UNIVERSITA' DEGLI STUDI DI VERONA

DEPARTMENT OF

ECONOMICS

GRADUATE SCHOOL OF

LAW AND ECONOMICS

DOCTORAL PROGRAM IN

ECONOMICS

WITH THE FINANCIAL CONTRIBUTION OF

UNIVERSITÀ DEGLI STUDI DI VERONA

Cycle / year (1° year of attendance) 32°/ 2016-2017

CYRENAIC ECONOMIC EVOLUTION DURING FASCIST PERIOD (1922-1939)

The impact of Italian repression against Indigenous on local economy

S.S.D.   SECS-P/12

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Summary

The paper is divided into three chapters. The literature review about the theme is analysed in chapter one, where the events related to the Italian colonialism from the origins to the WWI are reported. In the first chapter the economic aspects of every colony until 1915 are briefly described. Finally, in this section there is a description of the Italian dominion in Libya between 1919 and 1940.

Chapter two focuses on a description of Cyrenaic economic data from 1920 to 1940, and sources used to collect them. Data belong to several categories, from demography to prices, until wages and transports.

Finally, in chapter three the empirical analysis is developed, with a description of methodology used, and of the econometric results found in the research.

Abstract

This study wants investigate the impact of Italian dominion on Libyan economy during the period between 1922 and 1940. In particular, we attempt to understand if the repression in Cyrenaica in years between 1930-33, with the creation of concentration camps, caused a deconstruction of local economy. To make this, we reconstructed the events related to Italian colonialism until WWI and then we collected data about Libya between 1920 and 1940. Our work focused on the relationship between two primary indigenous goods: barley and sheep, although we also used other several control variables. Analysing this, we conclude that the dynamics of local economy, which showed a strictly negative correlation between agriculture products and breeding products before the Fascist Regime, and which are represented by the town of Barce in the Cyrenaic hinterland, changed in the period between 1926-39 compared to the three years between 1920 and 1922.

CONTENTS

INTRODUCTION

This work assesses the impact of Italian rule on the traditional Libyan economy. Specifically, it seeks to understand, in the period between 1926 and 1939, whether the trend and the correlation of prices for two crucial raw materials (barley and sheep) for the indigenous populations was the same as in the period between 1920 and 1922. The thesis investigates local Cyrenaic markets, particularly Barce, Bengasi and Derna, Cyrenaica was chosen as a case study rather than Tripolitania because the consequences of Italian repression were mainly in Eastern Libya. The system of concentration camps (inaugurated in June 1930 and continuing until 1934, after some camp closures in 1932) led to a sharp decrease in the local population. Barley was grown mainly by the Arabs, so the decision to move them away from their territories, albeit taken after threshing, had important consequences.[1] The other vital Libyan farming activity was the breeding of animals, particularly sheep. Sheep and goats were easier to breed than cattle because fewer resources were needed. The mass deportation of tribes in Cyrenaica caused a very high death rate of livestock, both during the journey from Gebel to the coast and during internment in the camps.

Hence, the aim of this research is to investigate whether the twenty years of domination led to a change in the local economy, as shown by an alteration in the cycles and correlations between two significant home-gown products. This understanding could be useful in the future to determine if the post-WWII Libyan economy was partly shaped by the period of Italian rule or if it substantially remained the same, despite the political events between 1920 and 1940.

The first chapter reviews the existing literature on the topic. Then, a long section is dedicated to the evolution of Italian imperialism from its origins to the First World War. This section is not limited to Cyrenaica but includes the other Italian colonies annexed up to 1914. Providing a brief analysis of colonial events in the previous period and covering all dominions illustrates the continuous oscillations of Italian colonial and economic policy in the Fascist period. Until WWII, the Libyan government mirrored this behaviour, alternating phases of repression with paternalism towards the native populations. The sudden changes in economic policy in all colonies also occurred in Libya after 1922.

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[1] In 1923, Pompeo Gorini wrote: "The Indigenous use wheat in the same way as barley, but only in exceptional cases, for example when there is a guest in their tent. […] So, normally, wheat consumption is minimal compared to barley." Gorini, P. (1923), *Sull'esportazione dell'orzo della Cirenaica*, in *Bollettino di Informazioni economiche,* anno 1923, no.6, pp.690-710. My translation.

The second chapter sets out data on the Cyrenaic economy and society in the period 1920-1939. In addition to barley and sheep prices, and their relationship, which is the core of the research, the data include the prices of other products, about the climate, production, trade, the population, transport and trade. Unfortunately, the sources are not homogeneous so the dataset is incomplete for some variables and in some cases needed to be reconstructed.

The third chapter is dedicated to the econometric analysis of data and a discussion of the main question addressed in the thesis, i.e. whether Italian repression and government policy changed Cyrenaic society and its economy or whether, despite the huge number of deaths, the economy remained largely unchanged.

CHAPTER 1
THE ORIGINS OF ITALIAN COLONIALISM AND FASCIST LIBYA

1.1 INTRODUCTION

This chapter reconstructs the events relating to Italian colonialism from its origins to the First World War, the economic evolution in the colonies during this period, and political events in Libya between the two World Wars.

The Libyan economy, in particular in Cyrenaica, is the focus of this research, and cannot properly be understood without an introduction to the birth and growth of Italian imperialism.

The literature review refers only to Libya under Italian rule.

It would be almost impossible to accurately describe works encompassing such vast subjects (Italian political and economic developments in the Liberal Era, the history of Italian colonialism in the same period, and the history of Libya under Italian rule between the end of First World War and 1940). However, the bibliography includes books and papers dealing with these three macro-areas.

1.2 LITERATURE REVIEW OF LIBYA UNDER ITALIAN RULE

The events concerning the Italian colonization of Libya have received less attention from Italian historians than its rule in Eastern Africa.

Although not recent, two major works in this area are Nicola Labanca and Pierluigi Venuta: *Bibliografia della Libia Coloniale (1911-2000)* and *Un colonialismo, due sponde del Mediterraneo: atti del Seminario di studi storici italo-libici Siena-Pistoia, 13-14 gennaio 2000.*[2]

The first includes a vast selection of publications about Libya in both the colonial and post-colonial Eras. These are divided into topics and the origin of authors, Westerners or from the Arab world. The book is prefaced by two articles by the authors

The second book is particularly interesting because Labanca puts forward the historiographic division of Italian studies of colonial Libya before and after 1945.

- A *nostalgic* vision just after the end of WWII. Although not all authors are professional historians, some such as Gioacchino Volpe, Emilio Canevari, and Corrado Zoli are renowned scholars.[3] Iconic for those years is the paper by Evans Pritchard published by the Clarendon

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[2] Labanca N. and Venuta P. (2004), *Bibliografia della Libia coloniale: 1911-2000*, Firenze, Olschki editore; Labanca N. e Venuta P. (2000), *Un colonialismo, due sponde del Mediterraneo: atti del Seminario di studi storici italo-libici Siena-Pistoia, 13-14 gennaio 2000*, Pistoia, C.R.T.

[3] Volpe G. (1946), *L'impresa di Tripoli 1911-1912,* Roma, Leonardo; Canevari E. (1948-1949), *La guerra italiana. Retroscena della disfatta*, Roma, Tosi, 2 voll.; Zoli C. (1949), *Espansione coloniale italiana 1922-1937*, Roma, L'Arnia.

Press about the history of the Sanusi Brotherhood, an indication that Italian historians were still not ready to face the topic of colonization.[4]

- A period defined as a *lack of decolonization* until the '60s. This included some important works about Libya promoted by scholars including Vitale, De Leone, Giglio and Assan and by the *Comitato sulla Libia*, albeit with a significant prevalence of studies about Italian East Africa. [5] Italian historiography was unable to grasp the innovations determined by decolonization.

- A third period, that of *recovery*, was more dynamic. It includes the '70s, when authors such as Rochat, Romano, and Salerno published important studies.[6] However, there was still resistance to facing Italian responsibilities in Libya, as seen by the failure to publish the Castro and Goglia investigation commissioned by the Foreign Ministry concerning the legitimacy of claims brought by the Gheddafi government.

- The last period, that of *contemporaneity*, includes the work of Segrè, Del Boca, Cresti and Calchi Novati and continues to the present day. Studies of Libya flourished in this period,[7] and include some work by foreign scholars, although generally the North African country is treated only as part of a larger imperialistic scenario.[8]

The relationship between Italian and Libyan historians was not facilitated by the Gheddafi government after 1969, although the *Libyan Studies Center* founded in 1978 by the dictator gradually became a useful cultural instrument and also allowed some dialogue between Italian and Libyan historians, for example in Rome in 1981, Perugia in 1985 and in Siena and Pistoia in 2000.

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[4] Evans E. E. (1949), *The Sanusi of Cyrenaica*, Oxford, Clarendon Press.

[5] Vitale M.A. (1960-1964), *L'opera dell'esercito (1885-1943)*, t. I, *Ordinamento e Reclutamento*, t. III, *Avvenimenti militari e impiego. Africa settentrionale (1911-1943)*, Roma, Istituto Poligrafico dello Stato (Ministero degli Affari Esteri, Comitato per la documentazione dell'opera dell'Italia in Africa, *L'Italia in Africa*, Serie storico-militare, vol. I); De Leone E. (1957-1960), *La colonizzazione dell'Africa del Nord (Algeria, Tunisia, Marocco, Libia)*, Padova, C.E.D.A.M., 2 voll; Giglio C. (1962), *Colonizzazione e decolonizzazione*, Cremona, Mangiarotti; Assan G. (1959), *La Libia e il mondo arabo. La formazione dello stato libico, il vecchio mondo, il mondo nuovo, la patria araba, l'economia e la politica*, prefazione di Roberto Battaglia, Roma, Editori Riuniti.

[6] Pieri P. and Rochat G. (1974), *Pietro Badoglio*, Torino, UTET; Romano S. (1979), *Giuseppe Volpi. Industria e finanza tra Giolitti e Mussolini*, Milano, Bompiani; Salerno E. (1979), *Genocidio in Libia. Le atrocità nascoste dell'avventura coloniale (1911-1931)*, Milano, SugarCo.

[7] Cresti F. (2006), *La Libia tra Mediterraneo e mondo islamico: atti del convegno di Catania, La Libia tra Mediterraneo e mondo islamico, studi e tendenze della ricerca sulla Libia contemporanea, storia e società, Catania, Facoltà di scienze politiche, 1-2 dicembre 2000: aggiornamenti e approfondimenti*, Milano, Giuffrè Editore, p.11; Segrè C. G. (1978), *L'Italia in Libia. Dall'età giolittiana a Gheddafi*, Milano, Feltrinelli; Del Boca A. (1991), *Le guerre coloniali del fascismo*, Roma-Bari, Laterza; Cresti F. and Cricco M. (2012), *Storia della Libia contemporanea: dal dominio ottomano alla morte di Gheddafi*, Roma, Carocci; Calchi Novati G. (2011), *L'Africa d'Italia: Una storia coloniale e postcoloniale*, Roma, Carocci.

[8] Anderson L. (1986), *The State and Social Transformation in Tunisia and Libya, 1930-1980*, Princeton-Guildford, Princeton University Press; Wright J. L. (1982), *Libya, a Modern History*, London, Croom Helm; Davis J. (1987) *Libyan Politics: Tribe and Revolution: An Account of the Zuwaya and Their Government*, London, I. B. Tauris, Limited.

Economic studies regarding late liberal and then fascist Libya focussed on agrarian Colonization and its phases. This topic is strictly correlated with the demographic policy of the regime, which looked to the Colonies, especially after pacification, including Libya, as instruments for internal migration. So, agrarian and demographic colonization were often studied together.

The list of the authors of essays or books on this topic is very long, starting from the fascist period For example, agriculture and the colonization of Libya were analysed in several issues of reviews such as *Rassegna Economica delle Colonie* (subsequently *Rassegna Economica dell'Africa Italiana*), *Agricoltura Coloniale* and *Agricoltura Libica*.[9] In the war years, when the situation in North Africa was difficult, some scholars continued to write about the subject, including Vittorio Statera and Giuseppe Palloni.[10]

In the following decades, colonization remained the focus of studies on Libya. It was cited and treated directly[11] or indirectly together with political events.[12] With authors like Rochat and Segre, attention to the "Quarta Sponda" and its history during Fascism increased. Finally, less biased works emerged which did not skip the most embarrassing events of the Italian rule.

Foreign scholars also started to focus their attention on the colonization of Libya and its economy in the Italian period. In addition to an interesting geographical study by Gary Fowler in 1972,[13] Joffè and McLachlan wrote one important book and a collection of essays was edited by the American scholars Ruth Ben-Ghiat and Mia Fuller,[14] which includes several interesting papers by Angelo Del Boca, John L. Wright, Muhammad T. Jerary and Federico Cresti.[15]

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[9] Some interesting articles include:

Piani, G. (1934), *I più recenti progressi dell'agricoltura e della zootecnia in Cirenaica*, in *Rassegna Economica delle Colonie 1934*, Ministero delle Colonie, Ufficio Studi e Propaganda, Provveditorato Generale dello Stato, Roma, pp.627-645.

Il Movimento demografico della colonizzazione in Tripolitania, in *Rassegna Economica delle Colonie 1932*, Ministero delle Colonie, Ufficio Studi e Propaganda, Provveditorato Generale dello Stato, Roma, pp. 326-331.

Palloni, G. (1939), *Colonizzazione demografica intensiva in Libia*, in *Agricoltura libica: bollettino mensile del Centro sperimentale agrario e zootecnico e degli Ispettorati agrari della Libia*, anno VIII, No.1, Gennaio 1939, Centro sperimentale agrario e zootecnico, Tripoli, pp. 1-14.

[10] Statera, V. (1942), *La colonizzazione demografica della Libia*, Irce, Ist. Per Le Relazioni Culturali Con L'Estero, Roma.

Palloni, G. (1945), *I contratti agrari degli enti di colonizzazione in Libia*, Sansoni, Firenze.

Narducci, G. (1942), *Storia della colonizzazione della Cirenaica*, Arte e storia, Milano; Roma

[11] For example:

Pallico, P. and Balloni, G. (1971), *L'Italia in Africa. Serie economico-agraria*, Istituto poligrafico dello Stato, Roma.

[12] It is impossible not to cite: Segrè, C.G. (1974), *The Fourth Shore: The Italian Colonization of Libya*, University of Chicago, Chicago London.

Segre, C.G. (1972), *Italo Balbo and the Colonization of Libya*, in *Journal of Contemporary History*, Vol. 7 No. 3/4, pp. 141–155.

[13] Fowler, G.L. (1972*), Italian Colonization of Tripolitania*, in *Annals of the Association of American Geographers*, Vol. 62, No. 4, pp. 627–640.

[14] Joffé, E.G.H. and McLachlan, K.S. (Eds.). (1982), *Social and Economic Development of Libya*, Middle East & North African Studies, Wisbech.

Ben-Ghiat, R. and Fuller, M. (2005), *Italian Colonialism*, Palgrave Macmillan, New York.

[15] For the full list of essays in Ben-Ghiat and Fuller see:

https://www.palgrave.com/br/book/9780312236496#aboutBook;

https://www.palgrave.com/br/book/9780312236496#aboutAuthors.

Cresti is one of the best-known scholars of Libyan history. His research is focused (but not exclusively) on colonialism, the events related to the *Ente per la Colonizzazione della Cirenaica* (subsequently *della Libia*) and the *Istituto Nazionale Fascista per la Previdenza Sociale* (*INFPS*). The latter institutes were crucial to the programme of demographic colonization in the '30s[16] and built the villages for Italian settlers from the Peninsula.

Agrarian colonization was strictly correlated with the demographic problem of Italy. One book by Carl Ipsen and a paper by Gian Luca Podestà are noteworthy.[17] Related to the topic and a useful source is the collection of essays *Storia dell'emigrazione italiana*, edited by Piero Bevilacqua. The section about emigration to the Colonies was written by Nicola Labanca.[18] Finally, an article by Annunziata Nobile in the *Bollettino di Demografia Storica* is of particular interest. Written in 1990, it is very useful to understand the phenomenon of migration in relation to the origins of Italian settlers.[19]

As shown above, the topic of the colonization of Libya has attracted the attention of many historians. It was undoubtedly the most important initiative of the Italian government for the "Quarta sponda" but it was not the only one. For example, there was a change in the urban structure of some of the largest cities (Tripoli, Benghazi, Derna), with a programme of public works.[20] The Italian government also tried to foster tourism, with some archaeological digs and by building hotels. There were many initiatives in the job sector, transport and construction particularly of roads (the Litoranea for example) and railways.

There is no organic work on the Libyan economy, unlike Italian East Africa. There is no research such as that carried out by Gian Luca Podestà and Donatella Strangio.[21] The industrial sector and both

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[16] Cresti, F. (2011), *Non desiderare la terra d'altri: la colonizzazione italiana in Libia*, Carocci editore, Roma.
Cresti, F. and Bono, S. (1996), *Oasi di italianità: la Libia della colonizzazione agraria tra fascismo, guerra e indipendenza (1935-1956)*, Società editrice internazionale, Torino.
For more information on the Cresti bibliography, see also:
http://ws1.unict.it/paginadocente/uploads/cit_53f754c98b8133596d80981048c72bcc.pdf.

[17] Ipsen, C. (1997), *Demografia totalitaria: il problema della popolazione nell'Italia fascista*, Il mulino, Bologna.
Podestà, G.L. (2011), *Colonists and 'demographic' colonists. Family and society in Italian Africa*, in *Annales de Demographie Historique*, Vol. 122 No. 2, pp. 205–231.

[18] Labanca, N. (2001), *Nelle Colonie*, in Bevilacqua, P., De Clementi, A. and Franzina, E., *Storia dell'emigrazione italiana*, Donzelli, Roma.
Labanca is one of most important scholars of Italian colonial history. His best known work is: Labanca, N. (2002), *Oltremare: storia dell'espansione coloniale italiana*, Il Mulino, Bologna.
The full list of his publications can be found in
https://usiena-air.unisi.it/browse?type=author&order=ASC&rpp=20&authority=rp10183#.XKud85gzbIU.

[19] Nobile, A. (1990), *La colonizzazione demografica della Libia: progetti e realizzazioni*, in *Bollettino di Demografia storica*, 12, pp.173-188.

[20] Talamona, M. (1993), *Città europea e città araba in Tripolitania,* in Gresleri, G., Zagnoni, S. and Massaretti, P.G., *Architettura italiana d'oltremare 1870-1940*, Marsilio, Venezia, pp.257-275.

[21] Podestà, G.L. (2004), *Il mito dell'Impero: economia, politica e lavoro nelle colonie italiane dell'Africa orientale, 1898-1941*, G. Giappichelli, Torino.
Strangio, D. (20101222), "Italian colonies and enterprises in Eritrea (XIX-XX centuries).", *Journal of European Economic History*, Vol. 39 No. 3, pp. 599–623.

internal and international trade are understudied. This may be because of the inability to develop a strong local industry under the Italian government, although some steps were made, in particular in the building and food industries.

For many years, Libya was far from international trading routes. This does not mean that there were no import or export activities, generally to and from Italy (aiming after the Ethiopian War to make the Colony self-sufficient or a source of raw materials such as cereals), Tunisia and Egypt.

The oil industry has been examined by scholars including Ilaria Tremolada and Matteo Pizzigallo.[22] Until now, however, the most detailed work about the Tripolitanian economy remains the masterpiece by Adolfo Maria Morgantini.[23] He was active in Libya, and particularly in Tripolitania, during the fascist period and collected a great deal of data ranging over every sector of the economy, from agriculture to industry and the credit sector. He also investigated other aspects of the economic life of the Colony and asked some important questions about the relationship between the Italy and Libya.[24]

By studying the trend of Cyrenaic markets in the final period of Italian rule, our research aims to investigate at least one of the numerous aspects of the Libyan economy and seeks to relate it to other factors such as trade, demographic trends, production and employment.

1.3 SOME ECONOMIC AND POLITICAL FEATURES OF THE LIBERAL ERA IN ITALY (1861-1914)

Interpretations by economic historians of the evolution of the Italian economy during the Liberal Era differ especially regarding the initial decades after Unification, often influenced by political considerations. Anti-liberal accounts emphasize the defects of the new Kingdom of Italy, particularly the practice of trading votes and loyalties in Parliament, often called *trasformismo*[25] "championed" surely by Giovanni Giolitti. They also focus on corruption in local and national elections. Other distortions laid at the door of Italian governments include the use of repressive measures against the

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In particular, the former covers nearly all the economic sectors in Italian East Africa.

[22] Pizzigallo, M. (1984), *L'AGIP degli anni ruggenti 1926-1932*, A. Giuffrè, Milano.
Pizzigallo, M. (1992), *La politica estera dell'Agip, 1933-1940: diplomazia economica e petrolio*, A. Giuffrè, Milano.
Tremolada, I. (2015), *Nel mare che ci unisce: il petrolio nelle relazioni tra Italia e Libia*, Mimesis, Milano, Udine.

[23] Morgantini, A.M. (1938), *La Libia occidentale nei suoi principali aspetti economico-statistici nel quinquennio 1931-35*, Tripoli.

[24] Morgantini, A.M. (1934), *Contributi dell'economia tripolitana a quella della metropoli*, in *Atti del secondo congresso di studi coloniali*, pp. 564-588; 8.
Morgantini, A.M. (1947), *Distribuzione dei redditi mobiliari nei gruppi etnici della popolazione di Tripoli*, ABETE, Roma.

[25] *Trasformismo* was a practice that led to stable governments. Deputies often changed party, passing from the opposition to the majority (hence the name *trasformismo*). This excluded the most extreme parties, and was the result of opportunisms and personal interests, giving rise to the negative flavour of the word.

population during protests and demonstrations[26] and the inability to solve the emerging "Southern Question."

In Gramsci's (Marxist) opinion, the Kingdom of Italy started life "badly," a "failed" State from the very beginning. This was caused by the lack of participation of popular classes: the bourgeoisie was weak compared, for example, to France, and unable to create consensus. Hence, Italian unification is often called a phenomenon of the elite.

Moreover, regardless of the weakness of the bourgeoisie, nineteenth-century Italy was essentially a rural country. The bourgeoisie was unable to carry out its historic task: to take over from the "old feudal class." This view has been revised in recent years: no revolutions in Europe can be called only a "bourgeois revolution," so Italy was not an isolated example.

Another, antithetical vision of history comes from a liberal perspective. In the opinion of liberal scholars (following Benedetto Croce), the Liberal State was a success, albeit with challenges and some minor failures. The high point of the Liberal Era was the "Age of Giolitti" between 1900 and 1914. Where Gramsci considered the Giolitti period and the Liberal Era in general as the prelude to Fascism, Croce highlighted the democratization process under the Giolitti government (universal male suffrage in 1912) and believed nothing linked Italian liberalism with Fascism.

Indeed, the Italian State came to the widespread suffrage late. Until 1912, the country was governed by a small ruling class, only slightly broader than in 1882. A handful of politicians, elected by half a million male voters, dominated by few thousand influential men, governed a population of 25 million Italians. This caused the split between "legal" and "real" Italy and fostered the rise of extreme movements (Socialists, Catholics) which attracted the masses much more than traditional policy i.e. the system which granted the electoral franchise to a tiny minority in the belief that an excessively enlarged electorate, not "educated in liberty", would lead to the affirmation of an "anti-system". In this sense, the Liberal State was guilty, like European liberalism in general, of the inability to create modern and truly representative political parties. This had numerous consequences in the years after WWI when the order set up at the Vienna Congress was overthrown and new, extreme, movements came to the fore.

1.3.1 The Italian bourgeoisie: a special case?

In the decades after Unification, the bourgeoisie was a tiny fraction of Italian society. As noted by Francesco Saverio Nitti, it comprised more landowners and professionals than entrepreneurs. Land fascinated and obsessed the middle class. Unlike other Western European middle classes, the Italian

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[26] The best known episode was the repression ordered by general Bava Beccari during a demonstration in Milan in May 1898.

bourgeoisie continued to prioritize investments in real estate to more mobile forms of wealth such as stocks, shares, and bonds.[27]

The quest for "status" predominated and this was given by land or the liberal professions, particularly the law and medicine. For a long time these were the most popular university faculties, although these faculties continues to turn out a high number of jobless graduates. Only in academic year 1909/1910 did the engineering faculty top medicine. In 1913 48% of parliamentary deputies and senators were lawyers.[28]

Until the 1880s, the Italian bourgeoisie was accused of various faults:

1. It failed to act both as a capitalistic and liberal class, preferring to own land. Before the 1880sand the emergence of the textile industry the members of this class despised industrial activity, shunning economic risk and investing only when the State stood as guarantor, a tendency reproduced by emigrants to the Italian colonies. Moreover, the bourgeoisie was corrupt and cronyism was rife.

2. The Italian bourgeoisie had another problem: *campanilismo,* parochialism. The middle class was divided not only by sector but also by region. There was distrust between geographical areas, an aspect that also characterized the Italian colonial venture. The consequence of this weakness and division was *trasformismo*, as mentioned above

Other visions have emerged about the 1880s in recent work, including by Alberto Maria Banti, author of a book on the Italian bourgeoisie.[29]

1. Bourgeois landownership and capital innovation were by no means mutually exclusive. some landowners experimented with new farming techniques for example in the Emilian province of Piacenza, where they responded in typically capitalist fashion to the agricultural crisis of the 1880s. They organized themselves into local and regional associations to face labour unrest. Owning land provided prestige but was also supposed to be profitable. Furthermore, other European bourgeoisies gave great importance to land ownership.[30]

    The fear of upheavals linked to industrialization was partly justified by events in France and Great Britain in the decades before.[31]

    It was not true that Italian industrialization prospered only under the State umbrella: some entrepreneurs created organizations to fight the power of protectionist lobbies.

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[27] This peculiarity was described by Giuseppe Tomasi di Lampedusa in his masterpiece *Il Gattopardo*, where the new mayor of the Sicilian town Donnafugata, a rich exponent of the bourgeoisie, wants his daughter to marry into the aristocracy.

[28] Carter, N. (2011), *Rethinking the Italian Liberal State*, in *Bullettin of Italian Politics*, Vol.3, No.2, 2011, p.230.

[29] Banti, A.M. (1996), *Storia della borghesia italiana: l'età liberale (1861-1922)*.

[30] One example was Great Britain, where the wealthiest members of the middle class purchased rural estates or the German Empire, where the landed aristocracy of Junkers contributed to the industrialization of the country.

[31] The best example was the experience of The Commune in Paris during the Franco-Prussian War in 1870-1871.

2. Studies by Banti confirm the parochialism of the bourgeoisie. However, regional and inter-regional associations were rare. Recent studies have found divisions between and even within bourgeois professions: social, political and territorial aspects were crucial. These differences were true also in Pre-Unification Italy and influenced development in Italy for many years. Parochialism, partly the result of rudimentary infrastructure, was not restricted to the bourgeoisie but typified all classes. In the final years of the nineteenth century, the bourgeoisie (with the exception of the upper middle class) started to think of itself as a new class, different from the aristocracy and the working class. In the Age of Giolitti, it began to self-identify, primarily culturally (for example displaying patriotism from literature to the arts), but also economically, as a new category not only at the regional level but nationally as well.

It was Italy itself, not only the bourgeoisie, that was divided into *municipalities*: and the sum of the parts was more or less than the whole according to which region you lived in.

1.3.2 The Italian economy in the Liberal Era

"From national unification to nowadays, Italy has always had a very delicate national economy, organically speaking. Its economy depends to the maximum degree on the outside world, and it is exposed, more than any other country, to the highs and lows of international situations […]"[32]

With these words, Felice Guarneri, one of the most important economists of the first half of the twentieth century, and Minister between 1937 and 1939, described the Italian dilemma.

At the London Conference in 1867, Italy was formally considered the sixth Great Power of Europe. However, politically the Peninsula was a satellite country of France, while, economically, it was far behind advanced European countries: with little heavy industry, a rudimentary infrastructure network and marginal consumption of textile goods.

