come la lavanderia di un tempo, dove tutte le donne si recavano e scambiavano due chiacchiere: il Banco era il luogo dove ai produttori spesso capitava di incrociarsi e, inoltre, rappresentava un importante punto di riferimento sul piano tecnologico.

### **La Bernardelli invece?**

La Bernardelli per numero di dipendenti e impatto sociale sul paese aveva un peso minore rispetto alla Beretta, però era comunque un punto di riferimento e i titolari erano persone splendide, di una cultura immensa e ben voluti dalla gente. Come dimensioni aziendali poi c'era Zoli che assieme allo stesso Ciso Bernardelli rappresentavano un po' i gentlemen del paese.

**Mi sembra molto interessante ciò che in precedenza diceva a proposito della trasmissione delle competenze: è singolare che la gente del posto avesse un legame così forte con il lavoro delle armi, ma fosse poco incline alla trasmissione delle proprie conoscenze...**

È una cosa effettivamente curiosa ma è un aspetto che era presente nella realtà locale. La gente era molto orgogliosa del proprio lavoro, ma non era insolito vedere persone gelose del proprio mestiere e delle proprie competenze. Certo, non erano tutti così, però la mentalità piuttosto diffusa era “io ho impiegato tanti anni a imparare e a uno che non conosco non insegno” e solitamente il canale di trasmissione del mestiere era quello della famiglia. Questo è anche uno dei motivi per cui è possibile incontrare molte ditte con lo stesso nome, perché all'interno dello

stesso nucleo familiare si tramandava un mestiere e i componenti della famiglia, dopo aver imparato dal papà piuttosto che da uno zio, aprivano la loro attività.

A proposito delle capacità manuali, penso sia giusto anche sottolineare la grande importanza che si dava alla gavetta nella piccola ma anche nella grande azienda, dove a posizioni di responsabilità normalmente accedevano persone che avevano iniziato a lavorare come operai e da lì salivano nella scala gerarchica. In altre parole era molto importante per il lavoratore sapere che il suo responsabile avesse ben presente il suo lavoro e che in un certo senso provenisse dallo stesso “mondo”.

### **C’era tra le aziende un movimento, uno “scambio” della manodopera?**

No, anzi, c’erano una sorta di taciti patti per cui non si dovevano portare via gli operai alle altre aziende. Per esempio noi collaboravamo con Beretta ed era bene inteso che quest’ultima non poteva fare offerte ai nostri dipendenti, questo perché formare un operaio non era una cosa da poco: ci volevano degli anni, penso in particolar modo agli incassatori. Non era cosa insolita, invece, che l’operaio, una volta appreso il mestiere, decidesse di aprire una propria attività: in questo caso penso soprattutto agli incisori che, formati alla scuola di Giovanelli, quando erano in grado, si staccavano per mettersi in proprio anche perché questo gli dava opportunità di guadagno ben diverse.

### **Anche nel tempo libero le armi avevano questa grande importanza?**

Nel mio caso posso dire che il tiro al piattello non mi è mai piaciuto, mentre la caccia sì anche se, visto il grande impegno che l’azienda richiedeva, il tempo per poterla praticare era veramente poco.

Nel contesto locale, invece, la caccia è sempre stata molto sentita e ancora oggi lo è, sebbene essa non abbia sulle nuove generazioni l’appeal di una volta. Comunque c’è sempre stato questo connubio: uno lavorava in una ditta di armi come la Beretta, a casa svolgeva qualche lavorazione manuale e nel tempo libero andava a caccia. Il tiro, invece, stranamente, non ha mai avuto grandissimo seguito. Innanzitutto bisogna dire che già per noi armaioli era un problema non avere un posto dove andare a sparare. L’unico campo che c’era era quello a Ponte Zanano che è stato chiuso per disturbo ambientale e un campo da tiro dove poter trovare i

rappresentanti di varie ditte e testare i fucili prima dell'acquisto non è mai esistito. Se si voleva far provare un fucile a un cliente bisognava salire in Val Duppo, dopo Lodrino, o a Lonato o a Ghedi. Evidentemente il sindaco e le varie amministrazioni di Gardone non hanno mai ritenuto questa una cosa fondamentale: c'è il tiro a segno, ma non un luogo attrezzato con macchine lanciapiattelli.

**Quali sono state le principali motivazioni che l'hanno spinto ad entrare nell'azienda di famiglia?**

Da un certo punto di vista l'ho sempre sentita come una cosa molto mia: i fucili, il lavoro di mio padre, il mondo delle incisioni. Certo, avrei preferito continuare gli studi, in particolare mi affascinavano gli studi umanistici e di giurisprudenza, ma, come detto in precedenza, il fato ha voluto così visto che mio padre è venuto a mancare.

**Ha dei fratelli e delle sorelle?**

Sì ho una sorella e un fratello, entrambi più giovani: rispettivamente hanno 7 e 8 anni meno di me. Anche loro sono entrati in azienda: mia sorella mi aiutava nell'amministrazione, mentre mio fratello affiancava Salvinelli, sebbene quest'ultimo non gli abbia insegnato più di tanto i trucchi del mestiere.

**Leggendo e ascoltando testimonianze sulla vita del posto, ricorre l'idea secondo la quale tra la seconda metà degli anni '70 e gli anni '80 si sia affievolito il senso di appartenenza della comunità locale al lavoro delle armi. Erano gli anni in cui lei entrava in azienda, percepì questo clima che cambiava?**

È vero che un po' il rapporto si era snaturalizzato: in Beretta i ragazzi entravano volentieri perché era la grande azienda e assicurava la sicurezza economica e del posto di lavoro. Sicuramente c'erano ragazzi che guardando a loro padre che aveva condotto una vita da artigiano o operaio non erano attratti dalla stessa prospettiva e c'è stato un po' un abbandono. Ad ogni modo il Consorzio Armaioli ha cercato di fronteggiare questa problematica; in particolare, penso alla riapertura della scuola armaioli per la quale l'associazione, non senza difficoltà, se si considera che

all'inizio pagavamo l'iscrizione e spingevamo nostri due dipendenti a partecipare perché i corsi raggiungessero il quorum dei partecipanti, si è data molto da fare. Ora io non seguo più da vicino la cosa, ma sento dire che ci sono parecchi ragazzi che frequentano, diversi dei quali stranieri, che il Consorzio è molto attivo e che tutte le sue iniziative raccolgono una grande partecipazione; addirittura avevo sentito di una mezza idea di aprire una piccola foresteria per ragazzi che vengono dall'estero. Un altro fatto curioso, poi, che ricordo a proposito di questo tema della formazione e dell'interesse per il settore armiero è la nutrita presenza di ragazzi francesi in paese a inizio anni 2000. Il mondo delle armi è sempre stato concentrato in alcuni luoghi ben precisi dove trovava luogo anche il banco di prova delle armi: in Italia c'è Gardone, in Austria c'è Ferlach, in Spagna c'è Eibar e in Francia c'era Saint-Étienne. Nella Loira c'era la scuola armaioli ma era poco il lavoro e le opportunità per fare pratica latitavano, pertanto un gruppo di giovani decisero di passare un certo periodo di tempo nelle aziende gardonesi: alcuni, poi, si sono fermati mentre altri, dopo aver fatto esperienza, sono tornati in Francia e hanno aperto delle botteghe di riparazione o cose del genere.

**Sulla base della sua esperienza, secondo lei quali erano gli elementi che facevano la differenza e permettevano di ottenere successo nel settore armiero?**

Secondo me, ma vedo che è stata seguita da tanti, la strada era ed è quella della qualità. Come dicevo, l'evoluzione è stata: FIAS Sabatti che costruiva le "serie" in bianco e i vari Piotti, Rizzini, noi stessi che acquistavamo ed assemblavamo; poi, nel corso degli ultimi 40/50 anni, le aziende hanno cercato sempre più di fare qualcosa di proprio. In altre parole inizialmente si acquistava la "serie" e avevi ben poco margine di personalizzazione, con gli anni '70 si è cercato di puntare sulla qualità dei propri prodotti realizzando sempre più parti all'interno della propria fabbrica. In fondo questo è stato il trend che hanno seguito, più avanti negli anni, anche quelle aziende che precedentemente avevano puntato su quantità e qualità medio-bassa. Questo credo sia stato determinato anche dalla concorrenza: fino agli anni '90 sul mercato dei fucili ad uso sportivo c'erano gli inglesi che avevano prodotti di qualità eccelsa a prezzi intoccabili e poi, fondamentalmente, c'erano gli



italiani che abbinavano una buona qualità a prezzi più accessibili; qualcosa facevano anche i francesi e i tedeschi, con quest'ultimi che si rivolgevano soprattutto a una nicchia di mercato con un particolare gusto (per fare un paragone con il settore automobilistico si potrebbe pensare all'Alfa Romeo e agli "alfisti"). In seguito, a partire dagli anni '90, hanno cominciato ad affacciarsi sul mercato gli spagnoli, che si sono specializzati nella produzione di doppiette e sono arrivati a livelli nel rapporto qualità-prezzo difficilissimi da eguagliare, e i turchi che, con prezzi stracciati, hanno fatto man bassa.