Marxist and anti-liberal historians attribute the weakness of the Italian economy to the lack of a bourgeois revolution. In their opinion, the most critical problem was the lack of an agricultural revolution and the absence of robust domestic demand, endlessly delaying the industrial revolution

For Gerschenkron too, the Italian Liberal State was guilty of stalling economic growth. This was caused, in his opinion, by a poor rail network and a faulty customs policy which aided the least deserving branches of industry.[33] Moreover, the tariff on grain introduced in 1887 was detrimental to industrial plant.

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[32] Webster, R. A. (1974), *L'imperialismo industriale italiano 1908-1915*, p.103.

[33] Discussions of the tariff policy were hosted by some journals as early as the second half of the nineteenth century. Of particular interest is an article by Bonaldo Stringher in the *Giornale degli economisti,* describing not only the Italian tariff policy in the thirty-year period before his article, but also those of other countries.
The problem of Italian railways was faced in the Liberal Era, as noted by an article by Camillo Corsanego in *Rivista Internazionale di Scienze Sociali e Discipline Ausiliarie*, where he records the economic difficulties of the Italian railway industry.

In many historians' opinion, the industrial sector was forced to accept this tariff, imposed by landowners, in exchange for protectionism against certain industrial products. Gerschenkron attributes the take-off of the Italian economy to German investment banks, but the Parliamentary conflicts in the 1890s and the conciliatory policy of Giolitti limited more impetuous growth.

Some liberal economic historians such as Romeo have a different opinion: they believed that the presence of small peasant landowners would have blocked the development of capitalism in the countryside. In Romeo's view, the agricultural development in the '60s and '70s, fostered by a liberal tariff policy, paved the way for the subsequent infrastructure development and, much later, industrial take-off at the end of the century. Romeo acknowledged that this industrialization occurred partly through the sacrifice of the South and a tariff policy that was more suited to Northern capitalistic interests.

However, more recent studies, to which some economic historians like Fenoaltea and Federico contributed, have shown that Italian industrialization was a long-term and gradual process starting in the first half of the nineteenth century. From 1861 to the eve of WWI, the Italian economy underwent relatively steady growth, with some peaks from the late '70s to late '80s, followed by a decade of stagnation. Fenoaltea and Federico exposed the myth of an agricultural crisis in the '80s. Gross agricultural production increased and the fall in grain prices was caused by the improved economic conditions of most of the Italian population.

There are also different views about the impact of protectionist policy and the grain tariff of 1887. In Fenoaltea's opinion, this had important adverse effects on the development of the country, while others, including Federico, think its impact was only marginally negative. Vera Zamagni has a completely different view, considering the grain tariff positive because it encouraged innovation.

Economic historians agree about the relationship between the growth of the economy and the growth of the State in the late '90s and during the Age of Giolitti.

The economy and policy, however, were always connected in Italian society. Both landowners and industrial entrepreneurs tried to influence the decisions of governments, and this sometimes had damaging effects on the development of the country. It indicates the strength of political interests and a certain degree of servility by governors to the economic forces represented in Parliament.

To sum up, in her recent study of Italian liberalism Susan Ashley writes:

"The liberals dealt with significant challenges to their principles and to their power before the war, and they met them in large part successfully. They kept Italy united; they upheld rights, although not always and not for everyone equally; they stretched the state to promote economic growth and to provide a modicum of protection to workers. In the process, they admitted the weight of

circumstances, adapted their principles and adjusted to the difficulties of parliamentary rule. The English and the French, those systems commonly credited with success in this period [1860-1914], did no more."[34]

As we have seen, the vision of Italian economic growth in the Liberal Era was often tarnished by accusations of corruption, parochialism and rivalries, the limited franchise and political repression. The Liberal political class, which albeit with some limitations, faced the challenges of the second half of the nineteenth century, was unable to make the most of a loyal population loyal affectionate towards the Liberal establishment.

1.4 THE ITALIAN RACE FOR AFRICA

1.4.1 The Age of Imperialism and the Scramble for Africa

The period between the final years of the nineteenth century and the first years of twentieth can be considered the *Age of Imperialism.* Although other countries appeared on the international scene (the United States with the Monroe Doctrine and Japan after the Meiji Restoration),[35] Europe was the centre of the world, politically, economically and culturally. Between 1860 and the eve of WWI, most of Africa and Asia were controlled by European countries, in particular, France and Great Britain.

The dominion over Africa was sanctioned by the Berlin Conference in 1884, promoted by the German Chancellor Otto von Bismarck. The Conference was the peak of the so-called Concert of Europe or Concert of Powers.[36] In the following thirty years, with the exception of Ethiopia and tiny Liberia the remaining free African countries were conquered by Old World countries (*figure 1.1*).

The British Empire controlled a vast territory from Egypt to South Africa, except for German East Africa, as well as colonies in West Africa, such as Nigeria. The French Empire owned vast lands in West Africa and Equatorial Africa. Belgium controlled the massive Congo. The German, Portuguese, Spanish and Italian Empires were much smaller and this played an important role in the Great War. The German colonies (Camerun, German South west Africa, German East Africa) were far apart and more recent than the French and British possessions, providing few advantages to Italy in the conflict, both in terms of soldiers and materials.

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[34] Ashley, S. A. (2003). *Making Liberalism Work, The Italian experience, 1860-1914*, cited in Carter, N. (2011). *Rethinking the Italian Liberal State*, in *Bullettin of Italian Politics*, Vol.3, No.2, 2011, p.239.
[35] The Monroe Doctrine was affirmed by President James Monroe on 2 December 1823. The Meiji Restoration was initiated by Emperor Mutsuhito in 1867.
[36] The Berlin Conference was one of the most Bismarck's important successes. There were fourteen Countries which participated: Germany, France, Great Britain, Russia, Netherlands, Sweden, Italy, Austria, United States, Spain, Portugal, Denmark, Ottoman Empire, Belgium.

Despite the Berlin Conference, the *Scramble for Africa*, as this race to acquire the best resources in the Continent was called, was often a continuous conflict between European countries, with some high-intensity crises (Fashoda, Morocco). However, when the First World War finally exploded, it was not in the colonies but at the heart of the Old World.
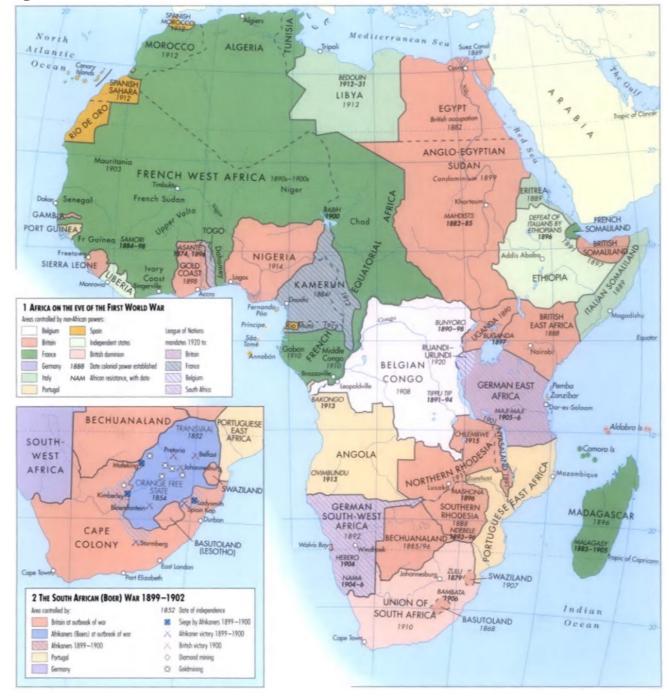
Figure 1.1- AFRICA ON THE EVE OF THE FIRST WORLD WAR

Figure 1.1: **AFRICA ON THE EVE OF THE FIRST WORLD WAR**
 Source: O'Brien, P. (Ed.). (2005), *Philip's Atlas of World History*, Philip, 2. ed. - London.

1.4.2 The Building of an Empire?

Italy was a latecomer to the *Scramble for Africa*. Like the German Empire, Italian unification became a reality only between 1859 and 1870, with the conquest of Rome. The country was not ready to undertake expansion in Africa. As we shall see, this translated into a lack of preparation both in the acquisition of territories and in their management.

1.4.2.1 Eritrea: the first colony

The Italian venture in Africa started in September 1869 when the private Genoese shipping company Rubattino purchased the fuelling and commercial station of Assab from the local sultans. In the second half of the nineteenth century, the Eastern Horn of Africa was a ragbag of indigenous dominions: sultans, lords, protectorates of Zanzibar and, one large Kingdom which from 1870 to about 1900 threatened Italian ambitions: Ethiopia.

The Assab Bay was a promising commercial area: it could be a useful bridgehead not only to the Ethiopian plateau but also to the Arabic Peninsula and for trade along the Suez Canal. The administration by Rubattino, however, was not so profitable and at the end of the '70s faced economic difficulties: in 1882, to avoid the bankruptcy of Rubattino, the Italian government decided to take over the concession and administer Assab directly. 1882 is considered the official birth of Italian colonialism.

Despite the doubts of public opinion and politicians,[37] three years after the escheat of the Assab domain, Italian troops, under the supervision of the British Empire, attacked and conquered the other principal commercial port in Eritrea, Massawa. The assistance of the British might seem strange but was in line with the interests of His Majesty's Government. Only the year before, in 1884, General Gordon was defeated by Mahdi rebels in Khartoum. London understood the difficulties of controlling a hostile territory between Sudan and Somaliland, partly because the relationship with the Ethiopian Kingdom was not good. Moreover, the threat of French or German control over the Horn of Africa contributed to the decision to diplomatically and practically help the weak Kingdom of Italy to annex strategic Massawa.[38] The Italian contribution to the suppression of the Mahdi revolt, however, was minimal. London did not want interference in its management of the crisis and only in 1898 was the Mahdi wiped out.

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[37] See in particular: *Camera dei deputati, Atti parlamentari, 1°tornata del 28 gennaio 1885*. The member of Parliament Parenzo expressed more than one doubt about the cost of Italian colonial politics.
[38] Colonel Tancredi Saletta and his troops were transported by a British ship to Massawa. The commander of the vessel then negotiated the surrender of the town with local Egyptian notables.

Italian goals in the area soon impacted on the politics of the Kingdom of Ethiopia, governed by Yohannes IV. In January 1887, an Italian expeditionary force was overcome in Dogali by Abyssinian troops in a prelude to the subsequent, more crushing, defeat suffered at Adwa nine years later.

Figure 1.2- ERITREA COLONY

Figure 1.2: **ERITREA COLONY**
Source: Baratta, M. and Visintin, L. (1928), *Atlante delle colonie italiane: con notizie geografiche ed economiche*, De Agostini, Novara.

When Francesco Crispi was appointed Prime Minister, colonial policy became more aggressive. Crispi thought of imperialism as one more important means for Italy to be accepted into the circle of Great Powers. The low-intensity conflict with Ethiopia, which had led to the conquest of Asmara, was formally ended in May 1889, with the Treaty of Wuchale, signed by Italian explorer Pietro Antonelli and the *negus in pectore* Menelik. The Treaty of Wuchale was a typical example of a misunderstanding. While the Ethiopian Emperor considered it only a declaration of friendship, Crispi

and other Italian politicians thought it was the formal acceptance of an Italian protectorate. Seven years later, these different visions became clear and led to a war in which all the limits of Italian colonial expansion became clear.

However, the Treaty was greeted as a success in Italy and on January 1, 1890 the Colony of Eritrea was proclaimed.

The period between 1890 and 1896 was characterized by uncertainty, reflecting internal political problems. Crispi was replaced by Rudinì, who was very skeptical about the Italian colonial adventure and then by Giovanni Giolitti, who maintained a position of ambiguity. Finally, the Bank of Rome scandal brought everything full circle with the return to power of Crispi. After 1890, the governance of Eritrea was entrusted to a civilian, but this did not quash the ambitions of generals in Eritrea, particularly Oreste Baratieri.

With the endorsement of the governor and Crispi, the latter started military operations against Ethiopia in 1895 with the precise intention of returning Addis Ababa to the Italian sphere of influence. In the months before the Battle of Adwa, Italian commanders underestimated the power of the Ethiopian Kingdom.[39] On 1 March 1896, the Italian army suffered the heaviest defeat of any European country in the *Scramble for Africa*.

There were immediate consequences. Crispi resigned and Rudinì returned as Prime Minister. Baratieri ended up in a military court in Asmara. On 26 October 1896, a peace treaty was signed in Addis Ababa with Menelik.

After the shame of Adwa, there was a decisive crackdown on the government of Eritrea. With Ferdinando Martini, governor from 1897 to 1907, military personnel were definitively replaced by civilians. Under his guidance, a sort of "paternalist leadership", relationships with Ethiopia were normalized with Italy wanting only to reinforce its position in Eritrea. Under his governance, Asmara, the new capital of the colony, hosted the Italian Colonial Congress (24 September-14 October 1905). After Martini, in 1907, Giuseppe Salvago Raggi became governor. His policy was more enterprising than under Martini with infrastructure investments. He opposed "white" speculators and promoted the commercial exchange between the colony and Italy, with excellent results: both imports and exports grew under his administration. He also reorganized troops and developed schools. His project to renew the challenge against Ethiopia was never implemented.

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[39] General Da Bormida pronounced a famous phrase: "Ai butoma quatr'granate e l'è faita" (Chuck a few grenades and that's that).

1.4.2.2 Somaliland: a difficult administration

The attraction exerted by Somaliland on the European imagination began in 1875 when a group of Egyptian soldiers arrived in this territory, also known as Punt, or Ofir, or Benadir, the romantic "land of aromas". Explorers and governments began to take an interest in Somaliland. But the actual situation was not so idyllic. Somali populations were mostly nomad shepherds with some groups of farmers. Resources were scarce.

Figure 1.3- SOMALILAND

Figure 1.3: **SOMALILAND**
Source: Baratta, M. and Visintin, L. (1928), *Atlante delle colonie italiane: con notizie geografiche ed economiche*, De Agostini, Novara.
N.B.: Jubaland was acquired in 1925.

While local sultans governed the north-east of Somaliland (Obbia and Migiurtini), Benadir was administrated by Zanzibar.

Early on, Obbia and Migurtini were proclaimed protectorates by Italy following two agreements with the sultans (although the domains were more symbolic than real) in 1889.

The question of Benadir was more complex. Vincenzo Filonardi, the founder of the Company that bore his name, was the real figure behind the acquisition of the colony, with the blessing, again, of Great Britain and the Bank of Rome. After a contract signed by Italy and Zanzibar in August 1892, Filonardi became the first Italian administrator of Benadir.

Benadir was not what it was cracked up to be. The difficulty of exploiting the territory became clear very quickly and settlement by Italians was impossible because its sands were infertile.

The model adopted in Somaliland was that of a *chartered company*. The Filonardi Company administrated Benadir, Obbia and Migurtini, subsidized by the Italian State. It paid rent to Zanzibar and the two previous sultans and wages to the military and civilian establishment.

The Filonardi administration was simply a disaster. No investments, no development.

In 1896, the Company was removed, and in 1899 the control of the colony was entrusted to another corporation, *The Anonymous Italian Trading Company of Benadir,* the direct emanation of textile industry interests and some Lombard capitalists, such as Giorgio Mylius, whose financial contribution, however, was limited. In the intervening three years, the Italian State administered Somaliland.

The new company had not better luck. In a few years, it was overwhelmed by economic crisis and scandals: the worst concerning the accusation of slavery, later confirmed by an investigation.[40] The company was unable to entirely pacify Somaliland, where many groups (landowners, Arab merchants, Islamic clergy) opposed the conquerors. In 1904 a revolt by Bimal populations took place, mainly with religious causes. In 1905, a commissariat was created in Northern Italian Somaliland (Obbia and Migurtini), [41]partly due to the acquisition of further territories. The will to reproduce these results in Southern Italian Somaliland, governed by an inefficient Trading Company in Benadir, led to the decision to liquidate the company. In March 1905, Luigi Mercatelli became the first governor of the new Italian Somaliland colony, the union of Northern and Southern Italian Somaliland. He sought to implement indirect rule without unduly unsettling the traditional Somali order. He stamped

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[40] In February 1904, in the journal "La Folla", an article denounced the bad administration of the Benadir Company using particularly colourful epithets.
Goglia, L. and Grassi, F. (1993), *Il colonialismo italiano da Adua all'Impero*, pp.111-113.
[41] Until then, the territories were administrated by the Italian consulates in Zanzibar and Aden.

out slavery. Because of this reformist policy, Mercatelli was unpopular both with local notables and with the Italian military.

However, the reorganization of the colony attracted other businesspeople, particularly textile entrepreneurs and shipowners, to the opportunities offered by Somaliland. To make the settlement attractive, they exerted pressure on the military to extend control internally. The aim was to defeat the rebels and take over new arable lands. The project, which began in 1908 with the conquest of Mogadishu and was then pursued by Giacomo De Martino in 1910, could be called *capitalist colonialism*. Despite some results, such as the strengthening of infrastructure, a health system and a better relationship with indigenous leaders, Somaliland remained for a long time a hostile territory, under only partial control.

1.4.2.3 Libya: the challenge to an Empire

The attack and conquest of Libya from the Ottoman Empire astonished public opinion and politicians alike. Giovanni Giolitti was not an active promoter of colonial expansion, although Tripolitania and Cyrenaica had been central to Italian diplomacy for at least thirty years.

Giolitti faced a problematic internal political situation. Nationalists, with a strong grip on the population, accused him and the ruling class of reneging on the country's honor and national interest. A military response was seen as useful for the Piedmont Prime Minister to enforce his leadership.

The diplomatic situation was rather delicate in 1911. The Ottoman Empire, the Sick Man of the region, was traversed by the winds of war, especially in the Balkan area, where, in recent decades Romania, Bulgaria and Serbia had gained independence.

For Italian politicians, Libya was an essential piece in the jigsaw puzzle because it was a vast land between French Tunisia and British Egypt and could be a useful naval base in the Mediterranean. Italy was one of three members of Triple Alliance, and, potentially, Great Britain and France were enemies (despite the helping hand provided by Great Britain in the conquest of Eritrea).[42] In 1911, with the exception of Libya, the southern coast of the Mediterranean Sea was entirely in the hands of these Empires. So it became a key pawn in the international chess game.

In July 1911, the second Moroccan crisis between France and Germany led the Italian government to speed up operations in Northern Africa. On 29 September war was declared on Turkey.

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[42] The Triple Alliance was signed by Italy, Austria-Hungary, and the German Empire in 1882. The Kingdom of Italy was led to this decision after the French occupation of Tunisia in 1881.

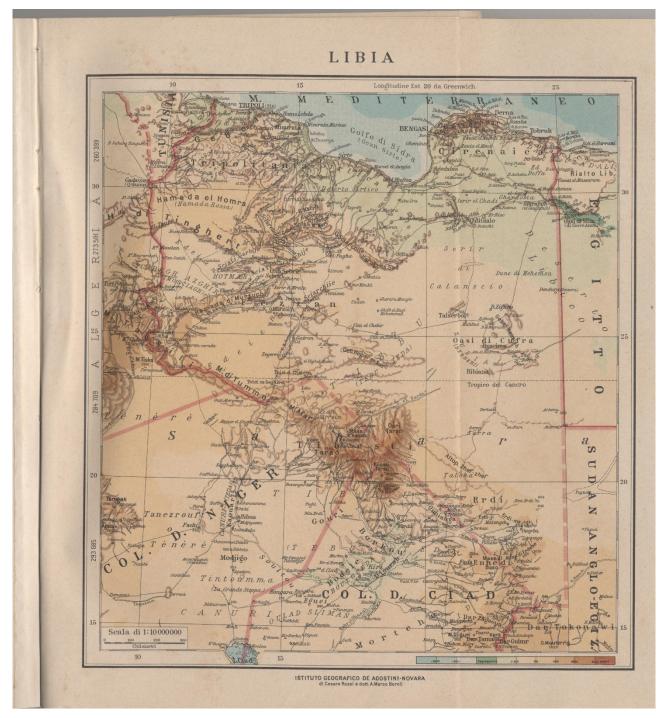**Figure 1.4**- LIBYA COLONY

Figure 1.4: **LIBYA COLONY**
Source: Baratta, M. and Visintin, L. (1928), *Atlante delle colonie italiane: con notizie geografiche ed economiche*, De Agostini, Novara.

As in Adwa fifteen years before, Italian leaders underestimated the conflict: Libya was not divided into many tribes like Eritrea and Somaliland, but was essentially united under the Islam flag. So, the

resistance to Italian occupation was much stronger than expected. Italians were not allowed to portray themselves as liberators. The war was harsh and violent, conducted conventionally as in Ethiopia or against a group of disorganized shepherds as in Somaliland, but against a fighting force, albeit comprising irregular troops.

The conflict against the Ottoman Empire ended only in October 1912, with the Ouchy Treaty. Libya was far from pacified. In following years, Italian control was restricted to the coast and central cities, while the resistance continued unabated.

Only after the Great War did the scenario change as we shall see below.

1.4.3   Italian colonial economic policy until WWI

As we have seen, the reasons for the imperial adventure were more closely associated with the Politics of Power at the end of the nineteenth century than with demographic colonialism.

Italian Imperialism was essentially a diplomatic and political phenomenon but inevitably with an economic dimension, as emerged after peacemaking in the conquered territories. Capital followed the flag only after that the State had pledged economic support, a modest contribution compared to British capitalism or French investments, but necessary all the same. Large financial groups evidently found no reason to take part directly in the *Scramble*. The failure of the *Italian Society for Eastern Africa*, promoted by Crispi, was evidence of this.[43]

Credit institutes preferred to form syndicates for additional strength and initiative. In 1905, they tried and failed to acquire control of the new Bank of Abyssinia, established by Great Britain.

Italian banks were afraid of losing profits from the imperial venture but, at the same time, like other sectors of the Italian economy, they were reluctant to take on risks by direct participation in the venture. The only exception was the Bank of Rome, whose director was related to the Foreign Minister of the Giolitti Government, which had broadened its horizons in the Mediterranean even before the Libyan War.[44] Other credit institutes like the Bank of Sicily and Bank of Naples got involved later. The Bank of Italy began operations in Libya in 1913, in Eritrea in 1914 and in Somaliland even later.

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[43] Indicative of this politicty was the communique of the Milan Chamber of Commerce on 7 March 1896, in the magazine "Il Secolo". A few days after the Adwa defeat: it asked the government to adopt a pacific colonial policy useful for trade and not war.
Goglia L., and Grassi F. (1993), *Il colonialismo italiano da Adua all'Impero*, cit. work, p.66.
[44] On the eve of Libyan War, the Bank of Rome had already opened some branches in Alessandria, Addis Ababa, Tangier and Tripoli. Especially in Libya, the presence of the Roman credit institute worried the Ottoman authorities who were afraid of possible interference in the economy, while the Arab population was favourable to the presence of Italians. Peaceful economic penetration in Tripoli failed lrgely due to friction with the Turkish government.

The toughest limits to Italian economic participation in colonial initiatives came from the continuing rivalry of business with, and distrust of, the political class. Especially during the Liberal Era, personalities and parochialism prevailed over common interests.

An important point concerns the size and distance of the Italian overseas territories. Small compared to the others, the first colonies were not directly connected with Italy and were divided by foreign dominions. This was a limitation in the management of the colonies, making them more sensitive to international dynamics without providing the concrete ability to control them. This was partially mitigated by the weak integration of Italian colonies in world markets.

From the point of view of the colonized, the most significant economic changes were in the cities and centers of power. There, the old ruling class, as well as traders and merchants, had to decide whether to fight or collaborate with the conquerors. Those who chose allegiance to the Italians had some advantages and the others became enemies. However, most of the indigent local population (shepherds in Somalia, farmers in Eritrea) were barely affected by the first phase of colonization.

In relation to this, one myth needs to be dismantled. Italian rule did not take the colonies from prehistoric life to modernity. Most of the trading routes already existed. Assab, Massawa, Tripoli and Bengasi were part of international trade before Italian domination. The new colonizers only changed the direction of these routes.

In conclusion, as Labanca affirms [45], the Italian colonial economy was often influenced by "peripheral" factors such as the events - some casual and unpredictable - that took place in the colonies. We should speak about *many* economies more than *one* economy, which makes it difficult to find a single economic colonial history. Italy never completely controlled all the trade in the colonies, which remained a mirage. It could be defined a dual colonial economy: one "traditional" and pre-existing the arrival of Italy (and generally all European colonizers), and a second "modern" economy, imported by the conquerors.
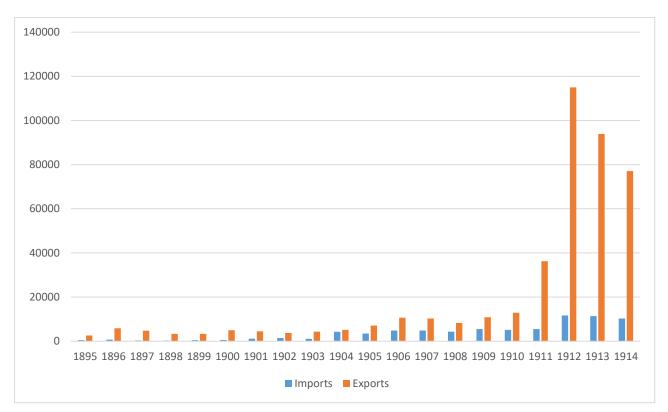
For a long time, it was believed that Italy exported a new colonial model. Colonizers adopted nearly all the models previously applied by other European countries but without significant results. The initial demographic and commercial colonization was followed by a period in which Italy tried to export a modern plantation system.[46], an indication of Italian colonial weakness due to environmental difficulties and inexperience.

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[45] Labanca, N. (2002), *Oltremare* p.271.
[46] French and English colonies led to white settlements (South Africa had a nascent industry), the Dutch colonies were more focused on crops, while Portugal, from the outset of its colonial adventure, created and controlledtrade routes and ports.
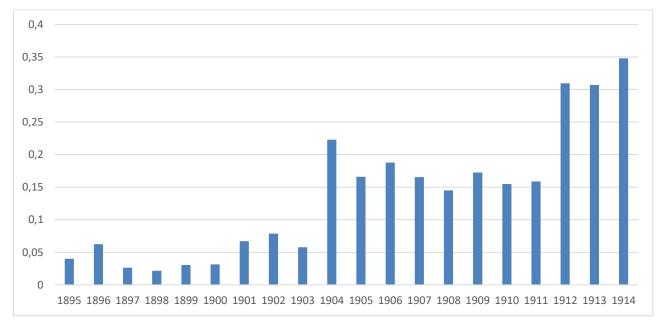
Italian imperialism cost a great deal, probably more than the advantages it brought. Mineral resources were not available in sufficient quantities to drive the development of manufacturing. For a long period, colonizers believed in the presence of gold deposits in Eritrea. They were never found. Seafood products were not enough (except in Libya) to enable the frozen food industry to flourish. Breeding was not very profitable and was left to the indigenous population. So, Italians sought earnings principally from taxes on trading and by redirecting the trade routes to Italy. This attempt was largely unfruitful. More than other European countries, Italy encountered many difficulties in controlling traditional trade: to Aden, India and the Arabic Peninsula from Eritrea and Somaliland; to Sudan, Egypt and Great Britain from Libya. The cause was related to the inability (and maybe incompetence) of Italian governors and the will of the new "masters" to maintain good relations with the previous indigenous ruling class. The products traded were mostly traditional and only after an initial period were colonial crops planted, generally with poor results. As we shall see, very few strategic products - neither materials nor crops - were imported from the colonies. So, Italy was unable to free itself of dependence on imports from other countries. Some colonial products helped Italian industry but they were unable to bring about the sought-after self-sufficiency. The Italian colonial Empire was also unable to consume goods produced in Italy. The agricultural and industrial sectors considered overseas market as secondary. Despite this, exports to the colonies did take place, albeit mainly directed to the "white" market and the needs of the colonizers, and these outweighed the imports from the colonies, a trade imbalance that was unique to Italian colonialism.

Graphs *1.1* to *1.3* show trade with the colonies which was marginal during the Liberal Era until the eve of WWI.

Graph 1.1: **ITALIAN IMPORTS AND EXPORTS FROM AND TO THE COLONIES (1895-1914)**
Source: Federico, G., Natoli, S., Tattara, G. and Vasta, M. (2011), *Il Commercio Estero Italiano 1862 - 1950*, in *Collana Storica della Banca d'Italia*, Serie "Statistiche Storiche", Vol. no. 4
N.B.: Data are in thousands of current Lire.

Graph 1.2: **PERCENTAGE OF IMPORTS OF ITALY FROM COLONIES (1895-1914)**
Source: Federico, G., Natoli, S., Tattara, G. and Vasta, M. (2011), *Il Commercio Estero Italiano 1862 - 1950*, in *Collana Storica della Banca d'Italia*, Serie "Statistiche Storiche", Vol. no. 4
N.B: Data are in thousands of current Lire.

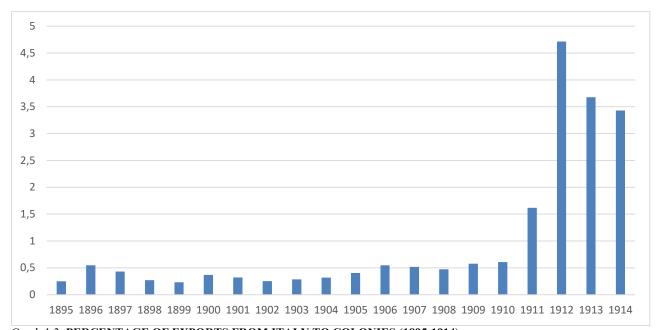Graph 1.3: **PERCENTAGE OF EXPORTS FROM ITALY TO COLONIES (1895-1914)**
Source: Federico, G., Natoli, S., Tattara, G. and Vasta, M. (2011), *Il Commercio Estero Italiano 1862 - 1950*, in *Collana Storica della Banca d'Italia*, Serie "Statistiche Storiche", Vol. no. 4
N.B: Data are in thousands of current Lire.

The percentage of exports from Italy to the colonies outstripped imports after the Libyan War but continued to be less than 5% of total exports before the WWI. Imports were only 0.35% of the total for Italian imports. *Graph 1.1* clearly shows the trade imbalance with exports to the colonies far outweighing imports from the colonies.

We now turn to the interests of Italian entrepreneurs back home. Based on disaggregated data, some sectors enriched themselves and exploited colonial resources for their activities, in particular, the textile sector and leather processing industry.

In particular, two Italian companies in the initial period made money in the colonies: *Navigazione Generale Italiana* and *Pirelli*. The former was active during military expeditions with the transport of troops and materials and the latter obtained a contract to lay underwater telegraph cables connecting Massawa, Assab and the island of Perim.

However, the Italian Empire and its resources were never as important as British and French territories to the development of national industries. Overall, their contribution is hard to assess.

With the exception of Somaliland, the colonies were acquired by military campaigns, The expenditure required to conquer and then pacify new lands were extremely high. The opposition to Crispi claimed about 1 billion Lire was spent for Eritrea and 1,2 billion for Libya. These figures are impressive for a colonial venture. Other European countries spent less and the costs were spread over a longer time. A second key consequence of the military conquest was purely political. The local population saw Italians as invaders and their attitude to the colonizers was often hostile.

The Adwa campaign cost 2.7% of total public expenditure while the Libyan military expedition cost 5% of allocations between 1911 and 1917. These figures, added to the expenditure for administrative purposes, are significant compared to earnings from colonial conquest. The revenues in the colonial balance sheets were rarely more than one-half of the costs and generally were one-third, so it was the State that contributed most to the upkeep of the colonies.

To measure colonial profits, Labanca suggests comparing the colonial trade (imports plus exports) with the balance sheet for the colonies.[47] This shows that in few financial years total trade exceeded expenses. The colonial burden on the State balance sheet was considerable, especially when compared with revenues.

Italian economic policy in the colonies was often contradictory. Like other countries, Italy invested in infrastructure, roads and railways, especially in the Horn of Africa. But unlike other Powers, when enterprises became too costly, Italy abandoned them. So, the Italian Empire did not create a broad network of roads and railways, and this was a considerable disadvantage for colonial development.[48] The Italian weakness was evident in two other fields; the tax system (including customs policy) and monetary policy.

Concerning the former, Italy introduced soft taxation (different from colony to colony) as did many European countries. The taxation was not high enough to guarantee economic self-sufficiency in the Empire, reducing the options for the State.

Customs policy was another failure. It was too high to encourage colonies to export their products to Italy and too low to protect Italian products from foreign competition. Like taxation, customs policy differed in each territory.

Monetary policy was characterized by uncertainty. Italian administrators did not initially introduce a new currency. In 1890, they replaced the Maria Teresa silver thaler with an Eritrean thaler: a measure which turned out to be another failure. The population continued to use the old money. In Somaliland the problem was even worse. Between 1908 and 1910, when control of the colony had been taken over by the State after the failure of the Benadir Company, a silver Italian rupee was introduced instead of the previous Indian rupee. As in Eritrea, the new currency was not used by the population and the Indian rupee fell foul of oscillations in the value of sterling.

1.4.3.1 *Territories and local economies- Eritrea*

Italian colonies were very diversified. Libya was different from the Horn of Africa, which and Eritrea was not Somaliland. Apt from oil in Libya, none of the territories had natural resources.

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[47] Labanca, N. (2003), *Oltremare*, cit. work, p.289.
[48] For example, the railway which connected Massawa to Asmara was completed only in 1911.

With a surface area of 119,000 square kilometers,[49] the geography of Eritrea can be divided into three areas: a hot Eastern coastal lowland with the port of Massawa, the southern Assab; a plateau, with Asmara, and finally the Western lowland. Only the plateau was fertile without excessive outgoings, featuring cereals, traditional animal husbandry and a few crops such as palm dum and agave plants. Later, after considerable investment, the Eastern lowland was farmed for cotton and coffee, which were more profitable. Other traditional products included sea salt, mother-of-pearl and butter. Hides (beef, sheep, goats) were also produced.

Eritrean trade grew especially in the fifteen years after Adwa. As seen above, the values were insignificant compared to total Italian trade. The customs procedure was intended to promote national products while foreign goods were subject to a minimum tariff *ad valorem* of 5%. Eritrean merchandise imported in Italy received no favored treatment, partly due to a conflict between large cereal farmers in ItalyItaly and colonial producers, who also produced cereals. In the final years of the nineteenth century, increasingly cotton fabrics were imported from Italy but Eritrea never became a significant market for Italian products.

Initially, it was the intention to transform Eritrea into a commercial colony. The idea of the agricultural colonization of the plateau grew only after experimentation and moves by various other Powers. The Italian authorities started to extend state-owned land and the expropriation of the land had a disruptive effect on traditional Eritrean society which was based on land ownership by high-ranking families. Very few Italian settlers became farmers; most remained in on the coast, working as merchants, public officers or carrying out menial work. Italian administrators rented the lands to the indigenous population in order to secure a continuous source of income. This policy ended with Ferdinando Martini in 1897. He curbed the state-ownership of land and in 1904 initiated an agricultural colonization project, especially in the lowland. The aim was to create extensive cotton crops. In the same year, in Milan, the *Company for the cultivation of cotton in Eritrea* was founded, with an initial share capital of 600,000 Lire. Again, it was not a success. Climatic conditions, poor soil quality and the lack of capital and advanced farming techniques led to failure. One way to solve the problem would have been a modern irrigation system, but the Italian State did not intend to accept any further costs. In 1913, total production was no more than 1,200,000 kilos gross.[50]

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[49] Baratta, M., Visentin, L. (1928), *Atlante delle colonie italiane*, p.17.
[50] Difficulties linked to agricultural development in the Colony are described in detail by Martini in his report for the years 1902-1907. In particular, he analyzes the problems encountered by the *Company for the cultivation of cotton* including cotton quality, water and the climate.
Goglia, L. and Grassi, F. (1993), *Il colonialismo italiano da Adua all'Impero*, cit. work, pp.123-129.

In 1909, the farmland was reorganized. Most of the land in the plateau, where Italians had tried to import crops like coffee, vegetables and fruit were cultivated by natives.

In addition to agriculture, the Italian administration tried to develop the mining sector. In particular, the colonizers hoped to find gold.

In June 1900, the *Eritrea Company for gold mines* was established with an initial share capital of two million golden Lira. It was a merger between an Anglo-Italian group and the *Italian Company for trade with the colonies*. The colonial government reserved for itself 5% of all mined and purified minerals.

The investments were insufficient and the mining techniques obsolete. After a few years, the Company was wound up, as was the *Italian Pearl Company*.

Concerning imports from Italy, Eritrea bought cotton fabrics and yarn, coffee, cereals, spirits, sugar, and rice. On the eve of WWI Eritrea became the fourth market for Italy's cotton industry, after Argentina, the Ottoman Empire and Egypt. Only after the initial decades did the colony start to import manufactured products, machines, and tools. There was a small amount of local manufacturing but the Ethiopian War and then WWII ended this process.

1.4.3.2 Somaliland

"The rivers are the beauty and the life of Somaliland: the beauty, for the picturesque appearance of the shores crowned with palm trees and majestic sycamores; the life; for the fertility of fields, which their waters make fertile […]."[51]

This is how Giacomo De Martino, governor of Italian Somaliland, described the colony he administered.

Somaliland, with a surface area of about 380,000 square kilometers (after acquiring Jubaland in the '20s, this increased to 490,000 square kilometers),[52] was less well-endowed than even Eritrea. Desert dunes divided the coastal area from inner fertile lands. After 1925, when Jubaland was acquired, the situation did not improve. There was always a problem of the water supply and labor force. Bananas and cotton were imported by Italians and grown with unacceptable methods, including forced labor and slavery. The results were poor because personal interests (especially under the administration of Filonardi and Benadir) prevailed over colonial interests. Even during government control, agriculture enjoyed few successes. The farming activities remained confined to the Southern part of Somaliland with limited production. Most of the Colony kept to the traditional economy, focused on breeding.

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[51] De Martino, G. (1913), *La Somalia Nostra*, p.19.
[52] Baratta, M. and Visentin, L. (1928), *Atlante delle colonie italiane*, p.28.

The Somaliland economy did not improve until the end of WWI and the percentage of Italian colonizers did not increase. The failure of the two chartered companies rendered management and development in the colony arduous.

Infrastructure remained poor: roads and railways were underdeveloped, and ports never became important.

Somaliland imported the same products as Eritrea including cotton yarn and fabrics as well as foodstuffs.

1.4.3.3 *Libya*

Libya was completely different from the other two colonies. The total surface area of the colony was about 1,850,000 square kilometers (970,000 in Tripolitania, 880,000 for Cyrenaica). During the Liberal Era, Italian control was limited to the cities and *gefara* (13,000 squares kilometers), the fertile plain along the coast. The colonial economy before WWI was based on trade routes such as caravan routes through the Sahara or maritime trade from the ports of Tripoli and Bengasi with a little agriculture and some breeding products. Tripolitania exported tuna and raw materials: wheat, tobacco, hides, henna, alpha, esparto, natural wool, and sponges.

There were some craftworks such as mats, clothes and rugs. Cyrenaica produced raw wool, hides, barley, salt and traditional butter, and exported live animals especially over the Egyptian border. The most plentiful and profitable Libyan resource, oil, was never properly exploited. In Italy the oil industry as in its infancy as described in a famous article by Einaudi, and often required the support of the State.[53]

After the conquest of the colony, the Italian government immediately gave land for crops to settlers who preferred to remain in towns near the coast, as in Eritrea and Somaliland, due to the dangers inland which persisted until after WWI. Few Italian farmers were inclined to hire the indigenous labor force. Imported goods from Italy were the same as in the other two colonies.
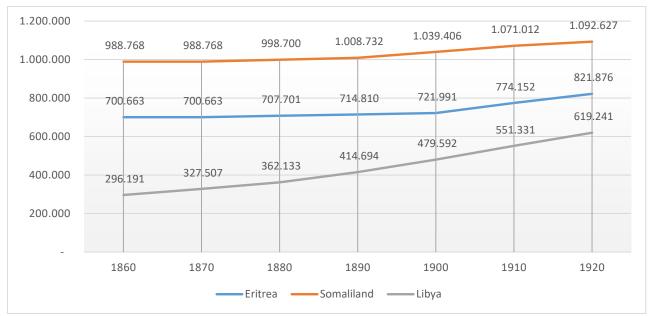
1.4.3.4 *The demographic weight of Italian colonies*

For a better understanding of the weight of Italian colonies in Liberal Era *graph 1.4* summarizes trends. Data are from an article by Frankema and Jerven, and revise work by Patrick Manning.[54]Although only an estimate, they suggest that in all three colonies there was a growing demographic trend between 1860 and 1920, but the total population was much lower than in other colonies (for example, in 1920 Tunisia had more than 2 million inhabitants). Despite a vast surface

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[53] Einaudi, L. (1911), *I trivellatori di Stato*, in *Monografie di soci e allievi del laboratorio di economia politica*.

[54] Manning, P. (2010), *African Population: Projections, 1851-1961*, in K.Ittmann, D. D. Cordell and G. H. Maddox (Eds.), *The Demographics of Empire. The Colonial Order and the Creation of Knowledge*, Athens, Ohio: Ohio University Press, 245-275.

area, Libya had a density of only 0.33 inhabitants/km^2. Somaliland had a population density of 2.88 inhabitants/km^2. The smallest of the three colonies, Eritrea, had a density of 6,9 inhabitants/km^2. Climatic conditions and the lack of arable land kept the population low.

Graph 1.4: **ITALIAN COLONIES DEMOGRAPHICAL TREND (1860-1920)**
Source: Frankema, E. and Jerven, M. (2014), "Writing History Backwards or Sideways: Towards a Consensus on African Population, 1850-2010", *Economic History Review*, Vol. 67 No. 4, pp. 907–931.

1.5 LIBYA BETWEEN 1918 AND WWII

In 1918 the situation in Tripolitania was extremely difficult for the Italian government. The First World War against the Austro-Hungarian Empire had absorbed military energy and removed troops from the Colony, which had previously kept order. Anti-Italian rebels, both in Tripolitania and Cyrenaica, grew in strength, forcing a change of policy in Rome. In November 1918, the Republic of Tripolitania was proclaimed by indigenous leaders, both Berbers and Arabs.[55] As a reaction, successive Italian prime ministers, Emanuele Orlando and Francesco Saverio Nitti, pursued the so-called *Statutes Policy*. After a meeting with Tripolitanian rebel leaders in April 1919, the Italian government promulgated a royal decree which guaranteed political freedom for the indigenous population, with citizenship (in the towns and the countryside) and an elective Parliament with a deputy every 20,000 inhabitants.[56]

In October, the government issued a similar decree for Cyrenaica, where the Brotherhood of the Sanusi controlled most of the territory.[57]

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[55] Cresti, F. and Cricco, M., *Storia della Libia...*, cit., pp.84,85.
Labanca, N., *Oltremare...*, cit., p.138.
[56] R.D. 931, 1st June 1919.
[57] R.D. 2401, 31st October 1919.

Founded in the mid-nineteenth century, this Islamic organization quickly became important.[58] The Turkish Empire and subsequently Italy were forced to work with the Grand Sanusi, who could rely on the loyalty of Cyrenaic tribes.

Meanwhile, in May 1919, with another Royal Decree, Libya was divided into Tripolitania and Cyrenaica, administered independently.[59]

The Policy of the Statutes, albeit remaining a substantially formal act, led to some results in Cyrenaica which had only one political interlocutor (the Sanusia). Al-Idris, leader of the Brotherhood, struck an accord with the Italian government and Cyrenaica was divided into two spheres of influence,one ruled by Italy, the other by Sanusia, with the undertaking to recognize and respect Italian domains.

In Tripolitania, there were rivalries between Arabs and Berbers and tensions were soon felt in the Republic following the familiar policy of "divide et impera" implemented by Italian governors In 1921, the political situation collapsed. War between the two sides broke out and the Berbers were defeated despite efforts to seek the protection of Italy and the shelter they found in the areas controlled by Rome.

After this, the rebels' position became an uncompromising challenge to the new governor, Giuseppe Volpi, who arrived in Tripoli in July 1921. He started to repress the rebellion and shunned dialogue. In the following year, Italian troops gained the upper hand. Arab rebels in Tripolitania turned for help from Sanusia, offering Idris the title of emir of Tripolitania and Cyrenaica, the first step towards a Unified Libya. However, Idris understood this to be a hostile act against Italy and accepted the offer only in November 1922.

Why did the Policy of the Statutes fail in Tripolitania? Cresti and Cricco believe it was partly due to a change in the Italian government (in October 1922, Mussolini took over) and partly to the increasing radicalization of rebel demands. This was true in other Islamic countries as well, where proto-nationalist movements were on the rise.[60]

1.5.1 Pacification and repression

With the fascist government came a new era in Libya. While most of the population in Cyrenaica looked to Sanusia as a leader against the Italian invaders, in Tripolitania the opponents of the regime were divided and splinted among numerous tribes.

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[58]For the history of the Brotherhood see Evans-Pritchard, E.E. (1945), *The Sanusi of Cyrenaica*, in *Africa: Journal of the International African Institute*, Vol. 15, No. 2, pp. 61–79.

[59] R.D. 886, 17 May 1919. The first article says: "Tripolitania and Cyrenaica comprise two separate Governments, each with a civilian governor […]. The governor is appointed by Royal Decree after recommendation by the Minister of Colonies […]".

[60] Cresti, F. and Cricco, M., *Storia della Libia...*, cit., p.89. Nationalist movements rose up in Tunisia, Syria and Egypt. They were generally defeated by European troops. Only in Turkey Mustafa Kemal Ataturk successfully headed a revolution and declared a Republic.

When Luigi Federzoni became Minister of Colonies, repression was escalated.

In Tripolitania up to 1925, Giuseppe Volpi, followed by Emilio De Bono, fiercely attacked the rebels. Italian troops soon conquered Sirte and *gebel*. The local population had only one choice: to fight or surrender. Some groups sought to reach Fezzan but were defeated. Other *mujaheddins* escaped to Cyrenaica, joining the Sanusia. Meanwhile, in June 1927, a new law rescinded the political freedoms granted both in Tripolitania and Cyrenaica. In particular, the Parliaments were abolished, replaced by advisory bodies: the Governing Council and the General Chamber. [61] The last episode in the conquest of Tripolitania took place in 1929. The last rebels not to accept Italian rule withdrew to Algeria. There, they were disarmed by the French authorities. The pacification of Western Libya was completed in time to allow King Vittorio Emanuele III to visit in April 1928. The number of political prisoners in Tripolitanian jails between 1924 and 1928 fell from 541 to 364, a signal from the Italian government that it wanted, at least in appearance, to leave the repression of the previous eight years behind it.

In Cyrenaica, the repression was crueler and harsher. The Sanusia was supported by the local population. Unlike in Tripolitania, the resistance, led after Idris's escape in January 1923 by Omar al-Mukhtar, was compact and united. Between 1923 and 1925 all armed Sanusi camps in Jebel al-Akhdar were disbanded. Agedabia, the old capital of Sanusia, was occupied in April 1923. Despite this, the guerrillas were difficult to tame. From 1926, the Italian repression, led by General Rodolfo Graziani, became stronger.

After January 1929, when General Pietro Badoglio was appointed as sole governor of both Tripolitania and Cyrenaica, it became all-out war with Sanusia.[62]

Graziani and Badoglio decided to choke off supplies to the rebels. They did this in three ways. First, they set up a long barbed fence between Cyrenaica and Egypt, patrolled by armed columns. This was completed in 1931. Second, they requisitioned the enormous Sanusi wealth. Third, with terrible consequences. they forced the local populations to abandon their villages. They were taken to concentration camps. During the transport, many died as did a large percentage of the livestock. In the opinion of Rochat and Del Boca the deportees numbered over 100,000.[63]

Substantially, resistance in Cyrenaica ended in September 1931. Omar al-Mukhtar was captured by Italian troops helped by indigenous askaris and hanged after a ridiculous trial in a concentration camp, before the Cyrenaic population. On 24 January 1932, General Badoglio declared the rebellion quashed. In September 1933, the last concentration camps were closed. However, only on 1

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[61] Law n.1013, 26 June 1927, *Legge organica per l'amministrazione della Tripolitania e della Cirenaica*.
[62] R.D. n.99, 24 January 1929.
[63] Cresti, F. and Cricco, M., *Storia della Libia…*, cit., p.102.

September 1934, with the new governor of Tripolitania and Cyrenaica, Italo Balbo, was the State of Public Danger, (proclaimed in October 1930) revoked.[64]

In December 1934, Tripolitania and Cyrenaica were unified in a single Colony. Balbo became the first governor of Libya.[65]

From 1935 to 1940, Balbo tried to develop the territory 'pacified' by his predecessors. Indigenous Libyan troops were mobilized for the Ethiopian War, while in April 1937 the title of Ministry for Italian Africa was given to the former Ministry of the Colonies.[66] This was the sign that Mussolini and the Fascist Regime intended to called Italy's overseas territories an Empire and no longer a 'colony'. The new goal was to 'Italianize' the conquered territories.[67]

Some words should be dedicated to the figure of Italo Balbo, one of the most charismatic members of the fascist establishment and so important Mussolini himself feared his popularity. This was probably why he was appointed Governor of Libya, a prestigious but innocuous assignment. During the six years of his mandate, he sought to integrate the indigenous and Italian populations. He promoted some initiatives: public works such as the giant Litoranea Road inaugurated by Mussolini in 1937, and public buildings in the cities; cultural measures such as the opening of new schools, some Arab; he also promoted settlement with the so-called Twenty Thousand arriving from Italy in 1938, followed by the Ten Thousand in 1939.

He wanted to appear benevolent towards the Muslim population. Consequently, the Race Laws in Libya were applied more loosely than in Italy. He requested Italian citizenship for Libyans, but Mussolini granted only partial citizenship for the indigenous population that fought in Ethiopia. Balbo had more luck with his request to transform the four provinces (Tripoli, Misurata, Bengasi, Derna) of Northern Libya into Italian territory, a measure approved in January 1939.[68]

As Labanca says, the work of Balbo was more *costruens* after the Graziani period of *pars destruens*.[69] However, Balbo knew that the dark clouds of war were gathering and Libya would have an important role in the Mediterranean scenario. He aimed to increase his popularity as military chief more than that of governor and asked Mussolini for more men and vehicles, obtaining the first, not the second. The hardware provided was utterly insufficient for the conflict with two Powers such as France and Great Britain.

Balbo's dreams came to an end on 28 June 1940, a few days after the beginning of the war, when his airplane was shot down by friendly antiaircraft fire.

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[64] *Decreto Balbo, Tripoli, 31 Luglio* 1934, ASDMAE, ASMAI, Vol.II 1859-1945, Pos.150/22.
[65] Royal Decree dated 3 December 1934, no.2012.
[66] Royal Decree dated 8 April 1937, no.431.
[67] Labanca, N. (2002), *Oltremare: storia dell'espansione coloniale italiana*, Il Mulino, Bologna, p.199.
[68] Royal.Decree no. 70 dated 9 January 1939.
[69] Labanca, N. (2002), *Oltremare…*, p.206.

1.6 CONCLUSIONS

During the Liberal Era, Italy faced several problems, due essentially to its internal divisions not only between but also within economic classes. This limited the action of the political class, which had to reconcile different local interests, in particular, those of industrial entrepreneurs and landowners. The consequence was rivalry between the most influential forces in the country. Moreover, much of the political class was corrupt and driven by the cult of personality. However, governments effectively met the challenges of the second half of the nineteenth century, continuing and implementing the policy and process of industrialization initiated in first half of the century. Neverthless, infrastructure remained underdeveloped compared to other Western European countries, and the country lacked mineral resources (as noted by Francesco Saverio Nitti in his article in *La Riforma Sociale* in 1902)[70] but, luckily, able to harness hydroelectric energy particularly in Alpine area. The split between North and South deepened during this period: in the former industrialization was widespread especially in the Industrial Triangle (which developed more slowly than was believed for a long time) while the latter remained in the grip of landownership.

The real driver of this phenomenon was the bourgeoisie, the symbol of all the defects and merits of Italian society. In the final years of the century and subsequently in the age of Giolitti, class consciousness developed, albeit infected by parochialism as we have seen.

The colonial venture came out of this context in several guises: initially as a commercial enterprise and as demographic colonialism, then as a matter of prestige and recognition as a Great Power during the Crispi and Giolitti governments. It rarely had a capitalist motive. Italian entrepreneurs acted and invested capital only in the absence of risk.

However, the Italian *Oltremare* (Overseas) venture lacked resources.And mistakes were made in the administration of the colonies, often due to the inexperience of Italian governors. Like Italy, colonies were afflicted by a rudimentary infrastructure and only in the final years of the nineteenth century, after the work of people like Ferdinando Martini in Eritrea, were any significant economic results achieved. Economic historians are unanimous in believing that the colonies made only a marginal contribution to Italian development.

Events in Libya after 1918 confirmed this uncertain policy. Different stages in the relationship with the indigenous population (conciliatory up to 1923, fiercer and fiercer repression until 1933, paternalistic under Italo Balbo) accompanied confused and contradictory policies.

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[70] Nitti, F. S. (1902), *La conquista della forza*, in *La Riforma Sociale*, Anno IX-Vo.XII, pp.1102-1111.

Italian economic colonization became demographic-colonialist at the end of the '20s until 1937, when almost 30,000 settlers moved to Libya in the following two years.[71]

Throughout this period, the colonial administration was unable to exploit the sole abundant Libyan raw material, crude oil.

During the period of Italian rule public works programmes were carried out in most of the towns and the transport network was enhanced with the building of the *Litoranea*, a lengthy road connecting Tripolitania and Cyrenaica.

However, Libya differed shockingly from Eritrea and Somaliland due to the system of concentration camps set up for the Cyrenaic population from 1930 and 1933. This gives rise to the question of how much the fierce repression changed traditional Libyan society and its economy, influencing developments after the Second World War.

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[71] Petrovich, A. (1939), *Capitale ed uomo nelle tre fasi della colonizzazione metropolitana libica*, in *Rassegna Economica dell'Africa Italiana*, Gennaio 1939, pp.274-281.

CHAPTER 2
CYRENAIC ECONOMIC DATA BETWEEN 1920 AND 1939

2.1 INTRODUCTION

This research is based on Cyrenaic data from 1926 to 1939, which are compared with data for the 1920-1922 period. They were obtained from an article by Pompeo Gorini in the *Giornale degli Economisti* in 1923.[72] This article, analyzed below, was the first example of an econometric model applied to local markets. Its conclusions and thoughts contributed to the findings of this research.

2.2 DATA SOURCES

The data sources used in the article are from official publications by the Ministry of Colonies, by the Chambers of Commerce of Tripoli or Bengasi and by the Government of Libya. Data were generally gathered with the cooperation of the Italian Institute of Statistics (Istat).

The most serious problem in collecting data was the discrepancy between different sources. As a rule, the most recent source was used, because the data were often revised and hence more accurate.

The first sources were the *Censuses* of 1928 (for some regions of Cyrenaica), 1931, 1936 and 1937.[73] These provide a picture on a certain date but they are less useful for the trend of variables over time. Therefore, the richest sources are bulletins, official magazines and newsletters.[74] Some data came from the *Archivio Storico Diplomatico del Ministero degli Affari Esteri,* in the section on the

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[72] Gorini, P. (1923), *I mercati della Cirenaica,* in *Giornale Degli Economisti e Rivista Di Statistica*, Vol. 64 (Anno 34) No. 12, pp. 545–571.

[73] Istat (Ed.) (1939), *Libia, Isole Italiane dell'Egeo, Tientsin*, in *VIII Censimento Generale della popolazione, 21 aprile 1936, XIV*, Tip.Failli, Roma.
Istat (Ed.) (1940), *Industrie alimentari 1937*, *Libia*, in *Censimento Industriale e Commerciale 1937-1940*, Ist.Poligrafico dello Stato, Roma.