Ad ogni modo la grande scuola è stata quella degli inglesi; la loro produzione è stata il principale punto di riferimento per gli italiani che hanno cercato di inseguirne la qualità mantenendo dei prezzi più accessibili, apportando qualche elemento di novità nel design e nei materiali di produzione. Ad oggi nessuno ha seriamente cercato di applicare le nuove tecnologie ai fucili sportivi, l'unico che ha provato a fare qualcosa è stato l'austriaco Peter Hofer che ha inserito un gps nel fucile che tiene conto del numero di colpi sparati e rileva la posizione dell'arma; per il resto, l'innovazione in questo settore è rimasta "limitata", come dicevo, all'introduzione di nuove linee e nuovi materiali. C'è sempre stato questo gap, in un certo senso normale e giusto, tra l'arma militare, che dal punto di vista tecnologico è incredibile, e quella sportiva; però se qualcuno avesse voglia di fare qualcosa di nuovo gli spazi ci sarebbero: i due cani e il grilletto ormai l'han fatto un po' tutti.

**Tra anni '70 e '80 si sente l'esigenza, anche tra le piccole aziende, di un cambiamento nella maniera di produrre in funzione della ricerca di una maggiore qualità, secondo lei questa esigenza da dove nasce?**

Credo due fenomeni, tra loro legati, stiano alla base di tutto ciò. Innanzitutto il "guardare in casa d'altri": i produttori vedevano quello che i concorrenti facevano, le scelte che altri imprenditori adottavano e in un certo senso "copiavano". In secondo luogo, la richiesta di standard qualitativi sempre più elevati da parte della clientela che portava gli stessi produttori a voler e dover offrire sempre qualcosa in più per poter vendere.

**Immagino che, in quegli anni, anche la meccanizzazione del processo produttivo sia aumentata...**

Già agli inizi c'erano alcune aziende come Sabatti che erano industrializzate, tanto è vero che facevano queste famose "serie", ma tutti gli artigiani, che le serie le acquistavano, avevano al massimo un piccolo tornio; ad esempio la nostra ditta partì da un garage con due torni. Poi, poco a poco, sono state introdotte delle macchine, ma comunque erano delle macchine tradizionali (non a controllo numerico) anche perché, avendo una produzione molto limitata in termini quantitativi, ammortizzare i costi non era facile. Ancora oggi, per questo motivo, ci sono ditte che fanno prodotti di qualità che utilizzano macchinari tradizionali, mentre noi, negli ultimi anni, ci eravamo dotati di 3 centri a controllo numerico con 4 assi e 2 elettrolusioni. Discorso a parte, tra i produttori di fucili di qualità, è il caso di Fabbri, prima a Concesio e ora a Nave: Fabbri è un ingegnere che ha sempre avuto un approccio completamente diverso al fucile di qualità, un approccio più industriale. Questo, innanzitutto per la sua formazione e poi, probabilmente, per le sue origini visto che non è della Val Trompia ma romagnolo. Qualcuno diceva che il suo fucile non aveva un'anima perché fatto a macchina, ma non si può negare che fosse molto bello e che avesse pochissimi problemi sotto il profilo meccanico.

**Quali furono le sue difficoltà nell'approcciare il settore delle armi?**

Devo dire che grosse difficoltà non ne ricordo; anche il fatto di essere in un settore maschile non rappresentò un ostacolo, anzi io ricordo che tanti clienti erano contenti di poter parlare con una donna di un fucile. Mentre per quel che riguarda gli aspetti più tecnici io sono nata in questo ambiente che viveva e vive di fucili: non è che di punto in bianco mi sono trovata catapultata in una realtà a me sconosciuta e, oltretutto, già l'anno prima che mio padre morisse avevo fatto uno stage in azienda. Era una realtà quotidiana sentir parlare di incisioni e calci, così come era esperienza comune incontrare persone con cui confrontarsi e che ti davano consigli a proposito di un acciarino o di qualche altra parte del fucile. Pertanto non ci fu l'esigenza di dovermi mettere a studiare il prodotto.

**Ritiene che questa cosa valesse anche per i suoi coetanei?**

Un po' dipendeva dalla famiglia, però direi di sì. Basti pensare che tra i miei coscritti praticamente tutti sono entrati nel settore prendendo in mano l'azienda di famiglia.

**Qual è stato il contributo più importante che ritiene di aver dato alla sua azienda?**

Passa ad altro dai [ride]... Beh, forse, una visione un po' meno "valtrumplina" nella gestione dell'azienda; ad esempio le fiere del settore, come quella di Norimberga o altre in America, siamo stati i primi a farle e il sito internet con l'e-commerce l'abbiamo fatto più di 20 anni fa. Diciamo una visione un po' più aperta... Negli Stati Uniti non partecipavo allo Shot Show, che era più per la produzione industriale, ma facevo 6 o 7 fiere.

**Ci sono state particolari difficoltà che la sua azienda, anche prima del suo ingresso, dovette affrontare?**

Io non ricordo grosse difficoltà; forse anche qui vale ciò che dicevo prima a proposito della reperibilità di alcune figure professionali specifiche. Per quel che riguarda invece gli aspetti legislativi, che sono sempre stati questione spinosa per il nostro settore, noi ce la siamo sempre cavata visto che i nostri fucili figuravano come armi sportive. Ricordo però diversi casi di aziende gardonesi che producevano parti, come caricatori e calci, che si ritrovarono la merce bloccata in dogana anche per lungo tempo. Problemi per il settore oggi sono le difficoltà naturali e indotte (si pensi ad esempio ai costi che vanno crescendo) legate alla pratica della caccia e, certamente, l'immagine che la gente ha della stessa: sia l'immagine della caccia a livello "tradizionale" che quella del safari. In particolare, è quest'ultima che, sebbene resista come attività d'élite, sta andando esaurendosi: è un peccato perché le armi per la caccia grossa sono molto belle, sopportano pressioni altissime e chi le sa produrre certamente ha grandi capacità.

**Quali erano i rapporti tuoi e di tuo padre con gli altri imprenditori della zona?**

C'erano famiglie con le quali eravamo legati da un buon rapporto d'amicizia e c'è sempre stato tra tutti un rapporto di rispetto. Per un breve periodo sono stata nel

Consorzio e pure in quel caso ho sempre visto buoni rapporti tra gli associati. Certo, è vero che l'associazione ha sempre fatto fatica a darsi dei grandi obiettivi comuni: c'era il momento di forte aggregazione per andare a Roma e fronteggiare una nuova normativa percepita come ostile, ma non si è mai arrivati a una vera condivisione, come accadeva a Ferlach, in Austria, dove i produttori utilizzavano in comune dei macchinari che servivano a tutti.

### **A proposito dei rapporti con realtà imprenditoriali del resto della valle cosa può dire?**

Posso dire che Gardone è sempre stata una realtà molto chiusa. Le armi si facevano e si fanno qui, a Marcheno (che con Gardone è quasi la stessa cosa e dove molte aziende per ragioni di spazi si sono trasferite) e qualcosa a Sarezzo, anche se quest'ultimo è molto più legato a Lumezzane. A proposito di Lumezzane posso dire che con Gardone non c'è stata mai alcuna sinergia e hanno sempre costituito due nuclei ben distinti. Sono due realtà che sia per tipologia di prodotto che per mentalità differiscono. A Lumezzane, il cui mondo imprenditoriale ho potuto conoscere da vicino per mie vicende personali, c'è sempre stata più coesione e solidarietà: lì se qualcuno aveva bisogno di una mano gli altri si attivavano per aiutarlo, a Gardone questa cosa non l'ho mai vista.

### **Come erano i tuoi rapporti e quelli di tuo padre con i dipendenti?**

Con i dipendenti c'era un rapporto quasi di tipo familiare. Alcuni sono praticamente cresciuti con me: sono arrivati quando ero giovane e sono rimasti per moltissimi anni, uno addirittura più di 35 anni. Questa era una cosa abbastanza comune anche per altre aziende di dimensioni simili alla nostra, ma credo che nel nostro caso il legame fosse ancora più forte.

### **La selezione del personale come avveniva?**

Come dicevo prima, c'era una sorta di "nepotismo" per cui si tendeva a passare per i canali familiari propri e dei dipendenti. Si faceva venire il ragazzo in estate e si guardava se aveva un po' di capacità manuale e, soprattutto, voglia di fare: da lì si partiva con l'apprendistato vero e proprio. Alcuni ragazzi ti venivano per l'appunto

segnalati, altri provenivano dalla scuola Zanardelli e altri ancora li avevamo assunti dopo un'esperienza di stage. Quella dello stage, secondo me, era una bella esperienza per questi ragazzi.

### **Da dove provenivano i vostri dipendenti?**

Erano tutti locali, sostanzialmente tutti di Gardone. C'era qualcuno dell'alta valle ma risiedevano in zona.

### **Quali erano i canali commerciali della vostra azienda?**

Dal punto di vista commerciale eravamo molto attivi, tanto è vero che non ci siamo fermati a fare EXA, la fiera locale che tutti quanti facevano. Certamente la fiera era il canale principale di vendita: ne facevamo tante, praticamente una al mese. Erano molto impegnative dal punto di vista della produzione perché, non avendo una selezione di fucili che utilizzavamo come campionatura, bisognava portare ciò su cui stavamo lavorando (magari partecipavamo con 3 fucili finiti e 2 in bianco). Abbiamo fatto parecchia pubblicità su riviste di settore americane (riviste dedicate a prodotti di lusso) e poi io ho sempre tenuto al sito internet con l'e-commerce (per gli accessori, ovviamente non per le armi).

Il nostro mercato principale sono sempre stati gli Stati Uniti, inoltre ci eravamo dedicati molto all'Inghilterra grazie a dei buoni rapporti con dei forti distributori locali che ci permettevano di vendere parecchio. In Russia non siamo mai riusciti a entrare e anche nei Paesi arabi abbiamo sempre fatto molta fatica.

### **Le altre aziende locali quando lei è entrata come si muovevano sul piano commerciale? Si ricorda episodi raccontati da suo padre a proposito di questo aspetto?**

Sostanzialmente quando sono entrata io le aziende locali erano "ferme" sotto il profilo commerciale. Come dicevo, i primi a fare le fiere siamo stato noi se si escludono le realtà di dimensioni maggiori e in pochissimi parlavano le lingue. Poi, più tardi, c'è stato qualche americano che si è inserito come tramite tra le ditte e i clienti, ma sostanzialmente gli artigiani non erano molto portati per le relazioni e gli aspetti commerciali.

**In questo senso qual è stato il contributo di EXA?**

Io ad EXA, partendo dalla mia esperienza e dalla mia azienda, ho sempre guardato sotto il profilo della qualità e, da questo punto di vista, non è mai stata una fiera importante; la si faceva giusto perché era la fiera del territorio. Dal punto di vista organizzativo è sempre stata un disastro perché si faceva in locali poco consoni e con poca disponibilità di parcheggio. Diciamo che è stata una vetrina per il “cacciatore medio”. So che il Consorzio ha sempre cercato di collaborare con la Camera di Commercio per la buona riuscita di EXA, ad esempio organizzando un’esposizione di incisioni, però avevo anche sentito dire che la stessa Camera non si era dimostrata particolarmente sensibile alle richieste del Consorzio e degli espositori.

**Ritiene che la sua esperienza all’interno del settore armiero le abbia dato l’opportunità di acquisire delle capacità e competenze che le sono tornate utili anche al di fuori dello stesso settore.**

Sicuramente! Avendoci lavorato circa 30 anni mi ha dato molto. Innanzitutto, realizzando e vendendo prodotti di qualità ritengo di aver acquisito un occhio particolare per le cose belle. In secondo luogo, ho potuto viaggiare molto e incontrare molte persone di valore.

**Da ultimo, vorrei chiederle di individuare quelli che secondo lei sono i principali punti di forza e debolezza della produzione armiera locale.**

Senz’altro il punto di forza maggiore è rappresentato da una tradizione che c’è solo qua e che è legata al fatto alla concentrazione della produzione in una porzione così ridotta di territorio. Tuttavia, ritengo anche che proprio ragionando su questo aspetto si possano mettere in evidenza delle lacune nella promozione dei prodotti locali: il Consorzio si sta dando molto da fare, ma credo che si possa fare molto di più offrendo un’esperienza d’acquisto più accattivante ai clienti che si recano a Gardone. Dando maggiore coesione alle iniziative e alle realtà già presenti sul territorio (come la scuola Zanardelli) si potrebbe valorizzare molto di più la tradizione locale e ottenere risultati molto interessanti anche sul piano commerciale.

### 5.3 Interview with Giuseppe Pirlo

Gardone Val Trompia – October 6, 2016

#### *Introduction*

Giuseppe Pirlo is an expert Val Trompia gunsmith, born on January 9, 1922, in Inzino. He attended the local professional school while working as an apprentice in a small workshop in Inzino. During World War II Giuseppe served in the Italian army on the Eastern Front. After miraculously returning home, he founded his gun making workshop. During his career he has learnt all the secrets of a gunsmith, working both on contract and as end producer. Due to his lengthy experience the interview brings out several important features of the actors in the industrial district of Gardone, in particular their adaptability and the spirit of competitiveness and cooperation that characterized their daily work.

#### *Transcription*

##### **Si presenti...**

Mi chiamo Giuseppe Pirlo e sono nato il 9 gennaio 1922 in Valle d'Inzino.

Ho sempre avuto un'attrazione per i fucili e, fin da quando ero bambino, mi appassionava fermarmi ad osservare chi li lavorava. Per questo motivo, quando iniziai le scuole professionali Zanardelli, mio padre decise di affidarmi a un suo amico che era addentro al settore, un certo Mino Arturo, perché potessi imparare il mestiere. Alle ore 16 terminavo la scuola e correvo in officina da questo Mino; avevo 13 anni.

All'età di 16 anni, essendo già armaiolo, trovai un impiego in Beretta: mi pagavano 0,90 lire all'ora. Tuttavia dopo solo un mese venni a conoscenza del fatto che l'arsenale cercava dipendenti con una paga di 1,30 lire all'ora, pertanto decisi di presentarmi alle selezioni e immediatamente venni assunto.

Tornato dalla guerra sono andato a lavorare come guardiano in OM, a Gardone, e arrotondavo vendendo qualche fucile (al tempo non c'erano tutte le restrizioni di

oggi per la vendita). Tuttavia, quando a fine anni '40 l'azienda tornò nella sua sede in città decisi di licenziarmi e mi misi a produrre fucili per un avvocato di Brescia, appassionato di armi, che aveva un impiego in una banca della città. Questo signore era titolare dell'attività San Giorgio che successivamente divenne mia: la banca non gli permise più di fare il direttore e, allo stesso tempo, essere titolare di una ditta, pertanto egli decise di cedermela assieme alla licenza di fabbricazione.

Nel corso degli anni ho imparato a conoscere sempre più approfonditamente i fucili da caccia; ero specializzato nella ramponatura ma mi dedicai anche ad altre lavorazioni del fucile. Con gli anni '70 decisi di dedicarmi alla produzione di fucili fini: producevo pochi pezzi, di alta qualità e solo su ordinazione.

### **Come era la vita e il lavoro all'interno dell'arsenale di Gardone Val Trompia?**

All'interno dell'arsenale veniva realizzato il fucile "Modello 38": a Gardone si faceva l'intero prodotto ad eccezione della fusione delle barre che avveniva a Torino. Io, inizialmente, venni impiegato come calibrista, ma dopo poco tempo la mia mansione cambiò: c'era bisogno di livellatori, una professione considerata difficile al tempo, e io accettai di applicarmi per imparare anche perché ciò mi permetteva di incrementare ulteriormente la paga arrivando a 2 lire e rotti all'ora. Non solo, dopo aver acquisito esperienza nella livellatura, spinto dal mio responsabile, decisi di fare il "capolavoro" per diventare livellatore maestro e vinsi il concorso. Una volta acquisita la qualifica di livellatore maestro mi venne assegnato un timbro con cui marchiare le canne da me livellate e controllate, inoltre venni mandato più volte a collaudare a Lumezzane le baionette che l'arsenale faceva realizzare ai produttori locali.

### **Vi erano delle aziende che lavoravano per l'arsenale?**

Certo! La stessa Beretta produceva per l'arsenale. C'era una produzione interna, ma anche una quota di produzione che veniva affidata a aziende del territorio; vi erano pertanto dei collaudatori che, per conto dell'esercito, dovevano collaudare i prodotti realizzati da aziende come Beretta e Bernardelli.

### **Al tempo c'erano anche aziende artigiane?**



C'era anche qualche piccola azienda artigiana: in particolare ricordo i nomi di Gitti e Gardoncini. Producevano fucili da caccia oppure facevano stampaggio di parti per Beretta e Bernardelli; non realizzavano fucili ad anima rigata.

### **Altri nomi di aziende di quegli anni?**

Altri due nomi che ricordo sono quelli della Bresciana e della Fabbrica Nazionale d'Armi; in particolare ebbi a che fare con quest'ultima. Quando, finita la guerra, mi misi in proprio acquistai materiale da lavoro e un buon numero di fucili della Nazionale che ancora dovevano essere terminati. L'azienda chiuse i battenti e io ne approfittai per comprare a buon prezzo dei prodotti che dovetti solo rifinire prima di poterli rivendere. Quella di acquistare i fucili da un'altra azienda che era in difficoltà, o fallita, era una pratica comune tra gli imprenditori locali. Soprattutto negli anni '70, io ricordo di aver guadagnato delle belle somme in questo modo; ad esempio, da un certo Belleri (a cui avevano ucciso il padre e che doveva chiudere l'attività) acquistai circa 400 fucili per poi rivenderli a un cliente greco.

### **Qual era la situazione della produzione armiera all'indomani della conclusione della seconda guerra mondiale?**

Negli anni '50 a Gardone in molti si sono messi a lavorare le armi in proprio avviando delle aziende artigiane: ricordo Zoli Antonio, Zoli Angelo ma anche Pedersoli. Per quattro o cinque anni ho trasferito l'attività in località Castello ma era piuttosto scomoda come collocazione e quando mi sposai decisi di tornare nei locali dove avevo iniziato, nell'attuale vicolo Bolognini.

Al tempo in pochi producevano l'arma intera, ma tutti si dedicavano a una parte specifica del fucile (a Magno, ad esempio, erano tutti incassatori e riparatori) e alcune aziende producevano la cosiddetta "serie" che poi veniva assemblata dal piccolo artigiano per comporre il proprio fucile. In tutte le case c'era una piccola morsa che il proprietario utilizzava per arrotondare un po'.