[74] The list of sources used to collect data:
Camera di commercio industria ed agricoltura di Bengasi, *Cirenaica economica: bollettino ufficiale della Camera di commercio industria ed agricoltura della Cirenaica*, stabilimento Fratelli Pavone, Bengasi.
Cirenaica illustrata: rivista mensile d'espansione coloniale, Calcagni, Bengasi.
Consiglio coloniale dell'economia per le provincie di Bengasi e Derna (Ed.), *Bollettino di statistica della Libia orientale*, Bengasi.
Istat (Ed.)., *Annuario statistico italiano*, Ist. Poligr. Dello Stato, Libreria, Roma.
Ministero dell'Africa Italiana (Ed.), *Rassegna economica dell'Africa Italiana: rivista mensile del Ministero dell'Africa italiana ufficiale per gli atti e le pubblicazioni degli organi corporativi*, Provveditorato generale dello Stato, Roma.
Ministero delle Colonie (Ed.), *Rassegna economica delle colonie*, Provveditorato generale dello Stato, Roma.
Ministero dell'Africa Italiana (Ed.), *Bollettino statistico dell'Africa italiana*, Azienda tipografica editrice nazionale anonima, Roma.
Governo della Libia (Ed.), *Notiziario corporativo della Libia*, Tripoli.
Governo della Cirenaica (Ed.), *Notiziario economico della Cirenaica*, Unione Tip. Editrice, Bengasi.
Governo della Libia (Ed.), *Notiziario economico della Libia*, Governo della Libia, Tripoli.

Ministero dell'Africa Italiana (ASMAI) or in the *Archivio Storico della Banca d'Italia* (ASBI) in the section on *Affari coloniali*.

For climate data and seasonal farming information *Notiziari agricoli* and *Notiziari informativi* were consulted along with meteorological bulletins.[75]

2.3 DATA AND VARIABLES

This section describes the variables used in the research, divided into groups based on different sectors: climate, prices, production and population, foreign trade and transport, sales and wages. The last two sections include only data between 1935 and 1939, and are therefore useful to examine only the last four years examined.

Regarding time series data, as stated, the time period is from April 1926 to June 1939 and the unit monthly. This period is deemed sufficient to calculate the trend in local prices and their trend except for a 3-year period,1920-1922.

2.3.1 Geographical and climate data

A country with a traditional economy, Libya was heavily influenced by the weather. Its territory extended from the Mediterranean in the North to the Sahara Desert in the South.

Figure 2.1 shows the location of the most important towns during the Italian occupation. The cities in yellow are those examined in the research. Libya has a long coastline, from west to east and is the most fertile region. It is interrupted mid-way by the Sirte desert area, a natural border between Tripolitania (Western Libya) and Cyrenaica (Eastern Libya). Another feature of the coastline is the plateau east of Bengasi, called *Jebel Al-Akhdar* or *Gebel El-Akhdar,* the most fertile area in the whole of Libya, with the towns of Cirene and Barce (today a district of Al-Marj or El-Merg). The *Gebel* plateau is in Tripolitania, south of Tripoli, but is less fertile than Cyrenaica due to its distance from the coast. The Eastern Libyan border with Egypt is in *Marmarica*, a mostly dry region, whose most important centre is Tobruk.

In the south of Tripolitania, Fezzan is a desert territory with some oases, bordering Cyrenaica to the east. The most important centre in South Cyrenaica before and during the fascist period was the oasis of Cufra, a stronghold of Sanusi power.

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[75] Ministero dell'Africa Italiana (Ed.), *Bollettino meteorologico dell'Africa italiana*, Istituto Poligrafico dello Stato, Roma.
Ministero delle Colonie (Ed.), *Bollettino meteorologico delle colonie italiane,* P.Maggi, Tripoli.
The *Notiziari agricoli* were published in the journal: Istituto agricolo coloniale italiano and Servizi agrari dell'Eritrea e della Somalia italiana, *L'agricoltura coloniale: organo dell'Istituto agricolo coloniale italiano e dell'Ufficio agrario sperimentale dell'Eritrea*, Istituto agricolo coloniale italiano, Firenze.
For an overview of climate data see Fantoli, A. (Ed.). (1968), *Contributo alla climatologia della Cirenaica: riassunto dei risultati e tabelle meteorologiche e pluviometriche*, OPI, Roma.

Figure 2.1 – LIBYAN CITIES AND GEOGRAPHY

Figure 2.1: **LIBYAN CITIES AND GEOGRAPHY**
The map was created with Esri ArcGis 10.3 using geodatabase data from Google Maps. Cities in yellow are those analyzed in the research.

The key centres in the final Italian period were Tripoli (of the seat of government), Misurata, Bengasi and Derna. They became metropolitan provinces in January 1939, while the Sahara area was classified as *Military Territory of the South*.

As stated above, three towns were included in the research. One was a relatively large city (Bengasi), with about 40,000 inhabitants in 1935; two were smaller towns (Derna and Barce). The first had just over 10,000 inhabitants in 1935 and the second about 12,000.[76] This choice was made to compare trends in prices and sales between quite different centres.[77] We decided to not consider remote areas of Cyrenaica (such as Cufra); because changes in the market were negligible or non-existent.

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[76] The Barce population includes not only the city centre, which was relatively small, but the entire commissariat. The Bengasi and Derna populations refer to individual municipalities. During Italian rule, the borders between administrative areas were subject to frequent change, so the reconstruction of their story was arduous.
[77] BENGASI (*LAT* 32,13 N; *LONG* 20,08 E; *ALT* 0 m): Bengasi is on the coast. It wasand remains the most important and heavily populated city in Cyrenaica.

We now analyze three types of climate data (rainfall, mean temperature and *ghibli* winds).
The most important is rainfall because it influenced the growth of cereals and the size of livestock.
Mean temperature may also have had some influence on crops. The impact of the third variable is
difficult to calculate because it is intangible and was included on the basis of an article by Gorini.[78]
Figures 2.2 and *2.3* show rainfall recorded at various Libyan climate stations. The heaviest rainfall
was on the coast or in *gebel*, peaking in Barce and Tripoli. The steppe area, represented by Mizda and
Nalut, and borders with the desert suffered drought. The city of Sirte had a mid-range quantity of
rainfall. Finally, centres like Tobruk in Marmarica (on the coast but in a desert), Sebha in Fezzan and
Kufra in south Cyrenaica had little or no rain.[79]

Figure 2.2-RAINFALL IN SOME CLIMATE STATIONS (1935-1939)

Figure 2.2: **RAINFALL IN SOME CLIMATE STATIONS BETWEEN 1935 AND 1939**
Source: Climate database by Climatic Research Unit of University of East Anglia (database CRU 4.0.1) and *Bollettino meteorologico dell'Africa Italiana* published by Ministry of Italian Africa. Data are in mm. Map created using ArcGis 10.3
This is a sum of rainfall in years between 1935 and 1939.

DERNA (*LAT* 32,77 E, *LONG* 22,62 N, *ALT* 43 m): Derna was the second most important city in Cyrenaica in the final period of Italian rule, and the largest town in the region with the same name. Derna could be classified as a coastal *area* like Bengasi.
BARCE (*LAT* 32,49 N, *LONG* 20,83 E, *ALT* 316 m): Barce is one of the centres of the *Gebel el-Akhdar*, in the so called highland area. Barce is on almost the same latitude as Derna and Bengasii but is at a different altitude.
[78] Gorini, P. (1924), *Sull'importanza degli indici pluviometrici in Cirenaica*, in *Giornale Degli Economisti e Rivista Di Statistica*, Vol. 65 (Anno 39) No. 10, pp. 532–546.
[79] In the *Rassegna economica dell'Africa Italiana*, in the statistical section about on the, Libya is divided into five areas: *coastal* (Tripoli, Benghazi, Derna, Tobruch, etc.), *steppe* (Misurata, Agedabia, etc.), *highlands* (Garian, Barce, Cirene, etc.), *pre-desert* (Mizda, etc.) and *desert* (Gadames, etc.).

Figure 2.3 shows the trend in rainfall in the years examined. In detail, Tripoli enjoyed heavy rainfall in 1938, while in the other years rainfall was similar to Bengasi and Derna. Barce had a steady pattern of rainfall in the five years considered. The rainfall in Sebha and Kufra was absolutely negligible.
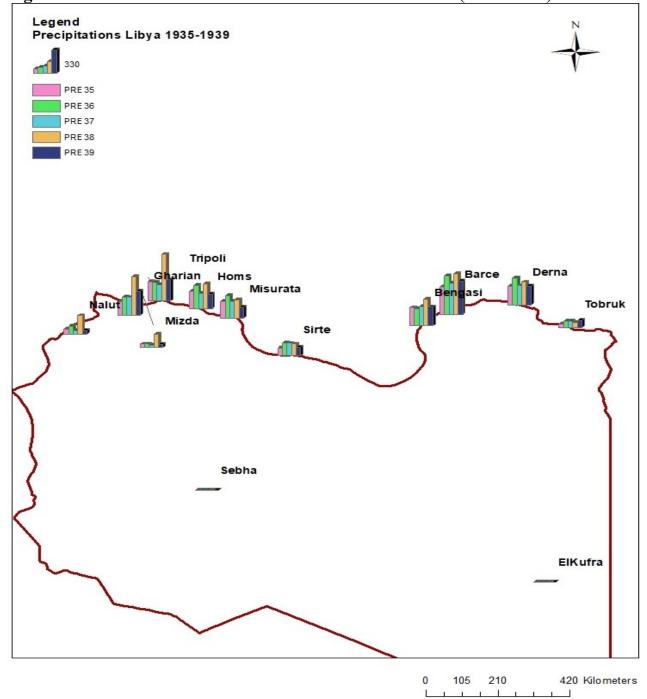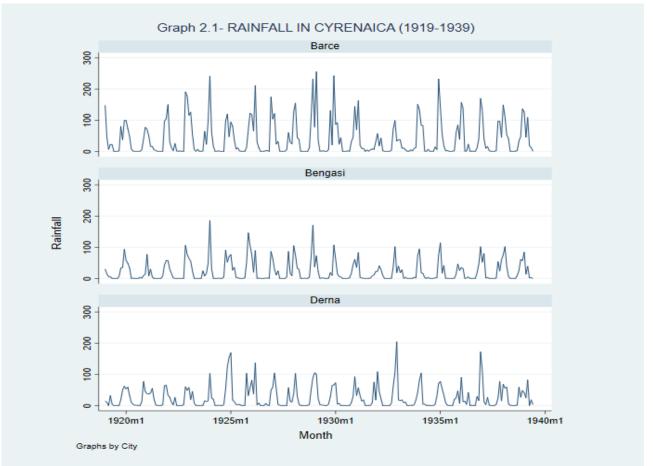
Figure 2.3- RAINFALL IN SOME CLIMATE STATIONS (1935-1939): TREND

Figure 2.3: **RAINFALL IN SOME CLIMATE STATIONS (1935-1939): TREND**
Source: Climate database by Climatic Research Unit of University of East Anglia (database CRU 4.0.1) and *Bollettino meteorologico dell'Africa Italiana* published by Ministry of Italian Africa. Data are in mm. Map created using ArcGis 10.3.
This figure shows the rainfall trend between 1935 and 1939 in detail.

After rainfall, we turn now average temperatures and the frequency of *ghibli* winds in the towns examined.

2.3.1.1 Rainfall

Graph 2.1 shows the quantity of rainfall in the three cities examined. It confirms the different climate conditions between Barce and the other two towns. Rainfall in Barce was higher than in Bengasi and Derna, where the trend was different for the two coastal cities. Clearly not only altitude but also longitude influences rainfall.

Barcino, *Bengasino* and *Dernino*, together with the area near Cyrene, were the three most fertile regions of Cyrenaica and hence the most intensely cultivated.

Graph 2.1: **RAINFALL IN CYRENAICA (1919-1939)**
Source: Climatic Research Unit of University of East Anglia (database CRU 4.0.1), *Bollettino meteorologico dell'Africa Italiana* published by Ministry of Italian Africa; *Bollettino meteorologico delle colonie italiane,* P. Maggi, Tripoli published by Ministry of Colonies; *Bollettino meteorologico della Cirenaica: riassunto delle osservazioni*, P. Maggi, Tripoli; Fantoli, A. (Ed.). (1968), *Contributo alla climatologia della Cirenaica: riassunto dei risultati e tabelle meteorologiche e pluviometriche*, OPI, Rome.

The data for 1919 to 1939 include one crucial period of drought between 1931 and 1933. The Italian government tried to help, but the drought hit indigenous society hard at a time of fierce political repression.

Finally, *table 2.1* shows a strong correlation between rainfall in the three towns, statistically significant at 0.1%, with a stronger positive between Barce and Bengasi, than between the other two towns and Derna

Table 2.1- CORRELATION OF CITIES RAINFALL

	Rainfall_Bar	Rainfall_Ben	Rainfall_Der
Rainfall_Bar	1		
Rainfall_Ben	0.842***	1	
Rainfall_Der	0.682***	0.662***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

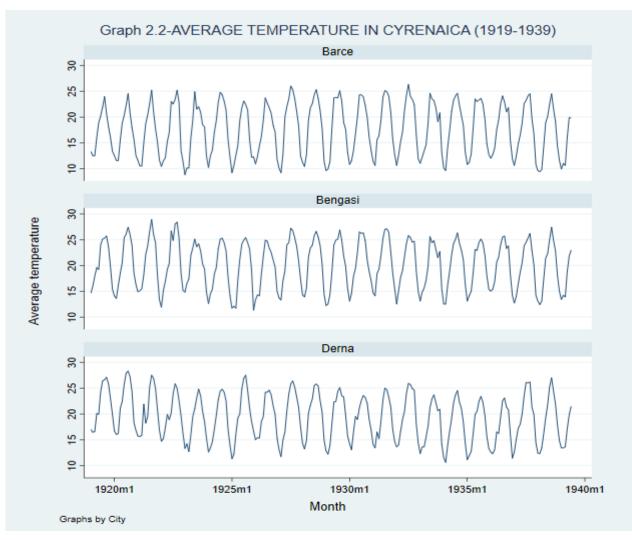Table 2.1: **CORRELATION OF CITIES RAINFALL**

2.3.1.2 Temperature

Unfortunately, we did not have a complete series of temperatures for all three towns, because – for various reasons - values for some months were not recorded. Therefore, data were carefully interpolated using an auto-regressive model.

Graph 2.2 confirms the differences between the maritime climate of Bengasi and Derna compared to Barce, which had slightly cooler temperatures. The highland climate was more temperate.

The trends have no significant variations or breaks, even in the drought between 1931 and 1933.

Table 2.2 shows that the correlation between temperatures in the three towns is higher than for rainfall.

Graph 2.2: **AVERAGE TEMPERATURE IN CYRENAICA (1919-1939)**
Source: *Bollettino meteorologico dell'Africa Italiana* published by Ministry of Italian Africa; *Bollettino meteorologico delle colonie italiane*, P. Maggi, Tripoli published by Ministry of Colonies; *Bollettino meteorologico della Cirenaica: riassunto delle osservazioni*, P. Maggi, Tripoli; Fantoli, A. (Ed.). (1968), *Contributo alla climatologia della Cirenaica: riassunto dei risultati e tabelle meteorologiche e pluviometriche*, OPI, Rome.
N.B.: there are some discrepancies between the *Bollettini meteorologici* and the book by Fantoli. Generally, the former was used because of the weekly observations.

Table 2.2- CORRELATION OF CITIES AVERAGE TEMPERATURE

	A_Temp_Bar	A_Temp_Ben	A_Temp_Der
A_Temp_Bar	1		
A_Temp_Ben	0.962***	1	
A_Temp_Der	0.897***	0.923***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

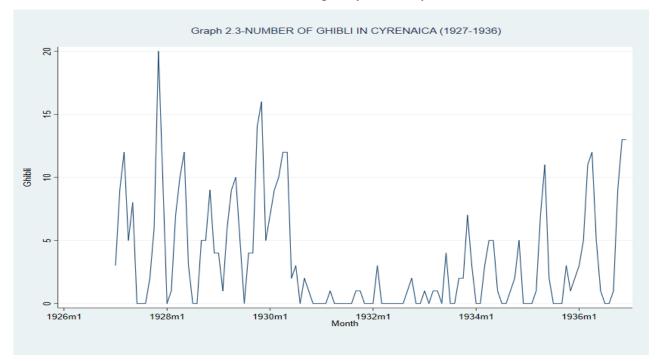Table 2.2: **CORRELATION OF CITIES AVERAGE TEMPERATURE**

2.3.1.3 Ghibli

The third climate variable is the most difficult to interpret because data were available only in *Bollettini Meteorologici* between 1927 and 1936. We sought to summarize the trend for other years using information derived from meteorological statistics for Egypt (before 1927) and from the *Riassunti climatologici* published in *Agricoltura Libica* reviews after 1936.[80]

Ghibli (in Italian *Scirocco*), is a hot and violent wind which blows from the Sahara towards the Maghreb, from south, south-east and south-west. It is a phenomenon in Libya and parts of Egypt. Generally, it blows in early Spring (March) or Autumn (mostly November).

The peculiarity of *ghibli* is that can move huge quantities of sand, destroying crops with a devastating impact on agriculture.

Graph 2.3 shows the number of *ghibli* per month between 1927 and 1936. During the drought between 1931 and 1933 the *ghibli* was less frequent. The reason for this is probably the nature of the wind, crated by hot dry tropical masses attracted by low-pressure areas in the Mediterranean Sea. The drier the season in the Mediterranean, the less frequent the wind.

We correlated *ghibli* with rainfall in Bengasi between 1927 and 1936 and found a slight positive correlation, not statistically significant. However, the correlation could be stronger based onan additional data for Mediterranean weather during the years analyzed.

Graph 2.3: **NUMBER OF *GHIBLI* IN CYRENAICA (1927-1936)**
Source: *Bollettino meteorologico dell'Africa Italiana* published by Ministry of Italian Africa; *Bollettino meteorologico delle colonie italiane*, P. Maggi, Tripoli published by Ministry of Colonies; *Bollettino meteorologico della Cirenaica: riassunto delle osservazioni*, P. Maggi, Tripoli. Data are in numbers per month.

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[80] Centro sperimentale agrario e zootecnico and Libia (Eds.)., *Agricoltura libica: bollettino mensile del Centro sperimentale agrario e zootecnico e degli Ispettorati agrari della Libia*, Tripoli.
Ministry of Public Works, Egypt, *Meteorological report*, Government Press, Cairo.

2.3.2 Markets price data

Because the research develops this specific topic, the second data category to analyze are prices and market sales. They include the prices of raw materials recorded by Gorini, although he carried out an OLS regression only between barley and sheep prices in El-Merg town (Barce). These products were the most important for the local economy, based on agriculture and breeding.

The raw materials dealt with by Gorini and included in this research are *barley*, *wheat*, *sheep*, *goats*, *timber* and *coal, ie.e* two cereals, the principal local livestock and two forestry products.

Gorini wrote his essays in the early '20s and described correlations between the production of these three types of materials.[81]

For the period between 1926 and 1939 the gaps in data were filled by an autocorrelation method or (rarely) by comparing individual towns with the average price of products in the whole colony. However, interpolated and original data were carefully matched as far as possible to avoid mistakes. This section sets out the nominal prices of products as found in the sources.
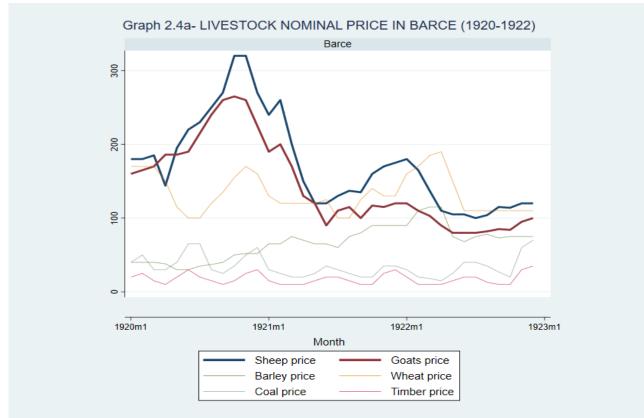
2.3.2.1 *Livestock prices (sheep and goats)*

Beginning with data from 1920 to 1922, the price trend for sheep and goats was generally proportional, as seen in *graph 2.4a*.

As reported by Gorini, prices increased during the wet season, starting from first rains, when flocks grew and Bedouins did not sell many animals. Vice versa, at the start of the dry season, shepherds began to sell, especially if they thought it would be difficult to keep the flock over the summer due to drought or the political situation. The decrease in the trend in this period may be due to slack demand or abundant supply, or both.

The sheep price was naturally higher than for goats because of the different weight of the animals.

The correlation between the prices (with 36 observations) was 0.94, with a significant level of 0.1%.

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[81] Gorini, P. (1923), *I mercati della Cirenaica*, pp.554-559.

Graph 2.4a: **LIVESTOCK NOMINAL PRICE IN BARCE (1920-1922)**
Source: Gorini, P. (1923), *I mercati della Cirenaica*. Prices are in Lira per head of livestock.

*Graph 2.*4, shows the three towns trends between April 1926 and June 1939.
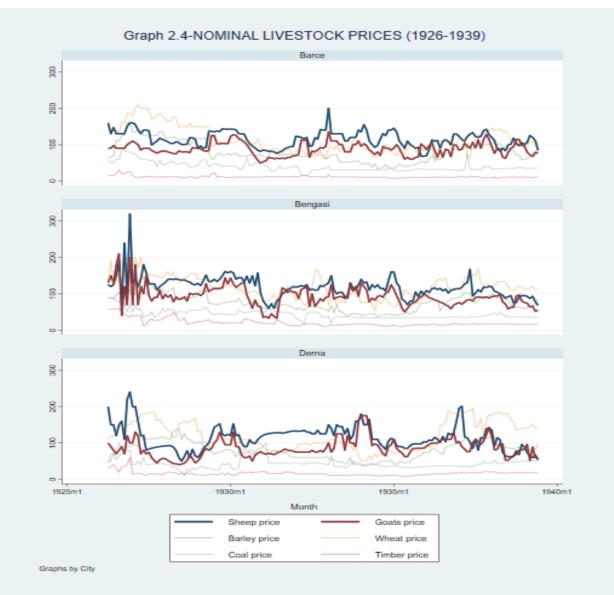
As seen for climate data, there is a break after 1930 in all centres. After the repression in 1933, prices started to rise again and remained substantially stable, with some fluctuations, except in Bengasi and Derna in the first months of 1937. The following section sets out the trend in sheep, but for now we can assume the drop in prices was related to a sharp decrease in the number of heads of cattle.

An analysis of the correlation between sheep and goat prices confirms the evidence set out in *graph 2.4*. Based on 477 observations (159 for every town) the correlation index is 0.66 with a significant level of 0.1%.

In Barce, the correlation was 0.65, in Bengasi it was as high as 0.70, and in Derna it was 0.62. In all three cases the significant level was at 0.1%.

Interesting are the correlations between markets. *Tables 2.3* and *2.4* show that there is a stronger correlation of sheep and goat prices between Barce and Bengasi, a little less between Barce and Derna, and between Bengasi and Derna it was only 0.24 and 0.19. All three correlations are significant at least at 1%.

This phenomenon was probably due to the locations of the two towns, with Bengasi often attracting internal trade with nearby regions. Barce is 108 kilometres from Bengasi and Derna 293 kilometres from the largest town in Cyrenaica.

Graph 2.4: **NOMINAL LIVESTOCK PRICES (1926-1939)**

Source: *Rassegna economica delle Colonie*, *Rassegna economica dell'Africa Italiana* and *Bollettino Statistico dell'Africa Italiana*, published by the Ministry of Colonies; *Notiziario economico della Cirenaica*, Unione Tip. Editrice, Bengasi, published by the Chamber of Commerce of Bengasi.

Notes: Data are in Lira per head of livestock.

Table 2.3- CORRELATION OF SHEEP PRICES IN THE MARKETS

	PSheep_Bar	PSheep_Ben	PSheep_Der
PSheep_Bar	1		
PSheep_Ben	0.469***	1	
PSheep_Der	0.458***	0.241**	1

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 2.4- CORRELATION OF GOATS PRICES IN THE MARKETS

	PGoats_Bar	PGoats_Ben	PGoats_Der
PGoats_Bar	1		
PGoats_Ben	0.445***	1	
PGoats_Der	0.381***	0.190*	1

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 2.3: **CORRELATION OF SHEEP PRICES IN THE MARKETS**

Table 2.4: **CORRELATION OF GOATS PRICES IN THE MARKETS**
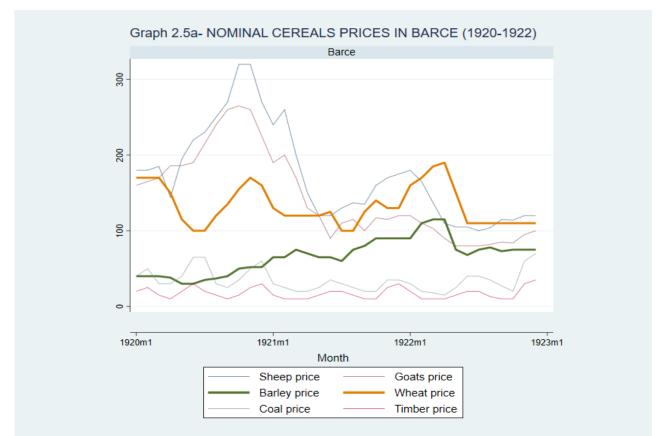
2.3.2.2 Cereal prices (barley and wheat)

Barley and wheat price trends between 1920 and 1922 are more interesting and differentiated, as shown in *graph 2.5a*.

The barley price had a much more regular trend than wheat, despite speculators, hoarders and several customs laws issued by the Italian government which hit the export of this product. Barley was the principal product of the Indigenous diet, which explains its regular trend. Hoarders brought barley to the market when it was scarce.

Despite this, a general seasonal trend is noticeable with higher prices during seeding between September and October and a sharp decrease during the period of threshing from late April to July. The harvesting of cereals was influenced by climate conditions (rainfall and drought).

But, as stated above, in the period analysed by Gorini the barley trade was severely impacted by customs laws, preventing exports to neighboring countries. But not all the output (analyzed in the data section below) could be consumed by local markets.

Unlike sheep and goats, barley and wheat were positively correlated (0.22) but it is not significant, not even at a level of 10%.

Graph 2.5a: **NOMINAL CEREAL PRICES IN BARCE (1920-1922)**
Source: Gorini, P. (1923), *I mercati della Cirenaica*. Prices are in Lira per quintal (100 kilos).

Graph 2.5 shows the trend in the nominal prices of cereals in all three towns between April 1926 and June 1939. The prices fell in all three towns in the period after 1930, but this decrease was not as sharp as for livestock prices, notwithstanding the political situation and climate, as mentioned above. Wheat prices were higher than barley prices, and, mostly in Bengasi and Derna, fluctuated differently (Bengasi between 1932 and 1933; Derna between 1936 and 1937).
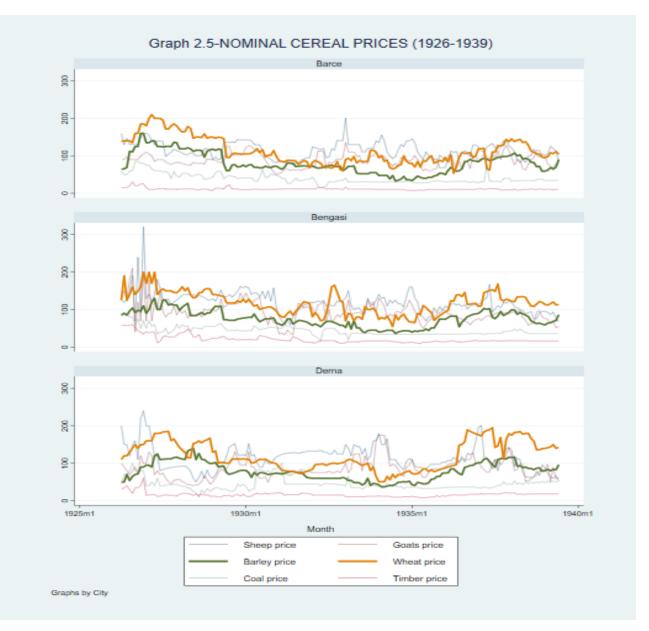
The wheat price was also generally lower in Barce than in the other two cities especially after 1935, possibly as a consequence of greater supply in Barce coupled with lower demand.