Il lavoro era svolto quasi esclusivamente con utensili a mano e richiedeva molte ore di tempo. Tra gli artigiani locali io fui il primo a comprendere che bisognava trovare delle soluzioni che permettessero di velocizzare la lavorazione e, per questo, con dei pezzi recuperati da rottami misi a punto macchine per fresare le canne. Grazie

a questo ingegno mi guadagnai molti clienti tra i piccoli imprenditori della zona, i quali mi portavano le loro canne perché le lavorassi. Solo a inizio anni '60 anche gli altri artigiani cominciarono a dotarsi di qualche macchina utensile; il primo che si incamminò su questa strada fu Zoli Antonio.

**Quindi era solito lavorare anche per gli altri artigiani? o avere collaborazioni con loro?**

Tra noi artigiani c'era una forte competizione e la concorrenza era piuttosto spietata: essendo in molti a svolgere il medesimo tipo di lavorazione ci si faceva la guerra sui prezzi. Non era raro che qualcuno che lavorava per te in un rapporto di contoterzismo cercasse di rubarti i clienti, o che gli altri artigiani contattassero i clienti che avevano visto entrare nel tuo laboratorio per convincerli ad affidare a loro la commessa.

Comunque capitava anche di fare dei lavori insieme. Ricordo che i primi anni della mia attività lavorai con un certo Riva, di Brescia, e un altro artigiano gardonese per mettere a punto l'attrezzo per ramponare i fucili sovrapposti, ovvero per congiungere la canna con la bascula. Ognuno mise a disposizione le proprie capacità e i propri strumenti da lavoro e in una notte lo realizzammo. Sulla base di quell'esperienza lo stesso Riva decise di affidarmi la ramponatura dei suoi fucili sovrapposti: continuammo questa collaborazione per circa due anni.

**Per questi prodotti del suo ingegno non fece mai ricorso a dei brevetti?**

No, erano inutili. In zona eravamo tutti pratici del settore, se veniva messo a punto qualcosa che funzionava lo si copiava apportando qualche semplice modifica e il brevetto veniva aggirato.

**Chi erano i suoi clienti?**

Avevo clienti da tutta Italia, ma in particolare tanti all'estero. C'erano anche tanti produttori stranieri, ad esempio belgi e francesi, che, trasformati in rivenditori a causa della mancanza o dell'alto costo della manodopera, venivano in Italia ad acquistare i miei fucili e quelli di altri artigiani locali per poi commercializzarli nel loro paese. Poi avevo clienti americani, tedeschi, inglesi e di tantissimi altri paesi

europei. Un paese in cui non ho mai venduto è la Spagna, dalla quale, invece, mi capitò di acquistare una decina di fucili per poi rivenderli: esteticamente erano molto brutti, ma funzionavano bene ed erano resistenti.

La soddisfazione più grande, ad ogni modo, è stata quella di avere tra i miei clienti un generale dell'esercito americano, William Childs Westmoreland, per il quale feci dieci paia di canne di calibro differente. Lavorai anche per altri militari della Nato; più volte mi recai allo spaccio interno della base di Vicenza per portare fucili da caccia ad americani che me li avevano commissionati.

**Per poter intrattenere i rapporti con gli stranieri come faceva? Conosce delle lingue?**

Mi affidavo a una ragazza che aveva studiato le lingue che mi faceva da traduttore. Io ricordo due ragazze che svolgevano questo lavoro per gli artigiani. Poi mia figlia è diventata insegnante di inglese quindi chiedevo a lei di aiutarmi.

**Nessuno della sua famiglia ha continuato l'attività?**

Io vengo da una famiglia che non era del settore, mi sono fatto da solo. Nessuno dei miei figli però ha deciso di continuare la mia attività e ammetto che questo è un po' il mio cruccio. L'unico della famiglia che ha lavorato con me le armi è stato mio fratello Piero che nel 1985, quando è stato licenziato da Zoli, è venuto a fare il riparatore nella mia ditta. A dire il vero già prima faceva qualche ora da me e nella mia ditta ha imparato il mestiere anche perché, essendo mio fratello, ci tenevo molto che si dedicasse a questo lavoro e che avesse l'opportunità di imparare.

**Questo doppio impiego era comune in paese?**

Sì, certamente. Moltissimi, per non dire tutti, quelli che lavoravano in Beretta piuttosto che in Redaelli, finita la giornata in fabbrica, si recavano presso una ditta artigiana a fare ancora qualche ora o portavano a casa del lavoro.

La gente imparava una determinata mansione in un'azienda come Beretta o Bernardelli (una mansione che erano soliti insegnare ai propri figli) e poi, sulla base dell'esperienza maturata, arrotondavano lavorando per gli artigiani: in tanti si sono costruiti la casa grazie a queste entrate extra. Anche dei ragazzi giovani che

venivano a lavorare nella mia officina avevano il doppio impiego: uno ad esempio al mattino andava alla Redaelli e poi nel pomeriggio, finito il turno, faceva altre ore da me.

### **Chi produceva i fucili praticava anche la caccia?**

Una volta in questa zona tutti erano cacciatori, moltissimi prendevano le ferie a seconda del calendario venatorio o erano disponibili a fare i turni di notte per potersi dedicare di giorno a questa passione. Lavoro e hobby erano legati tra loro: tanti producevano il fucile che poi utilizzavano per andare a caccia, anche perché prima del '75 era molto più semplice anche portarli al Banco di Prova e farli registrare.

I fucili facevano parte della vita del posto, basti pensare alla tradizione secondo la quale quando nasceva il primogenito di una coppia i parenti regalavano al bambino un fucilino per il futuro.

## 5.4 Interview with Luigi Zanardini

Marcheno – October 12, 2016

### *Introduction*

Luigi Zanardini is an old craftsman of the gun making industry in Val Trompia. He and his family come from Collio, in the upper valley. Like his brother, Angelo, he specialized in repairing and assembling historic firearm replicas. They worked at home and on contract for Tonolini, a local middleman, and Uberti, the first local company to enter the market of historic firearm replicas.

Through Mr. Zanardini's words, interesting details emerge regarding the social life of gunsmiths, and how people approached this profession in the post war period and remainder of the 20<sup>th</sup> century.

### *Transcription*

#### **Si presenti...**

Mi chiamo Zanardini Luigi, detto Gepi, sono nato lì e la mia famiglia è originaria di Collio. Ho iniziato il mio lavoro nel mondo delle armi trasportando le canne da un laboratorio all'altro in bicicletta. In seguito, a inizio anni '50, ho fatto un anno e mezzo da apprendista per imparare soprattutto il montaggio dei fucili: a quel tempo ti insegnavano a fare il fucile più semplice e poi, autonomamente, si doveva acquisire dimestichezza anche con altre tipologie di fucili. Nel 1952 iniziavo a fare i primi lavori a casa, dove ho sempre lavorato; al tempo si iniziava a lavorare rimanendo in famiglia: di quello che si guadagnava una buona parte veniva data alla famiglia e una piccola parte la si teneva per sé.

Assieme a mio fratello, Angelo, mi sono dedicato soprattutto alla riparazione di armi antiche grazie all'incontro con il signor Tonolini, di Brescia, ma originario della Val Trompia. Prima lavoravamo per conto terzi e ci occupavamo di diverse lavorazioni del fucile: Angelo faceva la ramponatura, mentre io facevo smontaggio e montaggio.

### **Mi può spiegare meglio chi era il signor Tonolini?**

Negli anni '50 comincio a comprare tutte le armi antiche che poteva, tutte armi sportive. Bisogna considerare che la guerra finì nel 1945, ma fino agli anni '50 la vita non si rimise in moto. Da quel momento, coloro che avevano fucili ad avancarica (in tanti fino al periodo della guerra non potevano permettersene uno diverso) cominciarono a venderli a poco e niente a “straccivendoli” e “rottamai”; Tonolini prese contatti con molti di questi e da loro comprava a buon prezzo. Si avvaleva anche della collaborazione del signor Sala di Breno, un esperto di armi antiche, e di tre agenti (uno in Francia, uno in Germania e uno in Inghilterra) per poter comprare nelle aste all'estero. Andò avanti ad acquistare armi e a farle riparare almeno fino al 1972-1973 e poi comincio a venderle.

Noi iniziammo a lavorare per lui nel 1964-65: non ci insegnò nulla perché non sapeva prendere in mano nemmeno una lima, ma ci portava alcuni modelli e dei libri e, basandoci su quelli, dovevamo riparare i fucili che aveva acquistato per poi poterli rivendere. In un certo senso dimostrò lungimiranza: aveva capito che la gente cominciava ad avere qualche soldo di più in tasca e che sarebbe stata disposta a pagare per un'arma antica che, per certi versi, è un pezzo d'arte. I suoi clienti erano sia italiani che stranieri, in particolar modo americani che per questo genere di cose andavano pazzi.

Rimase favorevolmente colpito dal nostro lavoro, vedeva che avevamo passione e imparavamo in fretta. Proprio per questo, dopo cinque o sei anni, decise di farci rimettere mano ad alcune armi che avevamo riparato quando iniziammo a lavorare per lui e che, per ovvie ragioni, non potevano essere belle come quelle su cui ci eravamo applicati dopo aver acquisito esperienza.

Tonolini ha sempre pagato quello che io e mio fratello gli chiedevamo; oltretutto a quel tempo si faceva anche tanto nero. Da lui prendevamo, grossomodo, il doppio di una busta paga di un operaio della Beretta; in fondo, non era molto se si pensa che l'artigiano che lavora in proprio deve togliere da quella cifra l'assicurazione, le ferie, etc. I nostri rapporti erano buoni, ma si fermavano all'ambito lavorativo e bisognava sempre stare attenti perché Tonolini era furbo e quando poteva se ne approfittava un po'.

### **Quando avete smesso di lavorare per Tonolini?**

Quando abbiamo iniziato a lavorare per la ditta Uberti. Aldo Uberti era stato contattato da una società americana per riprodurre due pistole appartenute a George Washington, ma non aveva competenze su armi così antiche dato che era specializzato nella riproduzione di prodotti Colt e Remington. Pertanto, sapendo che anche noi eravamo specializzati sulle armi antiche, ci chiese se potevamo collaborare con lui e iniziare facendo due prototipi di queste due pistole: grazie ai nostri prototipi ottenne il contratto. Così nel 1974 iniziammo a lavorare con la Uberti facendo 975 copie per ciascuno dei due modelli di Washington. La ditta ci mandò anche tre dei suoi operai e noi assumemmo altre due persone: continuammo a lavorare come contoterzisti per Uberti per più di quindici anni, realizzando molti altri modelli di pistole. L'azienda ci forniva tutte le parti necessarie, che venivano lavorate a macchina al suo interno, mentre noi lavoravamo al banco, facevamo tutte le finiture a mano e mettevamo insieme le varie parti; quando le armi erano pronte le si portava a Uberti. Un'organizzazione del lavoro di questo tipo, in cui si affidavano le varie lavorazioni a artigiani specializzati esterni all'azienda, era una cosa comune ed è sempre stata propria di questo settore, dato che per fare un fucile o una pistola servono tante competenze. Anzi, direi che nel caso del fucile da caccia la cosa era ancora più marcata; come dicevo prima, infatti, per le armi antiche la Uberti realizzava al proprio interno e con macchine (tradizionali) tutte le parti, salvo i calci che faceva fare a Tirelli.

Stimavo molto Aldo Uberti. È sempre stato il numero uno nel campo delle riproduzioni, era un pignolo e se c'era anche un minimo dettaglio che non gli andava non avviava la produzione: voleva la riproduzione uguale all'originale in tutto e per tutto.

### **Quali erano le parti dell'arma su cui dovevate lavorare di più?**

Noi abbiamo lavorato su armi che vanno dal fucile a miccia a quelle utilizzate fino al periodo di Garibaldi. La parte su cui ci siamo concentrati di più è il meccanismo di accensione. Nell'Ottocento, con l'introduzione di capsula e luminello, molte armi che precedentemente funzionavano a pietra focaia sono state trasformate a percussione: il nostro compito era quello di ripristinare l'innesco originario.

Abbiamo fatto anche parecchi falsi, soprattutto per Tonolini, ma i lavori più belli e che ci piacevano di più erano quelli in cui dovevamo riparare l'originale.

### **La sua famiglia lavorava le armi?**

Mio padre lavorava all'arsenale, mentre i miei nonni facevano lime.

### **Da dove proveniva la manodopera?**

Gardone e comuni limitrofi, quindi Marcheno, Sarezzo, Polaveno. Le aziende erano concentrate soprattutto a Gardone anche se c'era un buon numero di ditte anche a Brescia; c'erano bravi artigiani anche in città.

### **In media quante ore lavorava?**

Sia io che mio fratello passavamo tantissime ore a lavorare, ancora di più quando abbiamo iniziato con le armi antiche. [Interviene il fratello che sta ascoltando l'intervista mentre lavora alla morsa e chiosa: «è capitato tante volte che all'una, le due di notte mia moglie scendesse in laboratorio<sup>1</sup> a chiamarmi dicendomi “allora vieni a dormire o no?”»].

Per tradizione il lunedì era festa per gli armaioli: si facevano poche ore poi si arrotolava il grembiule nella cintura e si andava all'osteria in compagnia.

Comunque si lavorava tanto, ma avevamo grande passione e con questa passione si superava la fatica. L'artigiano deve metterci il cuore, in questo modo il suo lavoro, e soprattutto i suoi prodotti, acquisiscono un calore diverso.

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<sup>1</sup> As previously emerged in the interview the two brothers worked at home, more precisely in a portion of their house used as workshop.



## **Appendix 6**

### *Gun Making Forges and Workshops in Val Trompia (1860)*

#### *Summary Tables*

Sources:

- Archivio Storico del Comune di Gardone Val Trompia, box 69, file 1, “Prospetto della Fabbrica d’Armi da Fuoco in Gardone”.

N.B.:

This appendix contains summary tables (constructed by the author) from a detailed dossier regarding the state of the gun making industry in Val Trompia in 1860. The documents were produced by the Commissario Distrettuale di Gardone and the municipalities of the valley at the request of the governor of the province of Brescia after annexation to the Kingdom of Sardinia.

*Gardone Val Trompia*

<b>Forges and Workshops</b>	<b>Owners</b>	<b>Workforce</b>
Vecchia	Paris heirs; Bros. of the late Girolamo Bertarini	6 <i>bollitori</i> (2 masters, 2 hammer workers, 2 fire workers); 4 <i>trivellatori</i> (4 masters); 4 <i>livellatori</i> (4 masters); 1 <i>molatore</i> ; 4 <i>fondellieri/vitonieri</i>
In Capo a Gardone	Paris heirs	6 <i>bollitori</i> (2 masters, 2 hammer workers, 2 fire workers); 2 <i>livellatori</i> (2 masters)
Rampinelli	Moretta Antonio	6 <i>bollitori</i> (2 masters, 2 hammer workers, 2 fire workers); 8 <i>livellatori</i> (5 masters, 1 worker, 2 apprentices); 5 <i>molatori</i>
Gramineto	Bros. of the late Antonio Beretta	9 <i>bollitori</i> (3 masters, 3 hammer workers, 3 fire workers); 2 <i>trivellatori</i> (1 master, 1 apprentice); 2 <i>livellatori</i> (2 masters); 3 <i>molatori</i>
Fornace	Eredi Bertarini	6 <i>bollitori</i> (2 masters, 2 hammer workers, 2 fire workers); 5 <i>trivellatori</i> (3 masters, 2 apprentices); 2 <i>livellatori</i> (1 master, 1 apprentice); 2 <i>molatori</i> ; 2 <i>fondellieri/vitonieri</i>
Nuova	F.lli Franzini fu Giuseppe	5 <i>bollitori</i> (2 masters, 1 hammer worker, 1 fire worker, 1 worker); 2 <i>trivellatori</i> (2 masters); 5 <i>livellatori</i> (3 masters, 2 apprentices); 2 <i>molatori</i>
Lazzaretto	½ F.lli Angelo e Giov. Maria Mutti; ½ Giovanna Mutti	2 <i>bollitori</i> (1 masters, 1 workers); 3 <i>trivellatori</i> (1 master, 2 apprentices)
Fucinale a mantice	Franzini Antonio	2 <i>bollitori</i> (1 masters, 1 workers)
Manenti	½ Lodovico Beretta; ½ Giuseppe and Antonio of the late Pietro Beretta	2 <i>trivellatori</i> (2 masters); 6 <i>molatori</i>
Cornella	Bros. of the late Antonio Beretta	4 <i>trivellatori</i> (2 masters, 2 apprentices)
Fucinetto	Paris heirs	2 <i>trivellatori</i> (2 apprentices)
Forge in Valle Inzino	Ansaldi Angelo	3 <i>fondellieri/vitonieri</i>
Workshop of the state	State	8 <i>impannatori</i> ; 2 <i>mirinai</i> ; 10 <i>controllori</i>
Homeworking	-	1 <i>mirinaio</i> ; 13 <i>finitori</i>
Various workshops	-	36 <i>finitori</i>
<b>Integrative notes</b>		
<ul style="list-style-type: none"> <li>• 3 <i>molatori</i> work in various forges.</li> <li>• The owners of the workshops where 36 <i>finitori</i> carry out their work are: the partnership of the forges owners, Antonio Franzini, Paris Heirs, Bros. of the late Antonio Beretta, Antonio Moretta, Bertarini, Beretta Ludovico Zambonardi Simone, some individual craftsmen.</li> <li>• Many <i>bollitori</i> and <i>finitori</i> apprentices are not included in this table because not able to work autonomously.</li> </ul>		
Total	190 gunbarrel craftsmen: 42 <i>bollitori</i> ; 24 <i>trivellatori</i> ; 23 <i>livellatori</i> ; 22 <i>molatori</i> ; 20 <i>fondellieri/impanatori/mirinai</i> ; 49 <i>finitori</i> ; 10 <i>controllori</i>	

Table 6.1

*Marcheno*

<b>Workshop/Owner</b>	<b>Product</b>	<b>Workforce</b>
Bosio Pietro	Gunlocks	2 workers
Foccoli Giovanni	Gunlocks	4 workers
Bosio Lorenzo	Gunlocks	1 worker
Contessa Domenico	Gunlocks	2 workers
Pirlo Pietro	Gunlocks	3 workers
Ceresoli Maurizio	Gunlocks	12 workers
Rossi Martino	Gunlocks	2 workers
Bosio Tullio Zaccaria	Gunlocks	4 workers
Ceresoli Giovanni	Gunlocks	1 worker
Ceresoli Mosè	Gunlocks	2 workers
Rossi Andrea	Gunlocks	3 workers
Marinelli Domenico	Gunlocks	2 workers
Zubani Pietro	Gunlocks	1 worker
Rossi Giuseppe	Gunlocks	1 worker
Total workforce: 39 workers		
Note: all the craftsmen work in their employer's house		