Rather surprisingly, the correlation between the two products for all 477 observations was 0.79 with a statistical significance of 0.1%. This value increased to 0.86 for Barce and is 0.77 for Bengasi and Derna. In all three cases the correlation was significant at 0.1%.

Unlike for the 1920-1922 period, the correlation between barley and wheat was also statistically significant.

The correlation between market towns was different for livestock and cereal prices, as can be seen in *tables 2.5* and *2.6*. The latter was also strongly significantly correlated between Bengasi and Derna, and less than between Bengasi and Barce.

This different dynamic can be seen as evidence that repression impacted on agriculture and breeding differently.

Graph 2.5: **NOMINAL CEREAL PRICES (1926-1939)**
Source: *Rassegna economica delle Colonie*, *Rassegna economica dell'Africa Italiana* and *Bollettino Statistico dell'Africa Italiana*, published by the Ministry of Colonies; *Notiziario economico della Cirenaica*, Unione Tip. Editrice, Bengasi, published by the Chamber of Commerce of Bengasi. Data are in Lira for quintal.

Table 2.5- CORRELATION OF BARLEY PRICES IN THE MARKETS

	PBarley_Bar	PBarley_Ben	PBarley_Der
PBarley_Bar	1		
PBarley_Ben	0.882***	1	
PBarley_Der	0.786***	0.812***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2.6- CORRELATION OF WHEAT PRICES IN THE MARKETS

	PWheat_Bar	PWheat_Ben	PWheat_Der
PWheat_Bar	1		
PWheat_Ben	0.706***	1	
PWheat_Der	0.625***	0.663***	1

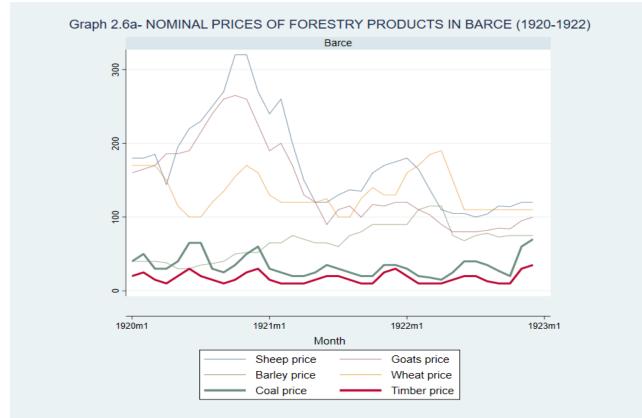* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2.5: **CORRELATION OF BARLEY PRICES IN THE MARKETS**

Table 2.6: **CORRELATION OF WHEAT PRICES IN THE MARKETS**

2.3.2.3 Forestry products (coal, timber)

Used in the local economy, coal and timber had a fairly regular price trend between 1920 and 1922 in the Merg market, as can be seen in *graph 2.6a*. As Gorini says, the prices of these two materials were strongly influenced by two factors: the nearness of neighbourhoods and charcoal kilns, and the availability of labour. The local population worked in the forestry sector only when not occupied in farming. This meant that prices were higher during seeding and threshing periods. Transport costs were particularly high. This problem did not affect Barce which was the most important centre in the whole colony for timber and coal production.

In this period, the correlation between coal and timber was extremely high (0.86) with a significant level of 0.1%.
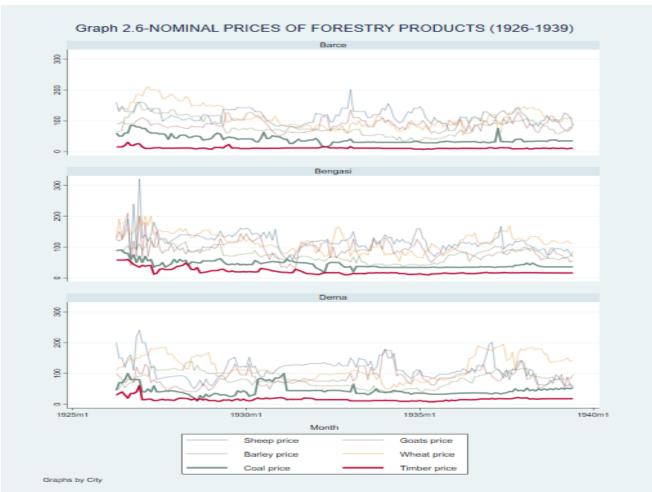

Graph 2.6a: **NOMINAL PRICES OF FORESTRY PRODUCTS IN BARCE (1920-1922)**
Source: Gorini, P. (1923), *I mercati della Cirenaica*. Prices are in Lira per quintal.

Graph 2.6 shows the trends of the two forestry products in the period between April 1926 and June 1939. They are quite regular except in Derna for the few months after 1930 and in Barce in April 1937, without particular fluctuations, especially after 1935.

The correlation between all observations of the two raw materials was lower than for cereals (0.59) although significant at 0.1% level. Looking at each market, there is a correlation of 0.50 for Barce, 0.81 for Bengasi, and 0.58 for Derna. In all cases, correlations were significant at 0.1%.

The correlations between prices in different centres were positive and significant as can be seen in *tables 2.6* and *2.7*. The coal price was more correlated between Barce and Bengasi, and the correlation of the timber price was similar in the three markets. This could be due to the increasingly cheap supply of wood, levelling values.

Graph 2.6: **NOMINAL PRICES OF FORESTRY PRODUCTS (1926-1939)**
Source: *Rassegna economica delle Colonie*, *Rassegna economica dell'Africa Italiana* and *Bollettino Statistico dell'Africa Italiana*, published by the Ministry of Colonies; *Notiziario economico della Cirenaica*, Unione Tip. Editrice, Bengasi, published by the Chamber of Commerce of Bengasi. Data are in Lira per quintal. Because price data for coal and timber are no longer recorded after 1938, they were reconstructed on the basis of the general trend in inflation and the data available for the final months.

Table 2.7- CORRELATION OF COAL PRICES IN THE MARKETS

	PCoal_Bar	PCoal_Ben	PCoal_Der
PCoal_Bar	1		
PCoal_Ben	0.612***	1	
PCoal_Der	0.352***	0.375***	1

$* \ p < 0.05, \ ** \ p < 0.01, \ *** \ p < 0.001$

Table 2.7: **CORRELATION OF COAL PRICES IN THE MARKETS**

Table 2.8- CORRELATION OF WOOD PRICES IN THE MARKETS

	PWood_Bar	PWood_Ben	PWood_Der
PWood_Bar	1		
PWood_Ben	0.543***	1	
PWood_Der	0.574***	0.578***	1

$* \ p < 0.05, \ ** \ p < 0.01, \ *** \ p < 0.001$

Table 2.8: **CORRELATION OF TIMBER PRICES IN THE MARKETS**

2.3.3 Population and production

These two topics are handled in one paragraph because most of the population was involved in the two most important local activities, breeding and cereal crops.

The total indigenous population in Cyrenaica and the indigenous population of Barce were taken into consideration, together with the number of sheep and finally the production of barley and wheat and the surface areas dedicated to these crops.

2.3.3.1 Population and livestock

To understand the importance of repression in Cyrenaica the attention needs to shift momentarily to the size of the concentration camps set up in Cyrenaica, which is shown in *figure 2.3*. As an example, El-Agheila had 34,500 detainees, Soluch and Marsa al-Brega more than 20,000.

As seen in Chapter One, most of the population was deported from Eastern Cyrenaica (Marmarica) or from *Gebel al-Akhdar*, together with their cattle with huge mortality rates for both the population and the livestock. The most fertile land was allocated to Italian settlers. When the concentration camp regime ended, very few Arabs could return to their original territories, so they moved to the coast and changed their occupations.[82]

The demographics were mitigated after pacification and an amnesty proclaimed by the Italian government, by the return of some of the indigenous population who had escaped into Egypt in the years before and during the repression.

The most difficult task was to reconstruct monthly datasets for both livestock and the indigenous population. The population trend from 1922 to 1939 was reconstructed comparing the monthly demographics in Cyrenaica in 1934, taken from a study by Emilio Scarin published in 1938.[83] Some milestones were established before 1934: 1931, 1928 and 1922.[84] For data after 1934, we added the total monthly population of Bengasi and Derna and reconstructed the indigenous population from the milestone years (1936, 1938, 1939).[85]

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[82] Ottolenghi, G. (1997), *Gli italiani e il colonialismo: i campi di detenzione italiani in Africa*, SugarCo, Milano.

[83] Scarin, E. (1938), *Il movimento demografico della Libia orientale nel 1934*, Sansoni, Firenze.

[84] Data for these years are from: Scarin, E. (1938), *Il movimento demografico della Libia orientale nel 1934*, Sansoni, Firenze; ISTAT, (1933), *7° Censimento generale della popolazione: 21 aprile 1931*, Istituto poligrafico dello Stato, Libreria, Roma; De Agostini, E. (1923), *Le popolazioni della Cirenaica: notizie etniche e storiche*, Bengasi.

[85] Data of these years come from: *Bollettino di statistica della Libia orientale*, published by Consiglio coloniale per l'economia corporativa per le provincie di Bengasi e Derna; *Appunti vari e Copia di dati forniti al Ministero dell'Africa Italiana in data 11 marzo 1942*, ASDMAE, ASMAI, Vol.IV Statistica, Pacco 4, Busta 55; *Bollettino Statistico dell'Africa Italiana*, published by the Ministry of Italian Africa.
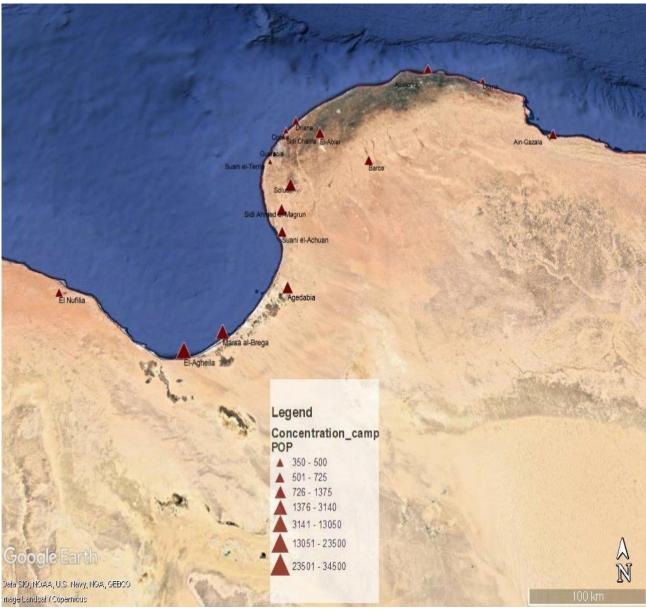
Figure 2.4- CONCENTRATION CAMPS IN CYRENAICA FROM 1930 TO 1933

Figure 2.4: **CONCENTRATION CAMPS IN CYRENAICA FROM 1930 TO 1933**
Sources: http://campifascisti.it which used data from Ottolenghi, G. (1997), *Gli italiani e il colonialismo: i campi di detenzione italiani in Africa*, SugarCo, Milano. This map was created using ArcGis 10.3.

In his work, Scarin reconstructed the birth and death rates of the indigenous population in the Barce region from 1924 to 1934, as well as the birth rate in Bengasi, but not for Derna. Scarin focussed on Barce so we rebuilt the population data solely for this town, and not for Bengasi and Derna, where the data for the indigenous population is fragmentary, although datasets for the total population after 1930 are fairly complete. No data for migration from the region are available and were interpolated using the same milestones as for the total indigenous population of the colony. In the future, this analysis could be extended to the local population in these towns.

The data for the indigenous population are yearly not monthly and are not always accurate for the number of heads of cattle. For the monthly reconstruction based on seasonal trends, there was a major decrease in the summer.[86]
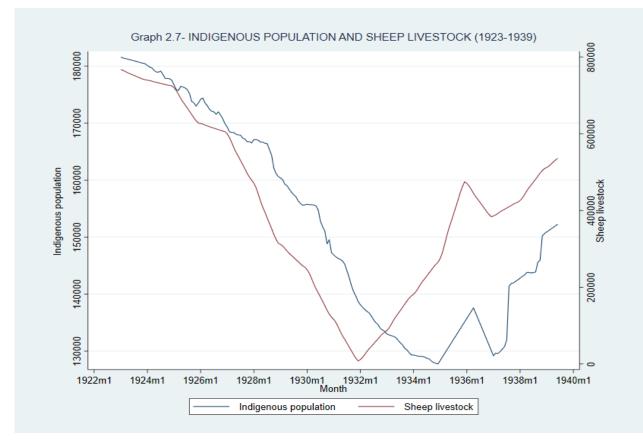
Graph 2.7 shows the sharp drop in both the indigenous population (around 40.000 inhabitants between 1928 and 1934) and livestock (around 400.000 animals between 1928 and 1932), with two peaks in the years after 1930, during the repression period. There was another fall in 1936. The explanation for livestock might be the number of sheep temporarily imported from Tripolitania in the previous months but the population decrease is less easy to explain. Errors in population censuses in individual provinces before or in 1936 cannot be excluded. However, the increase after 1935 was constant.

The correlation between the two variables from 1926 to 1939 was 0.52 with a significant level of 0.1%.
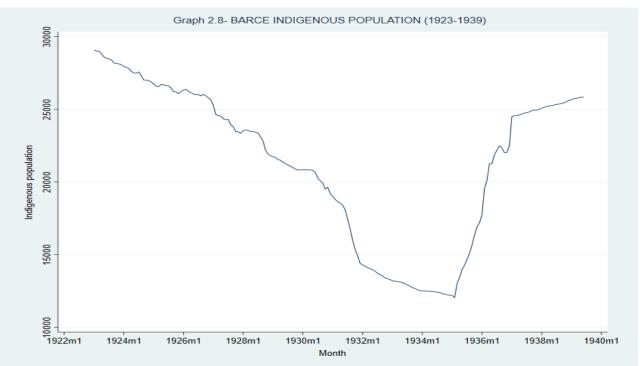
This confirms that the two phenomena are closely linked.

Graph 2.8 shows the trend in the indigenous population in Barce, which is similar to the total population trend with a slight decrease in 1936. The sharp increase in the indigenous population after 1935 coincided with the return of Arabs from concentration camps and from Egypt but did not restore the number of indigenous inhabitants to pre-repression levels.

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[86] Data sources are: *Rassegna economica delle colonie*, Provveditorato generale dello Stato, Roma, published by the Ministry of Colonies; *Statistical Yearbook* published by League of Nations; *Notizie economiche sulle colonie italiane, Libia-Eritrea-Somalia, settembre 1945*, ASDMAE, ASMAI, Vol.IV Statistica, Pacco 3, Busta 54.

Graph 2.7: **INDIGENOUS POPULATION AND SHEEP LIVESTOCK (1923-1939)**
Source: for the data sources look to *footnotes 77, 78* and *79*.

Graph 2.8: **BARCE INDIGENOUS POPULATION (1923-1939)**
Source: Scarin, E. (1938), *Il movimento demografico della Libia orientale nel 1934*, Sansoni, Firenze; ISTAT, (1933), *7° Censimento generale della popolazione: 21 aprile 1931*, Istituto poligrafico dello Stato, Libreria, Roma; De Agostini, E. (1923), *Le popolazioni della Cirenaica: notizie etniche e storiche*, Bengasi; *Appunti vari e Copia di dati forniti al Ministero dell'Africa Italiana in data 11 marzo 1942*, ASDMAE, ASMAI, Vol.IV Statistica, Pacco 4, Busta 55; *Bollettino Statistico dell'Africa Italiana*, published by the Ministry of Italian Africa.
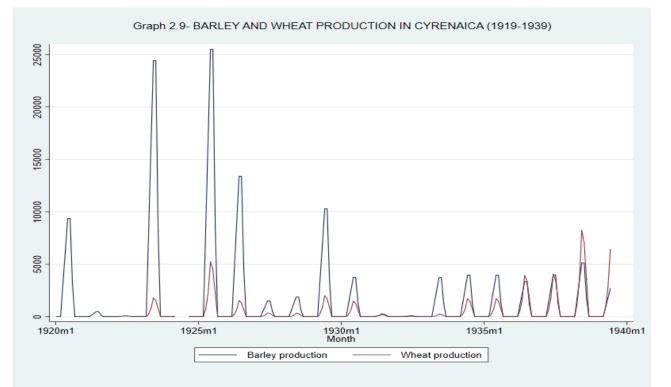
2.3.3.2 *Barley and wheat production*

Graph 2.9 shows cereal production between autumn 1919 and summer 1939, with a gap in the data in 1924. Monthly data are not available for all the years, so production was standardized between April and August, based on the information in *Notiziari agricoli*. In particular, for barley we assumed production of 10% in April and August, 20% in May and 30% in June and July. For wheat, we assumed production of 5% in April, 15% in May and August, 35% in June and 30% in July. These data may be amended in the future on the basis of an accurate investigation.

Barley production gradually decreased after 1927, from the outset of repression, and was almost zero in the drought of 1931 and 1932. Afterwards, production began to increase and maintained a regular trend.

Wheat production was quite different. It was much lower until the beginning of repression and was hit as strongly as barley in 1931-1932, after 1935 growing rapidly and overtaking barley production in 1938. This signals the differing importance of wheat in the Cyrenaic economy and in the opinion of the Italian administration which sought to make the colony not only self-sufficient but also a wheat exporter to Italy.

As can be expected, the correlation between cereal production was high (0.52) with a significant level of 0.1%.
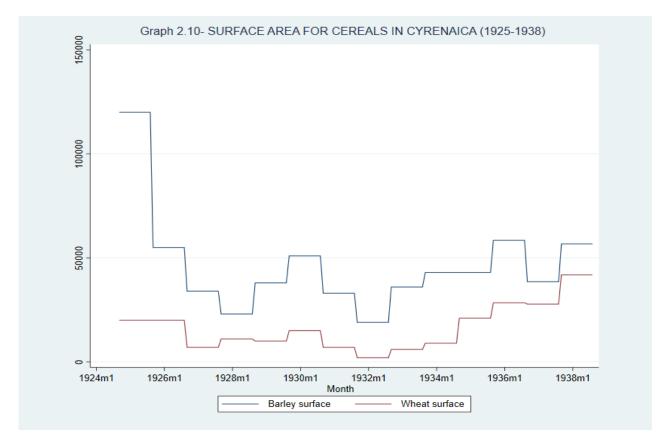

Graph 2.9: **BARLEY AND WHEAT PRODUCTION IN CYRENAICA (1919-1939)**
Source: *Bollettino di statistica della Libia orientale*, published by the Colonial Council for the co-operative economy in the provinces of Bengasi and Derna; *Statistical Yearbook* published by League of Nations; *Notizie economiche sulle colonie italiane, Libia-Eritrea-Somalia, settembre 1945*, ASDMAE, ASMAI, Vol.IV Statistica, Pacco 3, Busta 54; Gorini, P. (1924), *Sull'importanza degli indici pluviometrici in Cirenaica*, in *Giornale Degli Economisti e Rivista Di Statistica*, Vol. 65 (Anno 39) No. 10, pp. 532–546. Data are in tons.

2.3.3.3 Surfaces of cereals cultivated

We now turn to the surface area for the two cereals. *Graph 2.10* shows that the gap between the two products gradually narrowed. It is interesting to notice that the surface area for barley fell after 1925, remained stable, decreased in 1928 and 1932 For production, monthly data were deduced with data kept constant from September to August of the following year.

The correlation between barley and wheat surface areas is less positive than for production (0.38) but remained significant at 0.1%.

Graph 2.10: **SURFACE AREA FOR CEREALS IN CYRENAICA (1925-1938)**
Source: *Bollettino di statistica della Libia orientale*, published by the Colonial Council for the co-operative economy in the provinces of Bengasi and Derna *Statistical Yearbook* published by League of Nations; *Notizie economiche sulle colonie italiane, Libia-Eritrea-Somalia, settembre 1945*, ASDMAE, ASMAI, Vol.IV Statistica, Pacco 3, Busta 54. Data are in hectares.

Finally, some data are given for productivity between 1925 and 1938. Barley productivity followed a strange trend, at 71 tonnes per hectare in 1925, 81 in 1926 and 90 in 1929, but in 1938 it was only 30 tonnes per hectare. This could be due to errors in official statistics but may also have been the result of repression. When Italian settlers took over the fertile land they changed the crops, growing mostly arboreal plants or wheat. Wheat productivity remained generally higher than barley productivity after 1930, except in 1933 and 1935, while in the years before 1930 it was higher only in 1925 (75 tonnes per hectare against 71). There was no sharp increase in wheat productivity in the years between 1934 and 1938; it was substantially stable (54 tonnes in 1934, 23 in 1935, 40 in 1936,

42 in 1937, 56 in 1938), unlike the previous years characterized by wild fluctuations (from 75 tonnes for hectare in 1925 to 14 in 1927 and 5 in 1932).

2.3.4 The barley trade and transport

This section analyzes the barley trade and development of goods transport by rail in Cyrenaica. Solely barley is examined because it is the core product of the research together with livestock. We did not include the cattle trade because the trend in the numbers of sheep reflects imports and exports. Again, it was difficult to reconstruct monthly data from the yearly data available, at least until 1937.[87] For this purpose, the final months were considered with the barley trade in the nearby Tripolitania region.[88] With only Libyan data between 1935 and 1936, we deduced Cyrenaic imports and exports subtracting from the total the barley imported and exported in the port of Tripoli.[89]

Rail cargo data were easier to reconstruct from information on the development of transportation and infrastructure under Italian rule, as given in *Notiziari economici* and official bulletins.[90] The few gaps were reconstructed using the autocorrelation method.
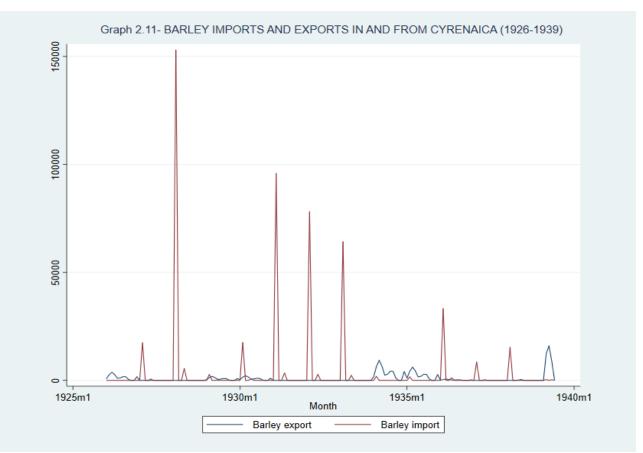
2.3.4.1 The barley trade

Graph 2.11 shows that barley imports were generally much higher than exports, especially in the period before 1934 with some peaks in dry years. With the end of repression and better weather conditions, the colony exported a few thousand quintals of barley, with a sharp increase in 1939. The correlation between the two variables was slightly negative (-0.07) and not significant.

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[87] Consiglio coloniale dell'economia per le provincie di Bengasi e Derna (Ed.), *Bollettino di statistica della Libia orientale*, Bengasi; Istituto Coloniale Fascista, *Annuario delle colonie italiane e dei paesi vicini*, Tip. Castaldi, Roma.
[88] *Bollettino di statistica*, published by the Colonial Council for the co-operative economy in the provinces of Bengasi and Misurata in ASDMAE, ASMAI, Vol.IV Statistica, Pacco 4, Busta 55.
[89] Data are from: ASBI, Affari Coloniali, Magazzini Generali di Tripoli, Buste 286-289, 321.
[90] *Notiziario economico della Cirenaica*. (1924), Unione Tip. Editrice, Bengasi; Camera di commercio industria ed agricoltura di Bengasi, *Cirenaica economica: bollettino ufficiale della Camera di commercio industria ed agricoltura della Cirenaica*, stabilimento Fratelli Pavone, Bengasi; *Cirenaica illustrata: rivista mensile d'espansione coloniale*, Calcagni, Bengasi; Governo della Libia (Ed.), *Bollettino di statistica della Libia orientale*, Bengasi.
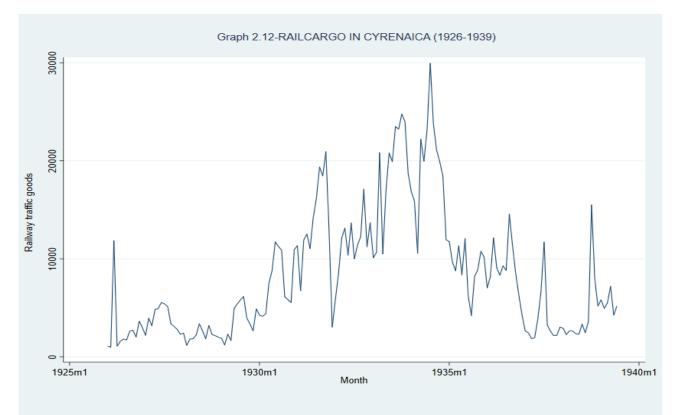
Graph 2.11: **BARLEY IMPORTS AND EXPORTS IN AND FROM CYRENAICA (1926-1939)**
Source: Governo della Libia (Ed.), *Bollettino di statistica della Libia orientale*, Bengasi; Istituto Coloniale Fascista, *Annuario delle colonie italiane e dei paesi vicini*, Tip. Castaldi, Roma. Data are in quintals.

2.3.4.2 Rail cargo

Graph 2.12 shows the trend in railcargo in Cyrenaica between 1926 and 1939. There was a sharp increase in the years between 1930 and 1935 and a slight fall thereafter but still above the level for 1926-1930. Most goods were transported because of the displacement of troops, settlers, and materials related to the repression.

The development of transport under Italian rule and the data for rail cargo are strongly connected to the State of War in the colony until 1934.

Graph 2.12-RAILCARGO IN CYRENAICA (1926-1939)

Graph 2.12: **RAILCARGO IN CYRENAICA (1926-1939)**
Source: *Notiziario economico della Cirenaica*. (1924), Unione Tip. Editrice, Bengasi; Camera di commercio industria ed agricoltura di Bengasi, *Cirenaica economica*; *Bollettino ufficiale della Camera di commercio industria ed agricoltura della Cirenaica*, stabilimento Fratelli Pavone, Bengasi; *Cirenaica illustrata: rivista mensile d'espansione coloniale*, Calcagni, Bengasi; Consiglio coloniale dell'economia per le provincie di Bengasi e Derna (Ed.), *Bollettino di statistica della Libia orientale*, Bengasi.
Data are in tons.

2.3.5   Market sales between 1935 and 1939

We turn to sales trends in Bengasi and Derna provinces in the period between 1935 and June 1939. These are closely related to prices and were included here even though some data are missing.

The most significant problem is the discrepancy between data in the *Bollettino Statistico dell'Africa Italiana* and the *Bollettino di statistica della Libia orientale*. The former was published by the Ministry of Colonies, and the latter by the Italian Government of Libya. It is not clear why there are differences between the two reviews; the second was chosen because it provides a complete dataset between 1935 and 1939. Data before 1935 were too much fragmented to reconstruct the complete data series.

2.3.5.1 Livestock sales

We begin with the trend in the sale of heads of cattle in the provinces of Bengasi and Derna.
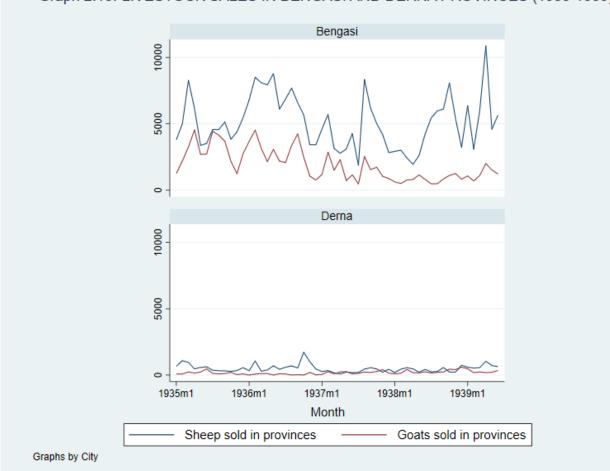
Graph 2.13 confirms Gorini and the predominance of sheep over goats.