*Table 6.2*

*Inzino*

<b>Forge/Owners</b>	<b>Products</b>	<b>Workforce</b>
Luigi Minola	Daggers and sabres	6 workers
Angelo Zanetti	Gunlocks	4 workers
Giambattista Gardoncini and Bros.	Nails	7 workers
Angelo Ansaldo	Ironworks and Farming tools	5 workers
Giuseppe Rizzinelli and Giambattista Bonomi	Nails and others	4 workers
Bros. Francesco and Giacomo Ansaldo	Nails and farming tools	4 workers
Total workforce: 30 workers		
Notes: All the craftsmen are expert in their work and in firearms manufacturing		

*Table 6.3**Magno*

<b>Forge/Owners</b>	<b>Products</b>	<b>Workforce</b>
Sabatti Pietro	Gunlocks	1 workers
Bros. Lecchi Carlo and Francesco	Gunlocks	4 workers
Bros. Lechi Carlo and Clemente	Gunlocks	2 workers
Sabatti Giovanni	Gunlocks	3 workers
Zoli Giuseppe	Gunlocks	2 workers
Sabatti Giuseppe	Gunlocks	1 worker
Tanfoglio Giovanni	Gunlocks	4 workers
Bros. Sabatti Antonio and Domenico	Gunlocks	3 workers
Total workforce: 20 workers		
Notes: all the craftsmen work in their employer's house		

*Table 6.4**Lumezzane Sant'Apollonio*

<b>Workshop/Owners</b>	<b>Products</b>	<b>Workforce</b>
Ghidini Vincenzo	Rods and nosecaps for the Arsenal	13 workers
Felice and Gaetano Gnutti	Rods for the Arsenal	8 workers
Seneci Angelo	Rods for the Arsenal	3 workers
Paolo and Geremia Bertoli	Strips for Arsenal rifles	11 workers
Seneci Domenico and Bros.	Strips for Arsenal rifles	20 workers
Bacchetti Francesco	Daggers and sabres	3 workers
Gnutti Bortolo	Sabres and bayonets	4 workers
Seneci Giacolo	Daggers	3 workers
Total workforce: 65 workers		

*Table 6.5*

*Lumezzane Pieve*

<b>Forges and workshops</b>	<b>Owners</b>	<b>Workforce (owners included)</b>	<b>Products/Manufacturing</b>
2 forges	Bros. Moretti	23 workers: 12 principals, 11 craftsmen	Bayonets for the Arsenal
1 forge	Bianchi Giacinto	9 workers: 6 principals, 3 craftsmen	Commercial cold weapons
1 forge	Pasotti Antonio	8 workers: 2 principals, 6 craftsmen	Commercial cold weapons; Arsenal rifle rods
3 forges	Bros. Pietro and Battista Polotti	50 workers: 3 principals, 47 craftsmen	Recoil pads; Arsenal gunlock manufacturing; cold weapons
2 forges	Polotti Angelo	6 workers: 2 principals, 4 craftsmen	
1 forge	½ Botti Bernardo and Domenico, ½ Capra Marco	8 workers: 3 principals, 5 craftsmen	Ironworks for the Arsenal
1 forge	Bros. Albertini Antonio and Giacomo	10 workers: 3 principals, 7 craftsmen	Parts of gunlock; ironworks for the Arsenal
1 forge	Facchinetti Bernardo	15 workers: 4 principals, 11 craftsmen	Hand guards; ironworks for the Arsenal
1 house	Gnali Battista	2 workers: 1 principal, 1 craftsman	Rings for hand guards
1 forge and 1 house	Zanetti Domenico	15 workers: 9 principals, 6 craftsmen	Screws and rings for hand guards
1 house	Facchinetti Giuseppe	2 workers: 2 principals	Hand guards
1 house and 1 forge	Gnali Gianmaria and Mori Battista	12 workers: 4 principals, 8 craftsmen	Hand guards
1 house	Zani Giovanni	2 workers: 1 principals, 1 craftsman	Parts of hand guards
1 house	Zani Gianmaria	9 workers: 1 principal, 8 craftsmen	Parts of hand guards and of rifles
1 house	Zani Domenico	8 workers: 1 principal, 7 craftsmen	Parts of hand guards and of rifles
1 house	Bossini Serafino and Zani Giacomo	11 workers: 2 principals, 9 craftsmen	Gunlocks
1 house	Zanetti Maurizio	2 workers: 2 principals	Gunlocks
1 house	Botti Carlo	2 workers: 1 principal, 1 craftsman	Gunlocks
1 house	Zanetti Maurizio	2 workers: 1 principal, 1 craftsman	Gunlocks
1 house	Zanetti Nicola	1 worker: 1 principal	Gunlocks
1 house	Zanetti Antonio	4 workers: 3 principals, 1 craftsman	Gunlocks
1 house	Zanetti Antonio	4 workers: 3 principals, 1 craftsman	Gunlocks; recoil pads
1 workshop	Polotti Francesco	3 workers: 3 principals	Gunlocks for civilian firearms
1 house	Botti Ludovico	3 workers: 1 principal, 2 craftsmen	Screws for rifle
1 house	Botti Faustino	2 workers: 1 principal, 1 craftsman	Screws for rifle
Total: 235 workers; 31 buildings employed for the firearms manufacturing (14 forges, 16 houses, 1 workshop)			
Note: In Lumezzane Pieve there are several other forges and workshops dedicated to other productions which could be employed for the firearms industry			

*Table 6.6*



## Appendix 7

### *Gun Barrel Production in Gardone V.T. (1861)*

#### *Statistical Table*

##### Sources:

- Archivio Storico del Comune di Gardone Val Trompia, box 180, file 1, “Prospetto di Statistica della Industria Manifatturiera nell’Anno 1861 nel Comune di Gardone, Mandamento di Gardone, Provincia e Circondario di Brescia. Statistica da Diversi Fabbricanti Gardonesi per le sole Canne”.

##### N.B.:

This appendix transcribes an original table with detailed data on gun barrel production in Gardone Val Trompia in 1861. The document was produced by the local administration and specifies the names of producers, production data, raw materials, machinery, the workforce and factories.

Due to lack of space, the table is shown on two pages.

##### Legend:

- “D.” - “Ditta” (Company).
- “S.” - “Società” (Company).
- “C. di l.” - “Carbone di legna” (Coke).
- “L.” - “Lire”.

Nome del Fabbricante	Ferro impiegato d'Italia		Prodotti ottenuti					Macchine operatrici in tutto		Motori					Combustibili consumati		
	Quantità in quintali	Valore in lire Italiane	Canne da fucile da guerra	Canne doppie diverse	Canne singole diverse	Pistole diverse	Valore in lire Italiane	Loro specificazione in complesso	Loro numero	Idraulici		a Vento		a Forza animale	Qualità	Quantità in quintali	Valore in lire italiane
										Numero	Potenza in cavalli	Numero	Potenza in cavalli	Numero degli uomini			
Regio Erario	376	24440	8000	-	-	-	120000	Trapani per la trapanatura e livellatura delle canne	49	12	-	-	-	-	C. di I.	1400	9400
D. Franzini Antonio	330	20400	3200	1070	1900	200	95100								C. di I.	1400	9380
D. Fratelli Beretta	107	6430	1246	81	815	-	18618								C. di I.	600	3390
D. Moretta Giacomo	8	400	-	16	200	-	2640	Mole a pietre di Samico	7	7	-	-	-	-	C. di I.	37	249
D. Bertarini Fratelli	40	2455	600	160	200	50	15713								C. di I.	181	1221
D. Beretta Pietro	94	5212	700	500	1200	320	36560	Magli	12	12	-	-	-	-	C. di I.	475	3206
D. Paris Crescenzo	244	15430	4500	397	794	100	79050								C. di I.	977	6594
S. Premoli Michelsoni etc	404	26260	9000	-	-	-	117000	Fuochi animati da aria con trombe idrauliche	25	10	-	-	-	-	C. di I.	1444	9747
S. Beretta Lodovico	18	1105	300	20	150	-	5440								C. di I.	79	533
S. Baiguera Giulio	13	810	200	-	150	-	3900								C. di I.	56	378
S. Zambonardi Simone	18	1065	250	25	200	-	5600	Tomi	2	-	-	-	-	-	C. di I.	80	540
S. Bertolotti Giulio	27	1685	500	20	150	-	8040								C. di I.	141	749
S. Ghinelli Antonio	25	1585	300	-	80	-	6720	Macchine per rigare le canne	3	-	-	-	-	6	C. di I.	93	627
S. Beltrami Francesco	4	200	-	25	200	-	2600								C. di I.	40	270
S. Cortesi Giuseppe	22	1324	350	12	150	-	5284								C. di I.	84	567
S. Daffini Annibale	26	1600	450	-	200	-	6300	Fuochi animati da mantici	7	-	-	7	-	-	C. di I.	104	702
Diversi Piccoli Fabbricanti	58	3590	1000	-	400	-	13600								C. di I.	224	1512
Totale	1814	113991	30796	2326	6789	670	542165		105	43	-	7	-	6		7385	43243