In Bengasi, the two categories of sales are proportional until the first months of 1938, when the importance of sheep increased as did the number of livestock sold.

66

As can be seen, in Derna province there was an increase in the number of sheep sold in the final months of 1938, while the importance of goats fell. The similarities with Benghazi province end there, because the yearly trend is very different with large sales of livestock at the end of 1936 and a drop in the sales of both sheep and goats in Benghazi province.

The number of livestock sold is a clear indication of the different sizes of the two markets.

Regarding correlations between the types of livestock sold, in Bengasi province there was a significant positive correlation (0.47, at 0.1% level) while in Derna province the correlation was slightly negative and not significant (0.09, not even at the 10% level ??). Probably sales in Derna province, much less populated and with smaller towns than Bengasi, underwent higher fluctuations. The correlation of sheep sold in both provinces was, however, positive (0.33) and significant at 5%, while the correlation of goats sold was negative (0.34) and significant at 5%. This is a resultof differences in the two provinces: Bengasi was less affected by fluctuations and the trends in sheep and goats sold were similar.

Graph 2.13: **LIVESTOCK SALES IN BENGASI AND DERNA PROVINCES (1935-1939)**
Source: Consiglio coloniale dell'economia per le provincie di Bengasi e Derna, *Bollettino di statistica della Libia orientale*, Bengasi. Data are in heads of cattle.
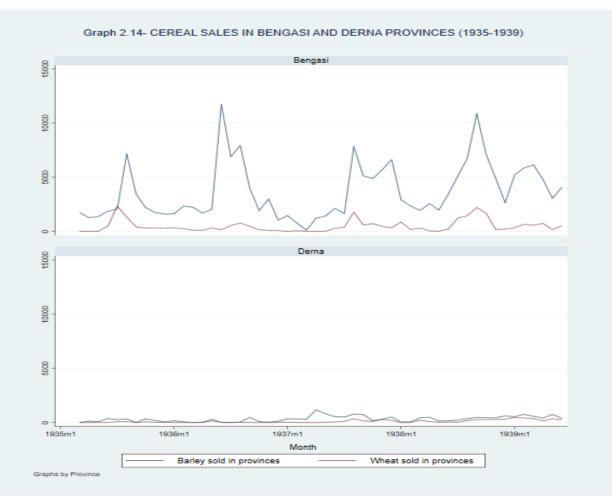
2.3.5.2 Cereal sales

Graph 2.14, shows barley and wheat sales in Bengasi and Derna province between March 1935 and June 1939. There is quite a regular seasonal trend (with an increase in sales during the summer), except for an unusual sale of barley of more than 4,400,000 kilos in Bengasi province in February 1935 (not shown in the graph), while the trends in Derna province fluctuated, peaking in April and May 1937. This was probably due to the different size of the two provincial markets, with the larger market less affected by fluctuations.

The trends confirm the different importance in the local economy in terms of barley and wheat, with the former sold in much larger quantities.

The correlation between barley and wheat sold in Bengasi province was positive (0.35) and significant at the 5% level. In Derna, the correlation was higher (0.59) and significant at 0.1%.

The correlation of barley sales in Bengasi and Derna provinces was negative and not statistically significant. The result was compromised by the above-mentioned huge quantity of sales in Bengasi in February 1935. Excluding this, the correlation is positive (0.11).

The correlation between wheat sales in the two provinces was positive and significant at 5%.

Graph 2.14: **CEREAL SALES IN BENGASI AND DERNA PROVINCES (1935-1939)**
Source: Consiglio coloniale dell'economia per le provincie di Bengasi e Derna, *Bollettino di statistica della Libia orientale*, Bengasi. Data are in quintals.
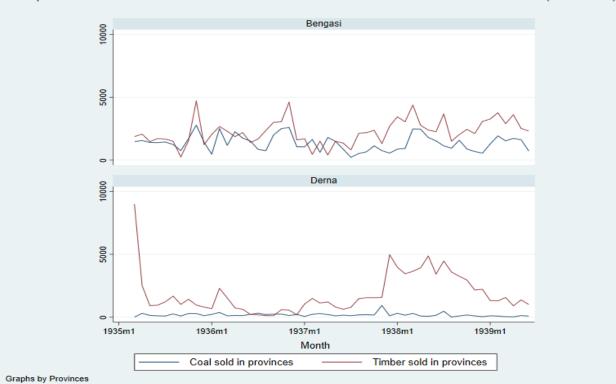
2.3.5.3 The sale of forestry products

Finally, we come to trends in the sale of forestry products, shown in *graph 2.15*.

Except for an unusual sale of both products in February 1935 (over 2,000,000 kilos of timber and 700,000 kilos of coal, not shown in the graph), in Bengasi the trend was quite regular with fewer fluctuations than for cereals and livestock. The sales of the two materials were almost proportional, with a slight preponderance of timber (except for sales in the late winter of 1935).

The abnormal peak in February 1935 can also be found in Derna province for the sale of timber (over 1,400,000 kilos). In 1938 there was a strong increase in timber sold. Substantially, while the trend in coal was quite regular, for timber in the province it fluctuates. In Derna, timber sales in 1938 equalled or surpassed Bengasi. The increase in timber sales was probably related to the numerous public works in both provinces, particularly in Derna.

The correlation between coal and timber sold in Bengasi province was highly positive (0.85) and significant at 0.1%. In Derna, it was slightly negatively correlated (-0.10), and not statistically significant.

The correlation of coal sales between the two provincial markets was not statistically significant and negative, as can be expected (-0.03). The correlation of timber was positive at 0.72 and significant at the 0.1% level.

Graph 2.15: **SALES OF FORESTRY PRODUCTS IN BENGASI AND DERNA PROVINCES (1935-1939)**
Source: Consiglio coloniale dell'economia per le provincie di Bengasi e Derna, *Bollettino di statistica della Libia orientale*, Bengasi. Data are in quintals.
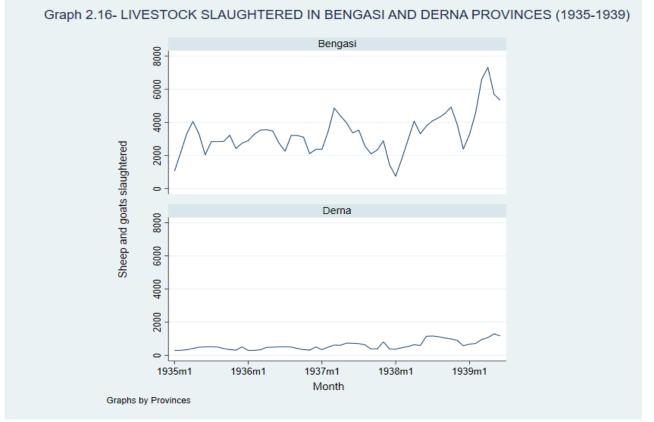
The abnormal peak in timber sales in winter 1935 also occurred in Derna province. During 1938 there was a strong increase in timber sold. Substantially, while the coal trend is quite regular, the trend in timber sales fluctuates.

2.3.5.4 Animals slaughtered in the provinces

Graph 2.16 shows the trend in sheep and goats slaughtered in Bengasi and Derna provinces.

The trend is regular for both provinces, with a general decrease in animals slaughtered in winter and an increase before summer. 1938 and 1939 show growth in animals slaughtered in both Bengasi and Derna provinces, an indication of greater dynamism in local markets.

The correlation between the two provinces was 0.72 with a significance of 0.1%. Slaughtering increased in both Bengasi and Derna.

Graph 2.16: **LIVESTOCK SLAUGHTERED IN BENGASI AND DERNA PROVINCES (1935-1939)**
Source: Consiglio coloniale dell'economia per le provincie di Bengasi e Derna, *Bollettino di statistica della Libia orientale*. Data are in heads of livestock slaughtered.
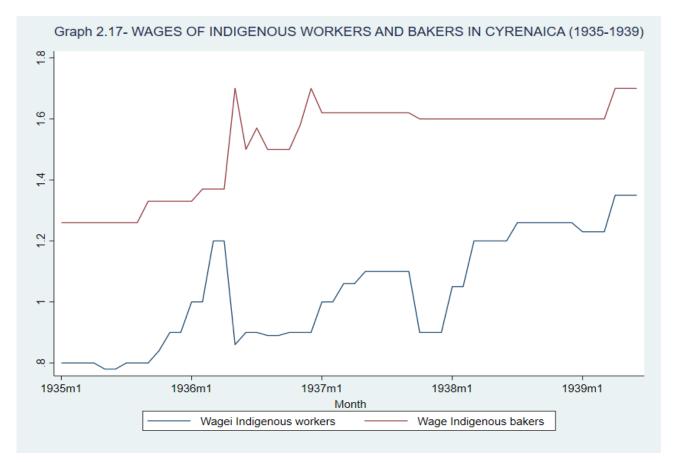
2.3.6 Wages and public works

Finally, we set out some data for indigenous wages between 1935 and 1939 and for the expenses of the Cyrenaic government for public works projects.

For wages, there are no data before the years 1935-1939 in Cyrenaica, and a comparison with Tripolitania would not be useful because it was only after 1934/1935 that the Italian government tried

to regulate labour law in the colonies. So, reliable data are available only for the last five years of Italian rule.

Indigenous wages were broken down into two sectors: the building industry and bakeries, the most important occupations of the Arab population, the former after the growth in public and private building projects in the most important towns in the colony. Indigenous wages were always lower than the wages of Italian settlers for the same job.

Graph 2.17 shows that bakers' wages were higher than those of manual workers. There was a high correlation (0.65) between the wages of the two occupations, with a significance of 0.1%.

Graph 2.17: **WAGES OF INDIGENOUS WORKERS AND BAKERS IN CYRENAICA (1935-1939)**
Source: Consiglio coloniale dell'economia per le provincie di Bengasi e Derna, *Bollettino di statistica della Libia orientale*. Data are in Lira per hour.

Graph 2.18 shows the monthly distribution of public works completed in Cyrenaica between 1926 and 1939. Data from the Ministry of Italian Africa are yearly, so monthly figures were estimates based on data from 1937 to 1939, which were monthly and supplied by the Italian Government in Libya. There was a period of high expenses before 1930 and between 1934 and 1935. However, the increase in expenses coincided mostly with the two periods of repression and pacification. Before 1928/1929 they were less conspicuous. The data reflect the will of the Italian government to develop

infrastructure to increase their control over the territory through the building of railways and roads, as a means of suppressing the Sanusi rebellion.

Graph 2.18- PUBLIC WORKS IN CYRENAICA (1926-1939)

Graph 2.18: **PUBLIC WORKS IN CYRENAICA (1926-1939)**
Source: *Memorandum sulla situazione finanziaria delle Colonie Italiane*, ASDMAE, ASMAI, Vol.III 1901-1941 OO.PP. Opere pubbliche, Busta 73; Consiglio coloniale dell'economia per le provincie di Bengasi e Derna, *Bollettino di statistica della Libia orientale*. Data are in thousands of current Lira.

2.4 CONCLUSIONS

The trends in some data categories indicate that there was a substantial temporal break for all variables in the years of fierce repression. The indigenous population was hit hard by Italian pacification, as was livestock. Moreover, the years between 1931 and 1933 were characterized by terrible drought, decimating crops. After 1934, prices, production, and the indigenous population recovered, while other products such as wheat and timber increased insignificance, as shown by the data for production and sales.

The following chapter investigates how the prices of local products and hence the traditional Arab economy, were affected by political events in this period.

CHAPTER 3

THE EVOLUTION OF THE LOCAL ECONOMY DURING THE FASCIST PERIOD: AN EMPIRICAL INVESTIGATION

3.1 INTRODUCTION

Chapter Two discussed data trends collected in the research. This chapter analyses the relationship between the data and the most important products of the Cyrenaic Colony: barley and sheep.

In a country where the two most important activities before the Italian invasion were breeding and agriculture, this shows the evolution of the local economy and, indirectly, its society.

Collecting data was the most challenging part of the research. Unfortunately, we do not have an extended dataset from 1920 to 1940, since there is a large hole between 1922 to 1925, and the data runs out in June 1939.

The lack of data between 1922 and 1925 is partially mitigated by the substantial immobility of Italian policy in Cyrenaica until the second half of the Twenties. The lack of data between 1939 and 1940 is more problematic because it concerns the final months of Italian dominion in Cyrenaica about which little is known regarding prices.

First, the data were transformed from nominal into real prices. 1927 was taken as the reference year because the so-called "Quota 90" was applied by the Italian government from 1926 to 1927 and this was a milestone for Italian monetary policy.[91]

As can be seen in *graph 3.1*, the value of the Italian Lira decreased sharply up to 1926, followed, after monetary reform, by a process of deflation.

The value of the Lira increased until 1934 when some events including internationally started it on a descending curve. Naturally, it is difficult to transpose the effects of cost of living in Italy to Libya so new instruments are probably needed to calculate inflation in the colony. However, the initial finding is that there was a close relationship between the value of the Lira in Italy and price trends in Cyrenaica.

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[91] "Quota 90" refers to Mussolini's attempt to fix the exchange rate with the English pound at 90 Lire, following years of continuous devaluation. The project lasted from 1926 to 1927.
For further information see Migone, G.G. (1973), *La stabilizzazione della lira: la finanza americana e Mussolini,* in *Rivista di Storia Contemporanea; Torino*, Vol. 2 No. 2.

Graph 3.1: **VALUE OF THE ITALIAN LIRA (BASELINE 1927)**
Source: data estimated by Istat based on the cost of life in Italy. For further information see http://seriestoriche.istat.it.

After this transformation, a logarithm for real prices was calculated, enabling the analysis of the elasticity in the correlation between products.

Second, the thesis of the paper by Gorini (the basis of this research) is summarized and verified.[92] Additional variables were taken into consideration in addition to sheep and barley prices, in order to include other products and production data, from another study by Gorini and from climate data.[93]

The analysis was extended to the years between 1926 to 1939. Chapter Two investigates three cities (Barce, Bengasi, and Derna) and the panel dataset with a total of 477 observations (159 for each town). The base town considered is Barce (El-Merg), the urban centre studied by Gorini and fundamental for an understanding of the behaviour of markets in the area of Cyrenaica hit by colonial repression in the 1930-1933 period.

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[92] Gorini, P. (1923), *I mercati della Cirenaica*, in *Giornale Degli Economisti e Rivista DI Statistica*, Vol. 64 (Anno 34) No. 12, pp. 545–571.
[93] Gorini, P. (1924), *Sull'importanza degli indici pluviometrici in Cirenaica*, in *Giornale Degli Economisti e Rivista DI Statistica*, Vol. 65 (Anno 39) No. 10, pp. 532–546.

A time variable was established for the period of repression, creating three dummy variables: *Reprweak* with value 1 for the period before June 1930, 0 otherwise; *Reprstrong* with value 1 for the period between June 1930 and January 1935, 0 otherwise; *Reprnull* with value 1 for the period between January 1935 and June 1939, 0 otherwise. These milestone were based on historic events.[94]

3.2 DATA ANALYSIS

3.2.1 Data summary

Table 3.1 shows a summary of data for each town, and the Annex sets out a description of each variable. The values are monthly, from January 1920 to December 1922 and from April 1926 to June 1939.

The raw data are shown before transformation into their 1927 base value and into logarithms.

Some variables are standard for every town and refer to Cyrenaica as a whole.

They include data for barley and wheat production, the surface area of barley and wheat crops, barley imports and exports, the number of sheep in the colony, the frequency of *ghibli* winds, the total population of the colony, the value of public works terminated at the end of month, the total tonnage transported by rail, and the wages of Indigenous workers and bakers. It was not possible to gather the same data for each town. Some variables refer to provinces (Bengasi and Derna). Barce is in the Bengasi province. The data refer to barley, sheep, goats, wheat, the amount of coal and wood sold, and the number of sheep slaughtered. Finally, some variables refer to each market such as product prices, temperatures and rainfall.

For Barce alone, we also estimated the total Indigenous population in the town. It was not possible to precisely estimate the trend in the Indigenous population in Bengasi and Derna due to the lack of monthly Indigenous mortality rates before 1934.

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[94] In June 1930, Pietro Badoglio began the fiercest phase of repression leading to the creation of concentration camps. In January 1935, the Libya Colony was founded as a union between Tripolitania and Cyrenaica, with Italo Balbo appointed as governor.

Table 3.1- SUMMARY STATISTICS

	Barce					Bengasi					Derna					Total				
	count	mean	sd	min	max	count	mean	sd	min	max	count	mean	sd	min	max	count	mean	sd	min	max
Average temperature	246	17.60772	5.026402	8.8	26.3	246	20.12195	4.657967	11.3	28.9	246	19.37317	4.509474	10.6	28.3	738	19.03428	4.846015	8.8	28.9
Barley production	229	16972.07	41810.39	0	255000	229	16972.07	41810.39	0	255000	229	16972.07	41810.39	0	255000	687	16972.07	41749.4	0	255000
Barley export	162	905.7901	2177.71	0	16029	162	905.7901	2177.71	0	16029	162	905.7901	2177.71	0	16029	486	905.7901	2173.216	0	16029
Barley import	162	3137.877	16406.73	0	153020	162	3137.877	16406.73	0	153020	162	3137.877	16406.73	0	153020	486	3137.877	16372.87	0	153020
Barley sold	54	4612.87	7510.716	107	55571	54	4612.87	7510.716	107	55571	54	315.3333	264.7941	0	1175	162	3180.358	6425.949	0	55571
Barley surface	202	46735.89	22718.46	19000	120000	202	46735.89	22718.46	19000	120000	202	46735.89	22718.46	19000	120000	606	46735.89	22680.88	19000	120000
Coal sold	54	1462.278	1067.501	224	7708	54	1462.278	1067.501	224	7708	54	179.7222	143.958	0	933	162	1034.759	1060.616	0	7708
Ghibli	246	4.971545	6.128821	0	35	246	4.971545	6.128821	0	35	246	4.971545	6.128821	0	35	738	4.971545	6.1205	0	35
Goats sold	54	1898.704	1201.42	455	4528	54	1898.704	1201.42	455	4528	54	181.3889	135.8044	0	591	162	1326.265	1271.154	0	4528
Indigenous population	234	157278.9	20434.37	127724	187350	234	157278.9	20434.37	127724	187350	234	157278.9	20434.37	127724	187350	702	157278.9	20405.2	127724	187350
Barce Indigenous population	234	22640.84	5767.442	12042	30177	234	22640.84	5767.442	12042	30177	234	22640.84	5767.442	12042	30177	702	22640.84	5759.209	12042	30177
Livestock slaughtered	54	3322.741	1237.343	750	7318	54	3322.741	1237.343	750	7318	54	592.037	271.7606	291	1294	162	2412.506	1643.063	291	7318
Price barley	202	77.68564	27.33481	30	160	190	76.41684	21.3013	36	130	167	77.59162	24.05568	37	140	559	77.2263	24.39935	30	160
Price coal	204	38.47941	13.4739	15	85	180	47.36833	15.6411	17	92.5	168	44.16845	15.2122	10	100	552	43.10942	15.1889	10	100
Price goats	201	97.89204	36.38796	49.2	265	164	93.925	28.44601	32.5	210	172	84.47384	24.96484	40.4	175	537	92.38268	31.16328	32.5	265
Price sheep	204	126.2559	39.9037	68	320	190	123.8858	30.81891	60	320	184	113.8549	32.64357	50	240	578	121.5291	35.18227	50	320
Price wheat	202	118.5455	37.27163	53.6	234.4	192	125.8099	34.12408	54.5	226.7	178	117.9427	38.47179	25.4	195	572	120.7963	36.74372	25.4	234.4
Price timber	204	12.50882	4.878789	7	35	176	21.74261	10.91047	9.5	60	166	16.72651	6.634357	8	60	546	16.76758	8.671632	7	60
Rainfall	246	40.71102	56.62786	0	255.4	246	22.90663	33.65916	0	185.7	246	25.64634	36.21919	0	204	738	29.75466	44.04623	0	255.4
Public works	234	1358.385	1896.058	0	11549	234	1358.385	1896.058	0	11549	234	1358.385	1896.058	0	11549	702	1358.385	1893.351	0	11549
Railcargo	172	7966.831	6404.568	982.3	29946.7	172	7966.831	6404.568	982.3	29946.7	172	7966.831	6404.568	982.3	29946.7	516	7966.831	6392.12	982.3	29946.7
Sheep heads number	244	483826.9	268067.7	7917	934039	244	483826.9	268067.7	7917	934040	244	483826.9	268067.7	7917	934040	732	483826.9	267700.7	7917	934040
Sheep sold	54	5144.204	2020.653	1861	10884	54	5144.204	2020.653	1861	10884	54	497.7222	294.7633	81	1717	162	3595.377	2746.697	81	10884
Wage Indigenous baker	54	1.516111	.1481256	1.26	1.7	54	1.516111	.1481256	1.26	1.7	54	1.516111	.1481256	1.26	1.7	162	1.516111	.1472027	1.26	1.7
Wage Indigenous worker	54	1.034444	.1799441	.78	1.35	54	1.034444	.1799441	.78	1.35	54	1.034444	.1799441	.78	1.35	162	1.034444	.1788229	.78	1.35
Wheat surface	180	15754.47	10422.22	2000	41868	180	15754.47	10422.22	2000	41868	180	15754.47	10422.22	2000	41868	540	15754.47	10402.87	2000	41868
Wheat production	197	5286.34	12427.61	0	82219	197	5286.34	12427.61	0	82219	197	5286.34	12427.61	0	82219	591	5286.34	12406.52	0	82219
Wheat sold	54	486.6296	557.0722	3	2329	54	486.6296	557.0722	3	2329	54	103.5741	132.4621	0	462	162	358.9444	492.8508	0	2329
Timber sold	54	2564.204	2614.869	244	20059	54	2564.204	2614.869	244	20059	54	2062.185	2310.298	122	14067	162	2396.864	2512.995	122	20059
N	738																			

Table 3.1: **SUMMARY STATISTICS**

76

Some aspects need to be highlighted. The first is the climate. Barce had lower average temperatures than Bengasi and Derna and higher rainfall, making the highlands particularly favourable for agriculture. Bengasi, Barce, and Derna, together with Cyrene, were the most heavily cultivated areas in Cyrenaica, particularly Bengasi.

The average price of products in the three markets requires comment. In Barce prices are shown as a little higher due to the inclusion of data for 1920-1922 when the value of the Lira was lower and inflation was steep. Hence minimum rather than maximum prices are a better indication of market trends and these were reached in the early thirties.

Barley and forestry prices were much lower than in Bengasi and Derna. The presence of woods in the *Gebel* territory ensured the constant availability of wood and coal with lower transport costs. This problem was partially solved by the construction of a more complex rail and road network at the end of the '20s.

Livestock prices in the early '30s were higher in the Barce market, possibly due to the lack of a highland area or the result of the mass deportation of livestock and people from *Gebel* to concentration camps along the coast.

The lowest livestock prices were in Derna, in line with the significant livestock trade to Egypt and the increased availability of sheep herds after the construction of a barbed wire fence across the frontier during the repression years, preventing that trade with Egyptian markets.

Looking at differences between provinces, the highest volume of sales was in the Bengasi region between 1935 and 1939. This is not surprising because the most significant towns - Bengasi, Barce and Agedabia - were in Bengasi province which had a larger population than Derna province.[95]

As a consequence of repression between 1930 and 1933 about 50,000 local inhabitants were killed or escaped, and almost all the sheep, estimated at over 800,000 in the early '20s, were wiped out.

3.2.2 Correlation between variables

This section analyses the correlations between the variables in the period between 1926 and 1939, between 1920 and 1922 and, finally, between 1935 and 1939.

Table 3.2 highlights a strong negative correlation between barley production and rainfall. This relationship can be misunderstood because of the coincidence of the harvest with the late spring and summer, the driest period of the year. The two phenomena are nonetheless correlated.

---

[95] In May 1940, the total population of Bengasi province was around 137.000, and in Derna was less than half (around 65,000). Source: *Bollettino Statistico dell'Africa Italiana*, published by the Ministry of Colonies, Anno 3, No. 1.

There is also a strong relationship between the number of sheep, the indigenous population and barley prices, but not between the price and number of sheep or between the price of sheep and the barley price.

It should not be forgotten that this is true of all three cities but livestock price trends e differed in Barce compared to Bengasi and Derna.

There is also a strong negative correlation between the barley price and rail cargo. This shows that the development of the transport network between the end of the '20s and early '30s led to an increase in local trade hence a decrease in prices.

Table 3.3 shows the correlation between variables in the last four-year period (January 1935-June 1939) and provides specific information. The data for both provinces are included.

There is a negative correlation between the quantity of barley sold and the barley price whilst the relationship between barley and sheep prices became positive and significant.

Indigenous wages were positively correlated with the barley price but not with the sheep price. This could be a consequence of changes in local habits, at least in prominent urban centres. With the decrease of nomadism and the growth of city centres, the local population became involved in construction and the foodstuffs industry, although most continued to be farmers or shepherds.

Livestock slaughtered was positively correlated with wages, which could mean the growing consumption of meat and other animal products, certified by a positive correlation with the Indigenous population.

Table 3.4 refers to data between 1920 and 1922 in the Barce market. Unlike *Tables 3.3* and *3.2*, where is little information about this period which has been gathered mainly from Gorini and from the climate reports of Amilcare Fantoli.[96]

There are only 36 observations for these three years, and this, of course, is rather problematic.

---

[96] Gorini, P. (1923), *I mercati della Cirenaica,* in *Giornale Degli Economisti e Rivista DI Statistica*, Vol. 64 (Anno 34) No. 12, pp. 545–571. Gorini, P. (1924), *Sull'importanza degli indici pluviometrici in Cirenaica*, in *Giornale Degli Economisti e Rivista DI Statistica*, Vol. 65 (Anno 39) No. 10, pp. 532–546. Fantoli, A. (Ed.). (1968), *Contributo alla climatologia della Cirenaica: riassunto dei risultati e tabelle meteorologiche e pluviometriche*, OPI, Roma.

Table 3.2- CORRELATION BETWEEN ALL VARIABLES (1926-1939)

	Average temperature	Barley production	Barley export	Barley import	Barley sold	Barley surface	Coal sold	Ghibli	Goats sold	Indigenous population	Indigenous population Barce	Livestock slaughtered	Price barley	Price coal	Price goats	Price sheep	Price wheat	Price timber	Rainfall	Public works	Railcargo	Sheep heads number	Sheep sold	Wage Indigenous baker	Wage Indigenous worker	Wheat production	Wheat sold	Timber sold
Average temperature	1																											
Barley production	0.557***	1																										
Barley export	-0.126	-0.0433	1																									
Barley import	-0.244**	-0.148	-0.0599	1																								
Barley sold	-0.0138	-0.0635	0.105	-0.0277	1																							
Barley surface	0.0486	0.0794	-0.299***	0.174*	-0.0411	1																						
Coal sold	-0.114	-0.0818	0.108	0.0975	0.740***	0.0107	1																					
Ghibli	-0.378***	-0.273***	0.261***	0.0255	-0.138	-0.425***	-0.0378	1																				
Goats sold	0.147	-0.0323	0.0685	0.140	0.196*	0.0614	0.436***	-0.137	1																			
Indigenous population	-0.0407	-0.0531	0.229**	-0.0342	-0.09697	-0.0860	-0.124	0.381***	-0.270***	1																		
Indigenous population Barce	0.0516	0.0346	-0.123	-0.0172	-0.146	-0.152	-0.207*	0.418***	-0.389***	0.631***	1																	
Livestock slaughtered	0.112	0.0897	0.295***	-0.0442	0.200*	-0.219*	0.447***	0.220**	0.481***	0.255**	0.204**	1																
Price barley	-0.0149	-0.0679	-0.311***	0.0688	-0.241**	0.0781	-0.249*	0.263**	-0.427***	0.216**	0.757***	-0.170*	1															
Price coal	-0.0106	-0.0301	0.00649	-0.0109	-0.176*	-0.0250	-0.284***	0.328**	-0.385***	0.444***	0.442***	-0.260***	0.416***	1														
Price goats	-0.314***	-0.349***	-0.260***	0.0500	0.0325	0.164*	-0.0938	-0.0470	-0.246*	-0.0978	0.0998	-0.297***	0.317***	0.0556	1													
Price sheep	-0.261**	-0.296***	-0.169*	0.0281	0.126	0.0116	0.0974	0.0872	-0.0405	-0.286***	0.0254	-0.0768	0.263**	-0.213**	0.506***	1												
Price wheat	0.137	0.132	-0.170*	-0.0561	-0.213**	-0.0343	-0.363***	0.155*	-0.418***	0.233**	0.633***	-0.277***	0.720***	0.400***	0.157*	0.0972	1											
Price timber	0.159*	-0.0288	-0.125	0.0168	-0.217*	-0.0664	-0.318***	0.192*	-0.373***	0.246**	0.490***	-0.278***	0.546***	0.588***	0.0563	-0.0117	0.640***	1										
Rainfall	-0.687***	-0.497***	-0.0424	0.180*	-0.0204	-0.0847	0.0127	0.186*	-0.111	0.0452	0.0176	-0.138	0.0129	-0.0262	0.265**	0.269**	-0.0710	-0.108	1									
Public works	0.133	0.382***	0.213**	-0.191*	-0.128	-0.0259	-0.0744	-0.214**	0.149	-0.115	-0.305***	0.0638	-0.229**	-0.154	-0.227**	-0.209*	-0.223**	-0.189*	-0.221**	1								
Railcargo	0.0903	-0.0123	0.103	-0.0394	0.0844	-0.000939	0.0739	-0.327***	0.265***	-0.302***	-0.535***	-0.0301	-0.559***	-0.318***	0.0159	-0.115	-0.423***	-0.292***	-0.122	0.319***	1							
Sheep heads number	0.0436	0.000596	0.139	0.0379	-0.156*	-0.0145	-0.161*	0.350***	-0.181*	0.841***	0.614***	0.308***	0.220**	0.329***	-0.139*	-0.441***	0.182*	0.260***	-0.0427	-0.109	-0.179*	1						
Sheep sold	0.104	0.104	0.185*	0.0859	0.307***	0.0150	0.459***	-0.0407	0.730***	0.0564	-0.0480	0.744***	-0.308***	-0.431***	-0.157*	0.0367	-0.380***	-0.376***	-0.0258	0.00336	0.200*	0.0853	1					
Wage Indigenous baker	0.0424	0.0026	-0.0644	-0.0685	-0.114	-0.228**	-0.181*	0.429***	-0.392***	0.527***	0.935***	0.194*	0.724***	0.397***	0.0829	0.100	0.607***	0.463***	0.0633	-0.310***	-0.535***	0.484***	-0.0459	1				
Wage Indigenous worker	-0.00516	0.0842	0.128	-0.0313	-0.0763	-0.243**	-0.118	0.439***	-0.334***	0.780***	0.762***	0.343***	0.392***	0.384***	-0.113	-0.282***	0.351***	0.336***	-0.0753	-0.0722	-0.330***	0.767***	0.0347	0.646***	1			
Wheat production	0.497***	0.862***	-0.0767	-0.121	-0.0145	0.117	-0.0971	-0.223**	-0.143	0.181*	0.250**	0.148	0.104	0.0907	-0.319***	-0.309***	0.226**	0.0799	-0.416***	0.265**	-0.130	0.218**	-0.0200	0.270***	0.316***	1		
Wheat sold	0.321***	0.0699	0.0575	-0.0954	0.419***	-0.113	0.225**	-0.221**	0.282***	0.237**	0.0599	0.344***	-0.170*	-0.131	-0.106	-0.104	-0.113	-0.119	-0.131	-0.0788	-0.0339	0.170*	0.434***	0.0213	0.130	0.0700	1	
Timber sold	-0.246*	-0.142	0.156*	0.0413	0.735***	-0.00923	0.635***	-0.0927	0.132	0.0223	-0.194*	0.0154	-0.186*	-0.0373	0.0100	0.0167	-0.172*	-0.157*	0.0880	-0.121	0.0350	-0.201*	0.0811	-0.160*	-0.0413	-0.0743	0.163*	1
N	162																											

$* \ p < 0.05,\ ** \ p < 0.01,\ *** \ p < 0.001$

Table 3.2: **CORRELATION BETWEEN ALL VARIABLES (1926-1939)**

Table 3.3- CORRELATION BETWEEN ALL VARIABLES (1935-1939)

	Average temperature	Barley production	Barley export	Barley import	Barley sold	Barley surface	Coal sold	Ghibli	Goats sold	Indigenous population	Indigenous population Barce	Livestock slaughtered	Price barley	Price coal	Price goats	Price sheep	Price wheat	Price timber	Rainfall	Public works	Railcargo	Sheep heads number	Sheep sold	Wage Indigenous baker	Wage Indigenous worker	Wheat production	Wheat sold	Timber sold
Average temperature	1																											
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Barley export	-0.126	-0.0433	1																									
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Barley surface	0.0486	0.0794	-0.299***	0.174*	-0.0411	1																						
Coal sold	-0.114	-0.0818	0.108	0.0975	0.740***	0.0107	1																					
Ghibli	-0.378***	-0.273***	0.261***	0.0255	-0.138	-0.425***	-0.0378	1																				
Goats sold	0.147	-0.0323	0.0985	0.140	0.196*	0.0614	0.436***	-0.137	1																			
Indigenous population	-0.0407	-0.0531	0.229**	-0.0342	-0.00697	-0.0860	-0.124	0.381***	-0.270***	1																		
Indigenous population Barce	0.0516	0.0346	-0.123	-0.0172	-0.146	-0.152	-0.207*	0.418***	-0.389***	0.631***	1																	
Livestock slaughtered	0.112	0.0897	0.295***	-0.0442	0.200*	-0.219**	0.447***	0.220*	0.481***	0.255***	0.204**	1																
Price barley	-0.0149	-0.0679	-0.311***	0.0688	-0.241**	0.0781	-0.249**	0.263***	-0.427***	0.216**	0.757***	-0.170*	1															
Price coal	-0.106	-0.0301	0.00649	-0.0109	-0.176*	-0.0250	-0.284***	0.328***	-0.385***	0.444***	0.442***	-0.260***	0.416***	1														
Price goats	-0.314***	-0.349***	-0.280***	0.0500	0.0325	0.164*	-0.0938	-0.0470	-0.246*	-0.0978	0.0998	-0.297***	0.317***	0.0556	1													
Price sheep	-0.261***	-0.266***	-0.169*	0.0281	0.126	0.0116	0.0974	0.0372	-0.0405	-0.386***	0.0254	-0.0708	0.263***	-0.213**	0.506***	1												
Price wheat	0.137	0.132	-0.170*	-0.0561	-0.213**	-0.0343	-0.363***	0.155*	-0.418***	0.233**	0.633***	-0.277***	0.720***	0.400***	0.157*	0.0972	1											
Price timber	0.159*	-0.0288	-0.125	0.0168	-0.217**	-0.0664	-0.318***	0.192*	-0.373***	0.246**	0.490***	-0.278***	0.546***	0.580***	0.0563	-0.0117	0.640***	1										
Rainfall	-0.687***	-0.497***	-0.0424	0.180*	-0.0204	-0.0347	0.0127	0.186*	-0.111	0.0452	0.0176	-0.138	0.0129	-0.0262	0.265***	0.269***	-0.0710	-0.108	1									
Public works	0.133	0.382***	0.213**	-0.191*	-0.128	-0.0259	-0.0744	-0.214**	0.149	-0.115	-0.305***	0.0638	-0.329***	-0.154	-0.227**	-0.209**	-0.223**	-0.189*	-0.222**	1								
Railcargo	0.0903	-0.0123	0.103	-0.0394	0.0844	-0.000939	0.0739	-0.327***	0.265***	-0.302***	-0.535***	-0.0301	-0.530***	-0.318***	0.0159	-0.115	-0.423***	-0.292***	-0.122	0.319***	1							
Sheep heads number	0.0436	0.000596	0.139	0.0379	-0.156*	-0.0145	-0.161*	0.350***	-0.181*	0.841***	0.614***	0.308***	0.220*	0.329***	-0.159*	0.0367	0.182*	0.260***	-0.0427	-0.109	-0.179*	1						
Sheep sold	0.104	-0.0094	0.185*	0.0659	0.307***	0.0150	0.459***	-0.0407	0.730***	0.0564	-0.0480	0.744***	-0.308***	-0.431***	-0.157	0.100	-0.380***	-0.376***	-0.0258	0.00336	0.200*	0.0633	1					
Wage Indigenous baker	0.0424	0.0626	-0.0644	-0.0085	-0.114	-0.228**	-0.181*	0.429***	-0.392***	0.527***	0.935***	0.194*	0.724***	0.397***	0.0829	-0.282***	0.607***	0.463***	0.0633	-0.310***	-0.330***	0.484***	-0.0459	1				
Wage Indigenous worker	-0.00516	0.0842	0.128	-0.0313	-0.0763	-0.243**	-0.118	0.439***	-0.334***	0.780***	0.762***	0.343***	0.392***	0.384***	-0.113	-0.309***	0.351***	0.336***	-0.0753	-0.0722	-0.130	0.756***	0.0347	0.646***	1			
Wheat production	0.497***	0.892***	-0.0767	-0.121	-0.0145	0.117	-0.0971	-0.223**	-0.143	0.181*	0.250*	0.148	0.104	0.0907	-0.319***	-0.104	0.607***	0.336***	-0.416***	0.265**	-0.130	0.218**	-0.0200	0.270***	0.316***	1		
Wheat sold	0.321***	0.0699	0.0575	-0.0954	0.419***	-0.113	0.225**	-0.221**	0.282***	0.237**	0.0599	0.344***	-0.170*	-0.131	-0.106	-0.104	-0.113	-0.119	-0.131	-0.0788	-0.0339	0.170*	0.434***	0.0213	0.130	0.0700	1	
Timber sold	-0.246*	-0.142	0.156*	0.0413	0.735***	-0.00923	0.635***	-0.0927	0.0132	0.0223	-0.194*	0.0154	-0.186*	-0.0373	0.0100	0.0167	-0.172*	-0.157	0.0880	-0.121	0.0350	-0.201*	0.0811	-0.160*	-0.0413	-0.0743	0.163*	1
N	162																											

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 3.3: **CORRELATION BETWEEN ALL VARIABLES (1935-1939)**

Table 3.4- CORRELATION BETWEEN ALL VARIABLES (1920-1922), BARCE

	Average temperature	Barley production	Price barley	Price coal	Price goats	Price sheep	Price wheat	Price timber	Rainfall
Average temperature	1								
Barley production	0.280	1							
Price barley	-0.211	-0.539***	1						
Price coal	-0.0537	0.459**	-0.478**	1					
Price goats	-0.136	0.344*	-0.674***	0.257	1				
Price sheep	-0.232	0.221	-0.490**	0.232	0.944***	1			
Price wheat	-0.591***	-0.339*	0.220	-0.227	0.179	0.223	1		
Price timber	-0.197	0.204	-0.238	0.859***	0.0657	0.114	-0.143	1	
Rainfall	-0.649***	-0.258	0.131	0.457**	-0.0759	0.0242	0.148	0.635***	1
N	36								

$*\ p < 0.05, **\ p < 0.01, ***\ p < 0.001$

Table 3.4: **CORRELATION BETWEEN ALL VARIABLES (1920-1922), BARCE**

However, some aspects confirm the previous two tables, such as the negative correlation between rainfall and barley production.

There is also a strong negative correlation between barley production and the barley price and between the latter and animal and forestry product prices. The trend is the opposite from the periods 1935-1939, and 1926-1939, even where Bengasi and Derna are excluded.

This initial analysis supports the thesis that something happened in the final thirteen years of Italian rule in Cyrenaica, causing a change in the relationship between the prices of these two fundamental products.

3.3 EMPIRICAL SPECIFICATION

This section illustrates the method used to calculate the relationship between barley and sheep prices, with the former as the dependent variable.

We estimate a reduced-form equation of the type:

$$\ln(Real\ price\ barley) = b_0 + b_1 \ln(Real\ price\ sheep) + b_2 X + u$$

where $\ln(Real\ price\ barley)$ is the logarithm of the barley price with baseline 1927, $\ln(Real\ sheep\ price)$ is the logarithm of the sheep price with baseline 1927, and X is the set of covariates. The latter were derived from official sources and our estimates, based on established literature or existing data.

81

An OLS regression was applied where the observations referred only to Barce, using a robust standard error. Where observations for all three towns were considered, we applied a linear regression panel data model with fixed city effects which eliminate the risk of bias due to omitted factors that vary across cities but not over time.

To capture differences in different periods and markets, two dummy variables were created: *Repr* and *City*. The former was divided into three sub-periods, *Reprweak* (months between April 1926 and June 1936), *Reprstrong* (months between June 1930 and January 1935), and *Reprnull* (months until June 1939). The dummy variable *City* was divided into *Barce*, *Bengasi*, and *Derna*. Generally, the base dummies were *Reprweak* and *Barce* because they are our reference period and centre.

3.4 EMPIRICAL RESULTS

This section sets out the results of the data analysis, beginning from the period 1920-1922 and ending with the outcomes of the last four and a half years.

3.4.1 The Barce economy between 1920 and 1922

Chapter Two mentions the season nature of raw products sold mainly in Barce.[97]

In 1922, the Indigenous population in the so-called *Barcino* region was around 29,000 with a city centre of less than 2,000 people.[98] The figures dropped dramatically after 1928, especially during the period between 1930 and 1933, the period of the fiercest repression. Most of the population in the Barce region was deported to concentration camps along the coast, for example near Agedabia.

Barce is an ideal case study for this research because, together with Cyrene, it was the most important centre in *Gebel El-Akhdar* and so was the area hardest hit during the repression of 1930.

In the years between 1920 and 1922, the Indigenous presence was strong, and the local economy revolved around agriculture, breeding and forestry products such as coal. *Gebel El-Akhdar* included the largest woods in Cyrenaica.

Table 3.5 sets out the results of the regression on the logarithm of real barley prices with baseline 1927. The real sheep price is the independent variable being studied.

In all three cases it is statistically significant at a 0.1% level with a negative sign and a low standard error. It confirms the theory of a seasonal correlation between agriculture and breeding. We chose two other price variables, wheat and coal, rather than goats and wood due to the problem of collinearity (the former with sheep, the latter with coal).

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[97] To avoid misunderstanding, henceforth this name is used for Barce.

[98] Population data in the Barce region was calculated basing estimates on the 1928 Census and on De Agostini, E. (1923), *Le popolazioni della Cirenaica: notizie etniche e storiche*, Bengasi. We sought to merge data for the individual tribes in the area. In 1922 nomadism was still strong so these figures should be treated cautiously.

The coal price had a significant negative value, confirming the second theory of higher availability of forestry products during the lack of agricultural work. The absence of a strong correlation between barley and wheat prices is unsurprising. It is slightly positive but not statistically significant. Wheat was not very present in the Indigenous diet in the early '20s.

The high negative correlation, already noted in *tables 3.2* to *3.4*, is also unsurprising Four lagged variables were chosen for rainfall because the most important weather period was before the harvest, between January and March. A poor crop was more likely when these three months were dry. Considering that the crucial period of harvest coincided with the months between June and July, our lagged variables reflect rainfall in the winter season. In both climate models the coefficient of rainfall variables was negative and significant (a fall of 3.3% in the price for every millimetre of rain), increasing without the production variable, which indicates a strong correlation between them.

Table 3.5- OLS OF LOG REAL BARLEY PRICE (1920-1922), BARCE

	(1) Base model	(2) Production model	(3) Climate model	(4) Climate model2
Real price sheep (ln)	-0.426**** (0.0924)	-0.292**** (0.0721)	-0.433**** (0.0779)	-0.472**** (0.0803)
Real price wheat (ln)		-0.0958 (0.203)	0.204 (0.228)	0.291 (0.214)
Real price coal (ln)		-0.259**** (0.0665)	-0.235*** (0.0727)	-0.216*** (0.0728)
Barley production (ln, lag1)		-0.0315**** (0.00618)	-0.0170* (0.00921)	
Rainfall in Bengasi (lag4)			-0.0381*** (0.0130)	-0.0338*** (0.0121)
Rainfall in Bengasi (lag5)			-0.00987 (0.0126)	-0.0208* (0.0108)
Rainfall in Bengasi (lag6)			-0.00165 (0.00988)	-0.0185* (0.0104)
Constant	6.566**** (0.479)	7.399**** (0.914)	6.583**** (0.962)	6.264**** (0.898)
N	36	36	36	36
R^2	0.306	0.660	0.752	0.736
p	0.0000555	3.72e-08	0.000000174	9.22e-08
F	21.21	19.70	13.49	15.09

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 3.5: **OLS OF LOG REAL BARLEY PRICE (1920-1922), BARCE**
Notes: prices are in Lira with baseline 1927, production in quintals, rainfall in mm.

3.4.2 The economy between 1926 and 1939

The results in this section are crucial for our research. The political events in the period are described above. The variables used are the same for OLS regressions related only to Barce and the entire panel dataset.

The "Production model" and "Production model 2" in *table 3.6*, which refers only to Barce in the period between 1926 and 1939, without dummies, show that the sheep price is not significant if other variables are introduced such as the Indigenous population in Barce, the number of sheep and rail goods. These control variables also influenced the sheep price, raising a significant collinearity problem.

The importance of these variables is confirmed by the "No Price sheep model" which shows no significant decrease in the R^2. However, if only the "Base model" and "Production model 2" are considered, in the whole period the relationship between barley and sheep prices remains negative, a symptom that at least for an extended period, the economic correlation between agriculture and breeding prices in Barce did not change dramatically.

There is an initial variation from the period 1920-1922 in the relationship between forestry product prices and barley price. In *table 3.6,* it is still significant but positive. This can be explained by the increase in public works (roads, waterworks, public buildings), which required increased wood and coal production, so this activity was more important than in the first years of Italian rule.

We chose lagged import and export variables because Barce was far from the coast and the consequences of trade were visible only after some time.

Finally, the *ghibli* and *average temperature* variables do not appear to have a significant impact on prices, although the first, lagged for four months, has a slightly positive impact, as can be expected.

There are few differences for an OLS regression with the observations for all cities in the same period (*table 3.7*). The sheep and barley price relationship remained negative and significant at 0.1% level in the "Base model" and "Production model 2", and whilst the price of coal coefficient became negative and not significant. The *Indigenous population* variable, which indicates the whole Indigenous population in Cyrenaica, is not statistically significant, like the number of sheep. This may mean that demographic trends in each town rather than in the whole Cyrenaic population should be considered, at least for the 1926-1939 period.

The impact of barley imports and exports on barley prices was significant for all three cities, while the *ghibli* variable and *temperature* were not significant.

Table 3.6- OLS OF LOG REAL BARLEY PRICE (1926-1939), BARCE

	(1) Base model	(2) Production model	(3) Production model 2	(4) Climate model	(5) Climate model 2	(6) No Price sheep model
Real price sheep (ln)	-0.382****	0.0164	-0.216***	0.0230	0.00222	
	(0.0946)	(0.0580)	(0.0785)	(0.0613)	(0.0585)	
Real price wheat (ln)		0.463****	0.546****	0.464****	0.474****	0.464****
		(0.0943)	(0.0883)	(0.0890)	(0.0991)	(0.0942)
Real price timber (ln)		0.283****	0.305****	0.255****	0.232****	0.285****
		(0.0561)	(0.0721)	(0.0582)	(0.0593)	(0.0561)
Real price coal (ln)		0.0963*	0.167**	0.125**	0.0895*	0.0961*
		(0.0557)	(0.0786)	(0.0545)	(0.0540)	(0.0555)
Barley production (ln, lag1)		-0.0613***	-0.0723****	-0.0610****		-0.0610***
		(0.0188)	(0.0154)	(0.0176)		(0.0186)
Wheat production (ln, lag1)		0.0616***	0.0733****	0.0576***		0.0612***
		(0.0208)	(0.0173)	(0.0195)		(0.0206)
Barley export (ln, lag1)		-0.0215****	-0.0283****	-0.0216****	-0.0215****	-0.0215****
		(0.00386)	(0.00416)	(0.00385)	(0.00408)	(0.00386)
Barley import (ln, lag3)		0.0136****	0.0146****	0.0113***	0.00802**	0.0135****
		(0.00389)	(0.00433)	(0.00405)	(0.00352)	(0.00388)
Barce Indigenous population (ln)		0.358****		0.365****	0.457****	0.350****
		(0.0986)		(0.0996)	(0.0903)	(0.0937)
Sheep heads number (ln)		-0.0793****		-0.0866****	-0.0911****	-0.0780****
		(0.0200)		(0.0192)	(0.0202)	(0.0201)
Railcargo (ln, lag1)		-0.0761***		-0.0893***	-0.0616**	-0.0760***
		(0.0267)		(0.0270)	(0.0260)	(0.0266)
Real price public works (ln, lag1)		-0.0132***	-0.0174***	-0.0112**	-0.00733	-0.0131***
		(0.00461)	(0.00532)	(0.00468)	(0.00447)	(0.00459)
Ghibli (lag4)				0.000386		
				(0.00185)		
Rainfall in Bengasi (lag4)				0.000233		
				(0.00566)		
Rainfall in Bengasi (lag5)				-0.00779		
				(0.00511)		
Rainfall in Bengasi (lag6)				-0.0125***	-0.0104***	
				(0.00466)	(0.00386)	
Average temperature Bengasi (lag4)				-0.00405		
				(0.00740)		
Average temperature Bengasi (lag5)				-0.0106		
				(0.0110)		
Average temperature Bengasi (lag6)				-0.00214		
				(0.00682)		
Constant	6.336****	-0.655	1.685***	-0.203	-1.472	-0.526
	(0.460)	(1.271)	(0.574)	(1.317)	(1.221)	(1.144)
N	159	159	159	159	159	159
R^2	0.084	0.773	0.657	0.789	0.763	0.773
p	0.0000843	7.43e-53	4.75e-38	1.55e-52	1.40e-50	1.21e-53
F	16.30	66.30	44.80	50.00	64.46	72.40

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 3.6: **OLS OF LOG REAL BARLEY PRICE (1926-1939), BARCE**
N.B.: prices are in Lira at the 1927 baseline, production is in quintals as are imports and exports, rail goods are in tonnes, public works in thousands of Lira, rainfall in mm, and temperature in degrees Celsius.

Table 3.7- OLS OF LOG REAL BARLEY PRICE (1926-1939), ALL CITIES

	(1) Base model	(2) Production model	(3) Production model 2	(4) Climate model	(5) Climate model 2	(6) No Price sheep model
Real price sheep (ln)	-0.266****	-0.0426	-0.121****	-0.0433	-0.0915***	
	(0.0429)	(0.0327)	(0.0321)	(0.0332)	(0.0326)	
Real price wheat (ln)		0.402****	0.519****	0.393****	0.417****	0.400****
		(0.0407)	(0.0369)	(0.0409)	(0.0417)	(0.0407)
Real price timber (ln)		0.101***	0.156****	0.100***	0.104***	0.0926***
		(0.0327)	(0.0332)	(0.0329)	(0.0339)	(0.0321)
Real price coal (ln)		-0.0578*	-0.0738**	-0.0532	-0.0567*	-0.0618*
		(0.0330)	(0.0351)	(0.0332)	(0.0340)	(0.0328)
Barley production (ln, lag1)		-0.0679****	-0.0591****	-0.0680****		-0.0711****
		(0.0107)	(0.0113)	(0.0121)		(0.0104)
Wheat production (ln, lag1)		0.0680****	0.0562****	0.0653****		0.0720****
		(0.0119)	(0.0125)	(0.0131)		(0.0115)
Barley export (ln, lag1)		-0.0129****	-0.0123****	-0.0133****	-0.0138****	-0.0133****
		(0.00260)	(0.00250)	(0.00270)	(0.00263)	(0.00258)
Barley import (ln, lag3)		0.0130****	0.0123****	0.0116****	0.00660**	0.0131****
		(0.00289)	(0.00309)	(0.00308)	(0.00258)	(0.00289)
Indigenous population (ln)		-0.0142		0.0474	-0.0967	0.0369
		(0.138)		(0.142)	(0.141)	(0.133)
Sheep heads number (ln)		-0.0109		-0.0127	-0.0111	-0.00998
		(0.0111)		(0.0112)	(0.0114)	(0.0111)
Railcargo (ln, lag1)		-0.102****		-0.107****	-0.106****	-0.103****
		(0.0139)		(0.0147)	(0.0143)	(0.0139)
Real price public works (ln, lag1)		-0.0163****	-0.0202****	-0.0148****	-0.0129****	-0.0160****
		(0.00360)	(0.00313)	(0.00373)	(0.00372)	(0.00359)
Ghibli (lag1)				0.000981		
				(0.00149)		
Rainfall in Bengasi (lag4)				0.000468		
				(0.00358)		
Rainfall in Bengasi (lag5)				-0.00527		
				(0.00341)		
Rainfall in Bengasi (lag6)				-0.00809**	-0.00976****	
				(0.00340)	(0.00241)	
Average temperature Bengasi (lag4)				0.000171		
				(0.00500)		
Average temperature Bengasi (lag5)				-0.0111		
				(0.00698)		
Average temperature Bengasi (lag6)				0.000987		
				(0.00447)		
Constant	5.750****	3.992**	2.550****	3.587**	5.145***	3.220*
	(0.209)	(1.761)	(0.274)	(1.809)	(1.797)	(1.659)
N	477	477	477	477	477	477
R^2	0.075	0.624	0.562	0.632	0.599	0.623
p	1.26e-09	3.34e-90	8.11e-78	2.91e-86	1.31e-84	9.00e-91
F	38.40	63.99	66.41	41.21	62.83	69.55

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 3.7: **OLS OF LOG REAL BARLEY PRICE (1926-1939), ALL CITIES**
N.B.: prices are in Lira at the 1927 baseline, production is in quintals as are imports and exports, rail goods are in tonnes, public works in thousands of Lira, rainfall in mm, and temperature in degrees Celsius.

The differences between cities are shown in *table 3.8*. Regarding sheep prices, the coefficient in Bengasi and Derna is positive compared to Barce, which means that in the latter there was a sharper negative correlation between this variable with the barley price variable. The coefficient is statistically significant in Bengasi, not in Derna.

Coefficients of coal prices are the only ones with a considerable gap between Barce and the other two towns, while the lagged *Rainfall* variable is not significant, unlike *table 3.7*. The coefficient for the *Indigenous population* variable is not crucial, at least if taken together with the number of sheep, which is strictly correlated.

These initial regressions, although useful to understand the different behaviour of various Cyrenaic markets, do not answer the question about the possible change in the relationship of seasonality between cereal and livestock prices.

Table 3.9, *table 3.10* and *table 3.11* introduce the *Repr* dummy variable and provide a complete picture of the evolution of the price correlation.

Table 3.9 refers to Barce. There are significant differences between barley and sheep prices in particular in the period of repression (*Reprweak*) between April 1926 and June 1930, i.e. before the military operation of Rodolfo Graziani, and the *Reprnull* phase January 1935 and June 1939. The coefficient is negative in the first four years, similarly to the 1920-1922 period, but becomes strongly positive in the final four years.

Hence the seasonal relationship has disappeared. It was still present in the period of intense repression (1930-1935) when there was a collapse in the number of livestock and in the Indigenous population. The model without the sheep price helps in the understanding of this phenomenon. The Indigenous population in Barce and the number of sheep herds strongly impacted on sheep prices. During the period of harsh repression, the sign of their coefficient was opposite to the base variable, again changing sign in the *Reprnull* period. The coefficient of the number of sheep increased sharply with the barley price in the final four years.