Qualità e condizione dei lavoratori	Lavoranti addetti				Totale dei lavoratori	Salario giornaliero pei lavoranti				Spesa annua totale della mano d'opera	Mesi nei quali si sospende la lavorazione
	Numero degli uomini		Numero delle donne			Massimo		Minimo			
	a giornata	a fattura	a giornata	a fattura		Uomini	Donne	Uomini	Donne		
Fucinatori o Bollitori	-	50	-	-	287	L. 6,00	-	L. 2,00	-	L. 240.000	La lavorazione non viene mai sospesa
Trapanatori	-	50	-	-		L. 2,50	-	L. 1,20	-		
Livellatori	-	50	-	-		L. 3,00	-	L. 1,50	-		
Tomitori	-	8	-	-		L. 4,00	-	L. 1,20	-		
Molatori	-	14	-	-		L. 3,00	-	L. 1,20	-		
Limatori	-	70	-	-		L. 5,00	-	L. 1,50	-		
Vitonieri, Bombardieri ed altri	-	25	-	-		L. 6,00	-	L. 2,00	-		
Politori	-	-	-	20		-	L. 2,00	-	L. 0,75		

**Osservazioni:**

Il ferro per le canne fucili per la Guardia Nazionale proviene dalla ghisa di Val Trompia raffinata dai fratelli Glisenti in Lavenone; quella per la fabbricazione dei fucili Erariali proviene dalla Val D'Aosta; quello poi per le canne di commercio proviene tutto dal Val Trompia.

Il combustibile si ritrae tutto dal Comune. Gli opifici nei quali si fabbricò le controscritte canne sono i seguenti:

- 1) Edificio detto la fucina Fornace con n. 6 motori di proprietà Bertarini condotto in affitto dal Governo del valore L. 36.000.
- 2) Idem detto fucina Rampinelli con n. 5 motori di proprietà Moretta condotto in affitto dal Governo del valore di L. 25.000.
- 3) Idem detto fucina del Mulino con n. 5 motori di proprietà della Ditta Crescenzo Paris, condotto in affitto dall'Erario del valore di L. 30.000 esclusa la macchina pel torno di proprietà Erariale del valore di L. 4.000.
- 4) Idem detto fucina Nuova con n. 5 motori di proprietà di Franzini Antonio, del valore di L. 30.000.
- 5) Idem detto del Ponte Zanano come sopra con n. 3 motori del valore di L. 20.000.
- 6) Idem detta fucina Vecchia con n. 6 motori di proprietà Paris del valore di L. 25.000.
- 7) Idem detto la Fucina in capo a Gardone con n. 2 motori di proprietà Paris del valore di L. 5.000.
- 8) Idem come sopra di n. 1 motori di proprietà Bertarini del valore di L. 1.500.
- 9) Idem detto la Fucina Manenti con n. 2 motori del valore di L. 6.000 di proprietà Beretta Sig.ri Lodovico e Pietro.
- 10) Idem detto la Fucina del Gramineto con n. 4 motori di proprietà Beretta fu Antonio del valore di L. 12.000.
- 11) Idem detto la Fucina Cornelle con n. 2 motori di proprietà Calini del valore di L. 5.000.
- 12) Idem detto la Fucina Lazzaretto di proprietà Mutti con n. 3 motori del valore di L. 7.000.
- 13) N. 7 fuochi animati da mantice a vento di proprietà diverse del valore di L. 7.000.
- 14) N. 3 macchine per rigare le canne mosse a forza di uomini di proprietà erariale del valore di L. 3.000.



## Appendix 8

### *Firearms Industry (Province of Brescia, 1910)*

Source:

- Camera di Commercio e Industria di Brescia (1910), *Statistica Industriale al 30 Giugno 1910. Industrie Mineralurgiche, Metallurgiche e Meccaniche*, Geroldi, Brescia, pp. 24-28, 52, 59-61.

N.B.:

This appendix transcribes data regarding factories and the workforce in the firearms industry in the province of Brescia in 1910.

Since the content of the appendix is a transcription, the original language (Italian) has been retained.

## Armi

BRESCIA – *La Cooperativa Lavoranti Armi* ha una fabbrica di armi da caccia e da difesa; lavora col sussidio di 2 motori elettrici della forza di 30 cav.; impiega N. 120 operai di cui 10 fanciulli che lavorano 300 giorni all'anno, 10 ore al giorno; gli adulti col salario massimo di L. 6, minimo L. 3, i fanciulli L. 1,50.

La *Ditta Luigi Franchi* ha una fabbrica di armi da caccia e da difesa; lavora col sussidio di 1 motore elettrico della forza di 2 cav.; impiega N. 35 operai di cui 4 fanciulli che lavorano a cottimo in media 10 ore al giorno, per tutto l'anno e percepiscono il salario giornaliero massimo di L. 7; minimo di L. 3.

La *Ditta Colturi e Lorenzotti* ha una fabbrica d'armi: fucili da caccia; impiega N. 9 operai che lavorano a cottimo in media 10 ore al giorno, 300 giorni dell'anno e il salario va da un massimo di L. 4 a un minimo di L. 1,75.

La *Metallurgica Bresciana già Tempini* ha uno stabilimento dove si fabbricano munizioni e armi portatili per l'esercito e la marina e in modo speciale bozzoli di ottone, granate, shrapnels, spolette, e un tipo di pistola automatica; lavora col sussidio di 33 motori elettrici della forza di 220 cav. adibiti alla fabbricazione, e di 125 cav. per la luce; di 4 motrici a vapore della forza complessiva di 95 cav.; impiega N. 1100 operai che lavorano in media 292 giorni dell'anno divisi per squadre, giorno e notte, per la durata di 10 ore, e percepiscono il salario giornaliero massimo di L. 6,50, minimo di L. 3,20.

La *R. Fabbrica d'Armi* della quale la data d'impianto risale al 1806, fabbrica armi per l'esercito e in modo speciale moschetti ed armi bianche; lavora col sussidio di N. 5 motori elettrici della forza di 40 cav.; impiega N. 102 operai che lavorano in media 300 giorni dell'anno 10 ore al giorno, e percepiscono il salario giornaliero massimo di L. 5,50, minimo di L. 3.

La *Ditta Toschi e Castelli* – data d'impianto – 1900 – ha una fabbrica d'armi con fonderia di ghisa malleabile; fabbrica armi da caccia, revolvers e moschetti da guerra; lavora col sussidio di 3 motori elettrici della forza di 27 cavalli; impiega N. 200 operai di cui 20 fanciulli e 10 donne che lavorano in media 290 giorni dell'anno, 10 ore al giorno gli adulti percepiscono il salario giornaliero massimo di L. 5,50,

minimo di L. 2; i fanciulli massimo di L. 1,45, minimo di L. 0,50; le donne massimo di L. 1,80, minimo di L. 1.

GARDONE V. T. – La *Ditta Bernardelli Vincenzo* – data di impianto 1870 – fabbrica armi da caccia e da difesa: fucili revolvers, parti d'arme; lavora col sussidio di 1 turbina della forza di 25 cav., e impiega N. 50 operai dei quali 3 fanciulli e 2 donne che lavorano 250 giorni dell'anno, 10 ore al giorno; gli adulti hanno il salario giornaliero massimo di L. 7, minimo di L. 2, le donne massimo L. 1,40, minimo L. 1,25.

La *Ditta Cavagna Giovanni* ha una fabbrica d'armi e di lime – data d'impianto 1880 –; fa fucili da caccia e lime; lavora col sussidio di 3 ruote idrauliche della forza di 25 cav.; impiega N. 40 operai interni, N. 15 esterni; gli interni lavorano 300 giorni dell'anno, 10 ore al giorno e percepiscono il salario giornaliero massimo di L. 6, minimo di L. 2.

La *Ditta Pietro Beretta* ha una fabbrica di armi da caccia e da difesa – data d'impianto 1680 –; costruisce fucili da caccia, revolvers, parti d'arme, spingarde piccole e grosse; lavora col sussidio di 2 turbine della forza di 70 cav. che servono anche per la illuminazione dell'albergo Beretta e delle case operaie; di 1 alternatore; impiega N. 170 operai interni, N. 100 esterni, gli operai interni lavorano in media 300 giorni dell'anno, 10 ore al giorno e percepiscono il salario giornaliero massimo di L. 7, minimo di L. 3. La ditta sta costruendo una centrale elettrica a Inzino.

La *R. Fabbrica d'Armi* (sezione di Gardone) fabbrica parti d'arme, granate ed accessori per i materiali dell'esercito; lavora col sussidio di 3 motori a vapore della forza di 90 cavalli che sostituiscono la forza idraulica nei periodi di magra; di 4 motori idraulici della forza di 150 cav.; impiega N. 150 che lavorano 300 giorni all'anno, 10 ore al giorno e percepiscono il salario giornaliero massimo di L. 5,50, minimo di L. 2.

INZINO – La *Fabbrica Bresciana d'Armi* – data d'impianto 1907 – produce armi da caccia, revolvers, spingarde; ha anche una fonderia che si accende ogni tanto; lavora col sussidio di 4 motori elettrici della forza di 40 cavalli; impiega N. 150 operai di cui 8 fanciulli (ne potrebbe impiegare anche 300 come per il passato) che lavorano in media 10 ore al giorno, tutto l'anno, gli operai a cottimo guadagnano al giorno un massimo di L. 7, e un minimo di L. 2; i facchini, attrezzisti a giornata

hanno un salario massimo di L. 6, minimo di L. 2,50; i fanciulli massimo di L. 1,50, minimo di L. 0,80. La ditta ha una centrale elettrica che può sviluppare 300 Hp.

La *Ditta Gardoncini fu Battista* ha una fabbrica d'armi – la data d'impianto dell'officina è immemorabile – la Ditta ha cominciato il lavoro nel 1870 – si fanno armi da caccia e parti d'arme. Lavora col sussidio di 2 ruote idrauliche della forza di 6 cav. che potrebbero diventar 10 se l'acqua fosse sufficiente (vi sono 2 magli inoperosi per mancanza di lavoro); impiega N. 15 operai con una donna che lavorano in media 10 ore al giorno; gli operai percepiscono il salario giornaliero massimo di L. 4,50, minimo di L. 2 (lavoro a cottimo); la donna guadagna L. 1,40 giorno.

LUMEZZANE PIEVE – La *Ditta Albertini Carlo* ha una officina – data d'impianto 1908 – per la fabbricazione di bacchette da fucile, e parti di revolvers; lavora col sussidio di 1 motore elettrico della forza di 2 cav., e con 8 operai di cui 3 fanciulli che lavorano 10 ore al giorno, 260 giorni dell'anno; gli adulti hanno il salario giornaliero massimo di L. 2,25, minimo di L. 1,75; i fanciulli di L. 0,40.

La *Ditta Bianchi Francesco fu Geremia* ha una fabbrica d'armi da scherma e da guerra: fioretti, sciabole, e fornisce la scuola militare di Roma, e manda le sua armi in ogni paese d'Europa; - la data d'impianto della fabbrica risale al 1544; lavora col sussidio di due ruote idrauliche della forza di cav. 3, ½, impiega N. 12 operai di cui un fanciullo che lavorano 10 ore al giorno, 260 giorni dell'anno; gli operai lavorano tutti a cottimo, e sono pagati mensilmente.

La *Ditta Botti Bortolo fu Bernardo* – data d'impianto immemorabile – ha una officina per costruzioni di armi da difesa e parti d'armi da guerra, rivoltelle fine pistolette per ciclisti, delle quali ha la privativa industriale, e sono costruite in modo che il cane funziona da otturatore e da percussore insieme. Lavora col sussidio di 2 motori elettrici della forza di 2 ½ cav.; impiega N. 8 operai che lavorano in media 10 ore al giorno, 260 giorni dell'anno, e percepiscono il salario giornaliero massimo di L. 4,25, minimo di L. 3. Gli operai a cottimo raggiungono il massimo giornaliero di L. 5,50.

La *Ditta Botti Onofrio* ha una officina – data d'impianto 1864 – per la lavorazione di parti di revolvers: cani e grilletti; lavora con 1 ruota idraulica della

forza di 4 cav.; impiega N. 7 operai che lavorano in media 10 ore al giorno, 260 giorni all'anno; e hanno un salario giornaliero massimo di L. 3, minimo di L. 2.

La *Ditta Gambera Bortolo fu Giacinto* ha una officina per la costruzione di parti d'arme, acciarini – data d'impianto 1870 –; lavora col sussidio di 1 motore idraulico della forza di 8 cav.; impiega N. 20 operai di cui 2 fanciulli e 1 fanciulla che lavorano 10 ore al giorno; gli adulti percepiscono il salario giornaliero massimo di Lire 3,50, minimo di L. 2; i fanciulli L. 1; la fanciulla L. 1,50.

La *Ditta Gnali Salvatore* ha una officina – data d'impianto 1867 – per la fabbricazione di parti d'arme; lavora con 1 motore elettrico della forza di un cavallo.

La *Ditta Serafino e F.lli Gnutti* ha una fabbrica di armi bianche da guerra e da scherma in genere – data d'impianto 1860 – lavora col sussidio di 3 ruote idrauliche della forza di 25 cav.; impiega N. 60 operai di cui 4 fanciulli che lavorano in media 10 ore al giorno, 300 giorni dell'anno; gli operai a cottimo guadagnano il massimo di L. 7 al giorno; gli altri un massimo di L. 5, minimo di L. 1,20; i fanciulli massimo di L. 1,20, minimo di L. 1.

La *Ditta Mori G. Battista* ha una officina – data d'impianto 1909. per la fabbricazione di revolvers e coltelli da tavola; lavora col sussidio di un motore elettrico della forza di 3 cav.; impiega N. 20 operai di cui 3 fanciulli e 1 fanciulla che lavorano in media 10 ore al giorno, 260 giorni dell'anno; gli adulti hanno il salario massimo di L. 5, minimo di L. 2,25; i fanciulli massimo di L. 1, minimo L. 0,50, la fanciulla L. 1. Si lavora a cottimo.

La *Ditta Fr.lli Polotti fu Giacomo* ha uno stabilimento dove si fabbricano parti d'armi, fero laminato, sciabole, foderi, scalpelli, piccozze, picconi, leve, palanchini, forchette acciaio, assi da vagoni tramvie, acciaio per canne da fucili, eccentrico per munizionamento da cannoni; – la data d'impianto dell'opificio risale al 1800 – lavora col sussidio di 8 motori idraulici della forza di 80 cav. circa; di 5 motori elettrici, a intervalli, della forza di 45 cav.; impiega N. 100 operai di cui 10 fanciulli che lavorano in media 10 ore al giorno, 300 giorni dell'anno; gli adulti percepiscono il salario giornaliero massimo di L. 7, minimo di L. 2; i fanciulli massimo di L. 2, minimo di L. 1.

La *Ditta Rocca Giacomo Primo* ha una officina – data d'impianto 1885 – e la nuova officina 1909 – per la fabbricazione di revolvers, parti d'arme da guerra e da

caccia; ora sta cominciando la fabbricazione dei fucili da caccia nuovo modello con chiusura speciale e grilletto unico; lavora col sussidio di 1 ruota idraulica della forza di 2 cav., di 1 motore elettrico della forza di 3 cav.; impiega N. 45 operai di cui 10 fanciulli e 2 donne, che lavorano 10 ore al giorno, 280 giorni dell'anno; gli adulti percepiscono il salario giornaliero massimo di L. 10 minimo di L. 3, fanciulli massimo di L. 1,50, minimo di L. 0,70, le donne massimo di L. 1,30, minimo di L. 1.

La *Ditta Zanetti Angelo e F.lli Bernardo* – data d'impianto 1883 – ha una officina per la fabbricazione di parti d'armi: luminelli, parti di pistola anche per la R. Fabbrica d'Armi, lavora col sussidio di 1 ruota idraulica della forza di 2 cav.; impiega N. 10 operai che lavorano 10 ore al giorno, 240 giorni dell'anno con un salario massimo di L. 3,50, minimo L. 2.

La *Ditta Zani Luigi* ha una officina – data d'impianto 1907 – per la fabbricazione di piccole parti d'arme: anelli, luminelli, porta cinghie per fucili, parti di pistola per l'esercito; lavora col sussidio di 1 motore elettrico della forza di 1 cavallo; impiega 6 operai di cui 2 fanciulli che lavorano in media 10 ore al giorno, 240 giorni dell'anno; gli adulti hanno un salario giornaliero massimo di L. 3,50, minimo di L. 2,50; i fanciulli L. 1. – Si lavora a cottimo.



TABELLA RIASSUNTIVA

Fabbriche d'armi in Provincia di Brescia		N. 24
Forza Motrice in cavalli dinamici	a vapore	HP. 185
	idraulica	HP. 400
	elettrica	HP. 416
	Totale	HP. 1001
Operai	adulti	N. 2456
	fanciulli	N. 80
	donne	N. 17
	Complessivamente	N. 2553
Medio lavoro annuo		giorni 240-300
Medio lavoro giornaliero		ore 10
Salario	adulti	massimo L. 7
		minimo L. 1,75
	fanciulli	massimo L. 3
		minimo L. 1
	donne	massimo L. 1,80
		minimo L. 1

## APPENDICE

### *La Valle di Lumezzane*

Nel passato anche lontano, la valle di Lumezzane tenne sempre un posto eminente nelle industrie del ferro e dell'ottone; e se l'industria del ferro oggi non ha più l'importanza di un tempo, ciò dipende dal prevalere crescente dell'industria dell'ottone. Infatti la lavorazione dell'ottone, che nel resto d'Italia è rappresentata in pochi luoghi, nella nostra Provincia è tutta concentrata in questa Valle.

Questa fu la ragione che ci indusse a dare speciale risalto a questa Valle, presentando lo stato industriale di essa, oltre che nel complesso della statistica metallurgica e meccanica, anche in particolare rilievo.

TABELLA RIASSUNTIVA

Fabbriche d'armi		N. 12
Forza Motrice in cavalli dinamici	idraulica	HP. 112 ½
	elettrica	HP. 57
Operai	adulti	N. 257
	fanciulli	N. 35
	donne	N. 2
	fanciulle	N. 2
	Complessivamente	N. 296
Medio lavoro annuo		giorni 240-300
Medio lavoro giornaliero		ore 10
Salario	adulti	massimo L. 7
		minimo L. 1,20
	fanciulli	massimo L. 2
		minimo L. 0,40
	donne	massimo L. 1,30
		minimo L. 1
	fanciulle	massimo L. 1,50
		minimo L. 1



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