Two further variables need to be considered. The first is the price of timber. In the three years between 1920 and 1922, this had a negative correlation with the barley price because cutting wood was a secondary activity compared to farming and breeding. However, the development of public works made it essential so the coefficient moves from negative to positive as early as the first period analysed (1926-1930) and thereafter increases exponentially during the period of harsh repression when the Italian government in Cyrenaica carried out a massive public works programme.

The second change is related to the relationship between wheat and barley prices. The coefficient of the former was positive during the weak repression period but after 1930 it became negative.

Table 3.8- OLS OF LOG REAL BARLEY PRICE (1926-1939), CITIES AS DUMMIES

	(1)	(2)	(3)
	Production model	Climate model	No Price sheep model
Real price sheep (ln)	-0.216***	-0.260****	
	(0.0665)	(0.0676)	
Bengasi.Real price sheep (ln)	0.185**	0.195**	
	(0.0886)	(0.0902)	
Derna.Real price sheep (ln)	0.100	0.0921	
	(0.0812)	(0.0828)	
Real price wheat (ln)	0.546****	0.549****	0.429****
	(0.0689)	(0.0714)	(0.0818)
Bengasi.Real price wheat (ln)	-0.0279	0.000159	-0.0504
	(0.100)	(0.103)	(0.113)
Derna.Real price wheat (ln)	-0.119	-0.124	-0.0361
	(0.0908)	(0.0933)	(0.110)
Real price timber (ln)	0.305****	0.239***	0.209***
	(0.0770)	(0.0773)	(0.0766)
Bengasi.Real price timber (ln)	-0.129	-0.0790	-0.157
	(0.0947)	(0.0965)	(0.0989)
Derna.Real price timber (ln)	-0.160	-0.0450	-0.0918
	(0.0983)	(0.101)	(0.101)
Real price coal (ln)	0.167**	0.158**	0.0908
	(0.0690)	(0.0713)	(0.0717)
Bengasi.Real price coal (ln)	-0.223**	-0.222**	-0.0815
	(0.106)	(0.109)	(0.110)
Derna.Real price coal (ln)	-0.406****	-0.407****	-0.302****
	(0.0865)	(0.0894)	(0.0901)
Barley production (ln, lag1)	-0.0723****		
	(0.0192)		
Bengasi.Barley production (ln, lag1)	0.0140		
	(0.0272)		
Derna.Barley production (ln, lag1)	-0.00605		
	(0.0269)		
Wheat production (ln, lag1)	0.0733****		
	(0.0210)		
Bengasi.Wheat production (ln, lag1)	-0.0184		
	(0.0301)		
Derna.Wheat production (ln, lag1)	0.00262		
	(0.0298)		
Barley export (ln, lag1)	-0.0283****	-0.0300****	-0.0272****
	(0.00413)	(0.00415)	(0.00434)
Bengasi.Barley export (ln, lag1)	0.0226****	0.0228****	0.0192***
	(0.00592)	(0.00594)	(0.00617)
Derna.Barley export (ln, lag1)	0.0200****	0.0202****	0.0150**
	(0.00598)	(0.00602)	(0.00650)
Barley import (ln, lag3)	0.0146***	0.00720	0.00693
	(0.00518)	(0.00460)	(0.00430)
Bengasi.Barley import (ln, lag3)	-0.00570	-0.00636	-0.00561
	(0.00727)	(0.00647)	(0.00606)
Derna.Barley import (ln, lag3)	0.00122	0.000205	0.000141
	(0.00727)	(0.00649)	(0.00608)
Real price public works (ln, lag1)	-0.0174***	-0.0114*	-0.0125*
	(0.00615)	(0.00618)	(0.00687)
Bengasi.Real price public works (ln, lag1)	-0.000789	-0.00407	-0.00260
	(0.00811)	(0.00826)	(0.00919)
Derna.Real price public works (ln, lag1)	0.000409	0.000651	-0.00576
	(0.00804)	(0.00807)	(0.00946)
Rainfall in Bengasi (lag6)		-0.00661	
		(0.00416)	
Bengasi.Rainfall in Bengasi (lag6)		-0.00109	
		(0.00604)	
Derna.Rainfall in Bengasi (lag6)		-0.00846	
		(0.00597)	
Indigenous population (ln)			-0.0216
			(0.235)
Bengasi.Indigenous population (ln)			-0.191
			(0.344)
Derna.Indigenous population (ln)			-0.323

	(1)	(2)	(3)
			(0.338)
Sheep heads number (ln)			-0.0386*
			(0.0206)
Bengasi.Sheep heads number (ln)			0.0437
			(0.0281)
Derna.Sheep heads number (ln)			0.0432
			(0.0293)
Railcargo (ln, lag1)			-0.140****
			(0.0239)
Bengasi.Railcargo (ln, lag1)			0.0243
			(0.0340)
Derna.Railcargo (ln, lag1)			0.0703**
			(0.0352)
Constant	2.390****	2.581****	5.812****
	(0.281)	(0.288)	(1.748)
N	477	477	477
R^2	0.619	0.588	0.626
p	9.33e-77	1.41e-71	1.80e-78
F	26.93	26.80	27.73

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 3.8: **OLS OF LOG REAL BARLEY PRICE (1926-1939), CITIES AS DUMMIES**
Notes: prices are in Lire 1927, production is in quintals, like import and export, railway traffic goods are in tonnes, public works variable is in thousands of Lire, rainfall is in mm, and temperature in Celsius degrees.

This could be due to the growing importance of wheat not only in the indigenous diet but also for Italian settlers who preferred it to barley. The surface area of wheat-fields increased and hence production. It remained a marginal agricultural product until the end of the '20s and the distribution of territories to Italian settlers when it became a more important crop.

Table 3.10 sets out observations for all three towns but only the differences with the behaviour of coefficients for Barce.

In *table 3.11* the different behaviour of variables is broken down into markets and periods.

This is the most detailed analysis included in the research. The focus was on sheep prices. The most evident difference is between sheep prices in Bengasi compared to Barce and Derna, which have a similar trend in the three periods, while Bengasi has a significant positive coefficient in the period 1926-1930, meaning there was not a negative correlation between barley and sheep prices even before the repression.

Regarding wood prices, the trend is the same in all three towns, with a strongly positive significance for Bengasi in the 1935-1939 period.

Analysing the model without sheep prices, the number of sheep had a similar trend in the three periods for all the towns, so the correlation between the livestock population and the barley price was unrelated to geographical area. Other control variables such as imports and exports did not vary significantly over the periods or between the markets.

Table 3.9- OLS OF LOG REAL BARLEY PRICE (1926-1939), REPRESSION AS DUMMY, BARCE

	(1) Production model	(2) Climate model	(3) No Price sheep model
Reprstrong	2.557** (1.203)	2.430** (1.040)	3.309 (7.327)
Reprnull	-1.723 (1.706)	-1.767 (1.846)	4.005 (7.467)
Real price sheep (ln)	-0.368**** (0.0832)	-0.388**** (0.0857)	
Reprstrong.Real price sheep (ln)	0.195 (0.126)	0.186 (0.122)	
Reprnull.Real price sheep (ln)	0.518*** (0.175)	0.539*** (0.177)	
Real price wheat (ln)	0.727**** (0.144)	0.762**** (0.139)	0.853**** (0.157)
Reprstrong.Real price wheat (ln)	-0.816**** (0.174)	-0.882**** (0.180)	-0.833**** (0.198)
Reprnull.Real price wheat (ln)	-0.182 (0.236)	-0.210 (0.239)	-0.397* (0.202)
Real price timber (ln)	0.110 (0.0815)	0.116 (0.0744)	0.130 (0.0967)
Reprstrong.Real price timber (ln)	0.543** (0.246)	0.521** (0.202)	0.305 (0.216)
Reprnull.Real price timber (ln)	0.267 (0.202)	0.266 (0.226)	0.297 (0.187)
Real price coal (ln)	0.270*** (0.0918)	0.225** (0.101)	0.360*** (0.130)
Reprstrong.Real price coal (ln)	-0.227* (0.127)	-0.121 (0.121)	-0.377** (0.156)
Reprnull.Real price coal (ln)	-0.0711 (0.247)	-0.0581 (0.219)	-0.119 (0.166)
Barley production (ln, lag1)	-0.135** (0.0581)		-0.204*** (0.0622)
Reprstrong.Barley production (ln, lag1)	0.0819 (0.0599)		0.171*** (0.0645)
Reprnull.Barley production (ln, lag1)	-0.0738 (0.0927)		0.102 (0.0774)
Wheat production (ln, lag1)	0.154** (0.0701)		0.244*** (0.0746)
Reprstrong.Wheat production (ln, lag1)	-0.107 (0.0723)		-0.213*** (0.0773)
Reprnull.Wheat production (ln, lag1)	0.0545 (0.101)		-0.145 (0.0882)
Barley export (ln, lag1)	-0.0164** (0.00693)	-0.0102* (0.00587)	-0.0150** (0.00607)
Reprstrong.Barley export (ln, lag1)	-0.0109 (0.00919)	-0.0273*** (0.00992)	-0.00641 (0.00866)
Reprnull.Barley export (ln, lag1)	-0.0122 (0.0105)	-0.0251** (0.00995)	0.0160* (0.00951)
Barley import (ln, lag3)	0.0102 (0.00618)	0.00542 (0.00509)	0.0117* (0.00699)
Reprstrong.Barley import (ln, lag3)	0.00325 (0.00887)	-0.00529 (0.00885)	-0.00526 (0.00976)
Reprnull.Barley import (ln, lag3)	0.0113 (0.0115)	0.00361 (0.0112)	-0.000228 (0.00894)
Real price public works (ln, lag1)	-0.0000798 (0.00645)	0.00102 (0.00565)	-0.00780 (0.00700)
Reprstrong.Real price public works (ln, lag1)	-0.0373*** (0.0134)	-0.0259* (0.0134)	-0.00708 (0.0156)
Reprnull.Real price public works (ln, lag1)	-0.0356 (0.0259)	-0.0388 (0.0278)	-0.00987 (0.0184)
Ghibli (lag4)		0.000773 (0.00270)	
Reprstrong.Ghibli (lag4)		0.0138* (0.00754)	
Reprnull.Ghibli (lag4)		0.00675*	

	(1)	(2)	(3)
		(0.00405)	
Rainfall in Bengasi (lag4)		-0.00316	
		(0.00378)	
Rainfall in Bengasi (lag5)		-0.0122**	
		(0.00511)	
Rainfall in Bengasi (lag6)		-0.0118***	
		(0.00399)	
Reprstrong.Rainfall in Bengasi (lag4)		0.0145*	
		(0.00828)	
Reprnull.Rainfall in Bengasi (lag4)		0.00512	
		(0.0115)	
Reprstrong.Rainfall in Bengasi (lag5)		0.0226**	
		(0.0112)	
Reprnull.Rainfall in Bengasi (lag5)		0.0227*	
		(0.0135)	
Reprstrong.Rainfall in Bengasi (lag6)		0.00190	
		(0.0101)	
Reprnull.Rainfall in Bengasi (lag6)		-0.00235	
		(0.00999)	
Barce Indigenous population (ln)			0.539
			(0.907)
Reprstrong.Barce Indigenous population (ln)			-0.196
			(0.926)
Reprnull.Barce Indigenous population (ln)			0.405
			(0.917)
Sheep heads number (ln)			-0.261
			(0.211)
Reprstrong.Sheep heads number (ln)			0.207
			(0.212)
Reprnull.Sheep heads number (ln)			-0.542*
			(0.291)
Railcargo (ln, lag1)			-0.136***
			(0.0501)
Reprstrong.Railcargo (ln, lag1)			0.0921
			(0.0639)
Reprnull.Railcargo (ln, lag1)			0.0995
			(0.0619)
Constant	1.531*	1.628**	-2.241
	(0.862)	(0.782)	(7.016)
N	159	159	159
R^2	0.798	0.800	0.873
p	4.94e-53	1.23e-49	1.41e-56
F	43.19	36.22	48.31

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 3.9: **OLS OF LOG REAL BARLEY PRICE (1926-1939), REPRESSION AS DUMMY, BARCE**
N.B: prices are in Lira at the 1927 baseline, production is in quintals as are imports and exports, rail goods are in tonnes, public works in thousands of Lira, rainfall in mm, and temperature in degrees Celsius. Reprstrong includes the period between June 1930 and January 1935, Reprnull includes the months between January 1935 and June 1939.

Table 3.10- OLS OF LOG REAL BARLEY PRICE (1926-1939), REPRESSION AS DUMMY

Reprstrong	2.650****	2.708****	-35.01*
	(0.737)	(0.758)	(19.26)
Reprnull	-1.679**	-1.572*	-1.011
	(0.778)	(0.800)	(19.07)
Real price sheep (ln)	-0.196****	-0.193****	
	(0.0517)	(0.0533)	
Reprstrong.Real price sheep (ln)	0.0425	0.000127	
	(0.0787)	(0.0802)	
Reprnull.Real price sheep (ln)	0.402****	0.395****	
	(0.0698)	(0.0731)	
Real price wheat (ln)	0.688****	0.684****	0.804****
	(0.0974)	(0.0993)	(0.103)
Reprstrong.Real price wheat (ln)	-0.674****	-0.690****	-0.738****
	(0.117)	(0.120)	(0.122)
Reprnull.Real price wheat (ln)	-0.295**	-0.335***	-0.440****
	(0.116)	(0.118)	(0.121)
Real price timber (ln)	0.0522	0.0682**	0.0515
	(0.0333)	(0.0344)	(0.0366)
Reprstrong.Real price timber (ln)	0.110*	0.124**	0.0514
	(0.0592)	(0.0604)	(0.0599)
Reprnull.Real price timber (ln)	0.220***	0.244****	0.202***
	(0.0683)	(0.0705)	(0.0714)
Real price coal (ln)	-0.0319	-0.0465	-0.0764
	(0.0509)	(0.0526)	(0.0496)
Reprstrong.Real price coal (ln)	0.0181	0.0608	0.0524
	(0.0767)	(0.0788)	(0.0774)
Reprnull.Real price coal (ln)	0.158	0.181	0.176
	(0.118)	(0.122)	(0.119)
Barley production (ln, lag1)	-0.0944**		
	(0.0372)		
Reprstrong.Barley production (ln, lag1)	0.0258		
	(0.0407)		
Reprnull.Barley production (ln, lag1)	-0.0473		
	(0.0488)		
Wheat production (ln, lag1)	0.103**		
	(0.0453)		
Reprstrong.Wheat production (ln, lag1)	-0.0309		
	(0.0491)		
Reprnull.Wheat production (ln, lag1)	0.0360		
	(0.0554)		
Barley export (ln, lag1)	-0.0147***	-0.0176***	-0.0157***
	(0.00567)	(0.00604)	(0.00575)
Reprstrong.Barley export (ln, lag1)	-0.00959	-0.00802	0.00363
	(0.00687)	(0.00761)	(0.00717)
Reprnull. Barley export (ln, lag1)	-0.00359	-0.00566	-0.000514
	(0.00688)	(0.00719)	(0.00718)
Barley import (ln, lag3)	0.0141***	0.00526	0.00269
	(0.00496)	(0.00443)	(0.00423)
Reprstrong.Barley import (ln, lag3)	-0.00201	-0.00251	-0.00471
	(0.00680)	(0.00617)	(0.00589)
Reprnull.Barley import (ln, lag3)	-0.0000864	0.0000119	-0.00147
	(0.00701)	(0.00624)	(0.00590)
Real price public works (ln, lag1)	-0.00132	0.00245	-0.00718
	(0.00517)	(0.00545)	(0.00568)
Reprstrong.Real price public works (ln, lag1)	-0.0216**	-0.0213**	0.0190*
	(0.00843)	(0.00956)	(0.0113)
Reprnull.Real price public works (ln, lag1)	-0.00903	-0.0146	0.00215
	(0.0141)	(0.0147)	(0.0146)
Ghibli (lag4)		0.00473*	
		(0.00277)	
Reprstrong.Ghibli (lag4)		-0.00176	
		(0.00659)	
Reprnull.Ghibli (lag4)		0.00114	
		(0.00328)	
Rainfall in Bengasi (lag4)		0.00727**	
		(0.00344)	

	(1)	(2)	(3)
Rainfall in Bengasi (lag5)		-0.00854**	
		(0.00359)	
Rainfall in Bengasi (lag6)		-0.0113****	
		(0.00328)	
Reprstrong.Rainfall in Bengasi (lag4)		-0.00251	
		(0.00632)	
Reprnull.Rainfall in Bengasi (lag4)		-0.00780	
		(0.00557)	
Reprstrong.Rainfall in Bengasi (lag5)		0.0150**	
		(0.00676)	
Reprnull.Rainfall in Bengasi (lag5)		0.0117*	
		(0.00619)	
Reprstrong.Rainfall in Bengasi (lag6)		0.00630	
		(0.00603)	
Reprnull.Rainfall in Bengasi (lag6)		0.000237	
		(0.00598)	
Indigenous population (ln)			-1.268
			(1.720)
Reprstrong.Indigenous population (ln)			3.191*
			(1.757)
Reprnull.Indigenous population (ln)			-0.450
			(1.771)
Sheep heads number (ln)			0.000724
			(0.168)
Reprstrong.Sheep heads number (ln)			-0.0414
			(0.169)
Reprnull.Sheep heads number (ln)			0.554**
			(0.224)
Railcargo (ln, lag1)			-0.0698**
			(0.0281)
Reprstrong.Railcargo (ln, lag1)			0.0567
			(0.0432)
Reprnull.Railcargo (ln, lag1)			-0.0131
			(0.0366)
Constant	2.162****	2.145****	16.59
	(0.550)	(0.564)	(18.70)
N	477	477	477
R^2	0.704	0.694	0.702
p	8.34e-99	2.28e-91	2.03e-98
F	36.44	28.51	36.23

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 3.10: **OLS OF LOG REAL BARLEY PRICE (1926-1939), REPRESSION AS DUMMY**
N.B: prices are in Lira at the 1927 baseline, production is in quintals as are imports and exports, rail goods are in tonnes, public works in thousands of Lira, rainfall in mm, and temperature in degrees Celsius. Reprstrong includes the period between June 1930 and January 1935, Reprnull includes the months between January 1935 and June 1939.

Table 3.11-OLS OF LOG REAL BARLEY PRICE (1926-1939), REPRESSION AND CITIES AS DUMMIES

	(1) Production model	(2) Climate model	(3) No Price sheep model
Barce.Reprstrong	2.557* (1.511)	2.624* (1.542)	-11.92 (29.38)
Barce.Reprnull	-1.723 (1.524)	-1.667 (1.574)	10.23 (29.71)
Bengasi.Reprweak	5.357**** (1.400)	4.177*** (1.388)	16.14 (35.38)
Bengasi.Repstrong	7.943**** (1.336)	6.267**** (1.350)	-26.93** (11.17)
Derna.Reprweak	3.385* (1.730)	4.139** (1.915)	-18.16 (36.69)
Derna.Reprstrong	2.149 (2.041)	3.141 (2.140)	-49.06**** (11.43)
Real price sheep (ln)	-0.368*** (0.139)	-0.367** (0.143)	
Barce.Reprstrong.Real price sheep (ln)	0.195 (0.168)	0.141 (0.170)	
Barce.Reprnull.Real price sheep (ln)	0.518*** (0.168)	0.515*** (0.174)	
Bengasi.Reprweak.Real price sheep (ln)	0.384** (0.169)	0.365** (0.177)	
Bengasi.Reprstrong.Real price sheep (ln)	0.269 (0.170)	0.224 (0.177)	
Bengasi.Reprnull.Real price sheep (ln)	0.351** (0.172)	0.421** (0.179)	
Derna.Reprweak.Real price sheep (ln)	0.231 (0.157)	0.212 (0.161)	
Derna.Reprstrong.Real price sheep (ln)	0.0447 (0.197)	-0.0756 (0.196)	
Derna.Reprnull.Real price sheep (ln)	0.469*** (0.160)	0.494*** (0.176)	
Real price wheat (ln)	0.727**** (0.199)	0.754**** (0.195)	0.922**** (0.194)
Barce.Reprstrong.Real price wheat (ln)	-0.816**** (0.234)	-0.857**** (0.236)	-0.870**** (0.238)
Barce.Reprnull.Real price wheat (ln)	-0.182 (0.225)	-0.205 (0.224)	-0.434** (0.221)
Bengasi.Reprweak.Real price wheat (ln)	-0.289 (0.276)	-0.360 (0.281)	-0.514* (0.288)
Bengasi.Reprstrong.Real price wheat (ln)	-0.679*** (0.223)	-0.603*** (0.223)	-0.809**** (0.220)
Bengasi.Reprnull.Real price wheat (ln)	-0.121 (0.234)	-0.348 (0.236)	-0.504** (0.229)
Derna.Reprweak.Real price wheat (ln)	-0.523** (0.264)	-0.675** (0.266)	-0.573** (0.270)
Derna.Reprstrong.Real price wheat (ln)	-0.542** (0.247)	-0.704*** (0.242)	-0.716*** (0.240)
Derna.Reprnull.Real price wheat (ln)	-0.564** (0.226)	-0.603*** (0.226)	-0.796**** (0.220)
Real price timber (ln)	0.110 (0.0979)	0.119 (0.105)	0.152 (0.101)
Barce.Reprstrong.Real price timber (ln)	0.543** (0.217)	0.520** (0.229)	0.224 (0.226)
Barce.Reprnull.Real price timber (ln)	0.267 (0.176)	0.254 (0.187)	0.160 (0.261)
Bengasi.Reprweak.Real price timber (ln)	-0.0434 (0.122)	-0.0556 (0.130)	-0.0880 (0.135)
Bengasi.Reprstrong.Real price timber (ln)	-0.177 (0.143)	-0.196 (0.154)	-0.206 (0.151)
Bengasi.Reprnull.Real price timber (ln)	1.034**** (0.232)	0.968**** (0.243)	0.674** (0.265)
Derna.Reprweak.Real price timber (ln)	-0.246** (0.118)	-0.219* (0.128)	-0.296** (0.135)
Derna.Reprstrong.Real price timber (ln)	0.295 (0.196)	0.353* (0.206)	0.0667 (0.260)
Derna.Reprnull.Real price timber (ln)	0.724**** (0.195)	0.661**** (0.199)	0.711**** (0.179)
Real price coal (ln)	0.270* (0.139)	0.226 (0.148)	0.505**** (0.148)
Barce.Reprstrong.Real price coal (ln)	-0.227 (0.170)	-0.146 (0.181)	-0.525*** (0.179)
Barce.Reprnull.Real price coal (ln)	-0.0711 (0.197)	-0.0522 (0.208)	-0.417** (0.207)
Bengasi.Reprweak.Real price coal (ln)	-0.274 (0.194)	-0.212 (0.207)	-0.515** (0.210)
Bengasi.Reprstrong.Real price coal (ln)	-0.216 (0.174)	-0.185 (0.185)	-0.451** (0.179)
Bengasi.Reprnull.Real price coal (ln)	0.0988 (0.277)	-0.0135 (0.292)	-0.120 (0.290)
Derna.Reprweak.Real price coal (ln)	-0.393** (0.152)	-0.380** (0.165)	-0.605**** (0.165)
Derna.Reprstrong.Real price coal (ln)	-0.284 (0.182)	-0.226 (0.193)	-0.639*** (0.201)
Derna.Reprnull.Real price coal (ln)	-0.515 (0.314)	-0.444 (0.351)	-0.521 (0.392)
Barley production (ln, lag1)	-0.135** (0.0583)		
Barce.Reprstrong.Barley production (ln, lag1)	0.0819 (0.0640)		
Barce.Reprnull.Barley production (ln, lag1)	-0.0738 (0.0756)		
Bengasi.Reprweak.Barley production (ln, lag1)	0.0450 (0.0835)		
Bengasi.Reprstrong.Barley production (ln, lag1)	0.0559 (0.0636)		
Bengasi.Reprnull.Barley production (ln, lag1)	-0.0879 (0.0780)		
Derna.Reprweak.Barley production (ln, lag1)	0.144* (0.0834)		
Derna.Reprstrong.Barley production (ln, lag1)	0.0609 (0.0650)		
Derna.Reprnull.Barley production (ln, lag1)	0.144* (0.0820)		
Wheat production (ln, lag1)	0.154** (0.0717)		
Barce.Reprstrong.Wheat production (ln, lag1)	-0.107 (0.0779)		
Barce.Reprnull.Wheat production (ln, lag1)	0.0545 (0.0864)		

94

	(1)	(2)	(3)
Bengasi.Reprweak.Wheat production (ln, lag1)	-0.0516		
	(0.102)		
Bengasi.Reprstrong.Wheat production (ln, lag1)	-0.0700		
	(0.0775)		
Bengasi.Reprnull.Wheat production (ln, lag1)	0.0563		
	(0.0885)		
Derna.Reprweak.Wheat production (ln, lag1)	-0.178*		
	(0.102)		
Derna.Reprstrong.Wheat production (ln, lag1)	-0.0658		
	(0.0787)		
Derna.Reprnull.Wheat production (ln, lag1)	-0.164*		
	(0.0922)		
Barley export (ln, lag1)	-0.0164*	-0.0118	-0.0189**
	(0.00862)	(0.00936)	(0.00872)
Barce.Reprstrong.Barley export (ln, lag1)	-0.0109	-0.0241**	-0.00166
	(0.0106)	(0.0118)	(0.0109)
Barce.Reprnull.Barley export (ln, lag1)	-0.0122	-0.0235**	-0.00735
	(0.0104)	(0.0111)	(0.0110)
Bengasi.Reprweak.Barley export (ln, lag1)	0.0155	0.00807	0.0168
	(0.0124)	(0.0134)	(0.0129)
Bengasi.Reprstrong.Barley export (ln, lag1)	-0.000312	-0.00669	0.0142
	(0.0107)	(0.0118)	(0.0108)
Bengasi.Reprnull.Barley export (ln, lag1)	0.0142	-0.00193	0.0139
	(0.0107)	(0.0113)	(0.0113)
Derna.Reprweak.Barley export (ln, lag1)	-0.0235*	-0.0300**	-0.0241*
	(0.0131)	(0.0139)	(0.0134)
Derna.Reprstrong.Barley export (ln, lag1)	-0.000755	-0.00395	0.0154
	(0.0117)	(0.0130)	(0.0116)
Derna.Reprnull.Barley export (ln, lag1)	0.0134	0.00663	0.0181
	(0.0111)	(0.0121)	(0.0113)
Barley import (ln, lag3)	0.0102	0.00484	-0.00446
	(0.00804)	(0.00699)	(0.00697)
Barce.Reprstrong.Barley import (ln, lag3)	0.00325	-0.00476	0.00277
	(0.0108)	(0.00991)	(0.00975)
Barce.Reprnull.Barley import (ln, lag3)	0.0113	0.00415	0.0138
	(0.0112)	(0.00987)	(0.00960)
Bengasi.Reprweak.Barley import (ln, lag3)	-0.00603	-0.00741	0.000819
	(0.0113)	(0.0101)	(0.00977)
Bengasi.Reprstrong.Barley import (ln, lag3)	0.00775	0.00172	0.00546
	(0.0108)	(0.00978)	(0.00950)
Bengasi.Reprnull.Barley import (ln, lag3)	0.00777	-0.00134	0.00157
	(0.0112)	(0.01000)	(0.00976)
Derna.Reprweak.Barley import (ln, lag3)	0.0101	0.0111	0.0200**
	(0.0110)	(0.00977)	(0.00961)
Derna.Reprstrong.Barley import (ln, lag3)	-0.00678	-0.00637	-0.00314
	(0.0110)	(0.00984)	(0.00962)
Derna.Reprnull.Barley import (ln, lag3)	-0.00666	-0.00111	0.00482
	(0.0112)	(0.00993)	(0.00951)
Real price public works (ln, lag1)	-0.0000798	0.00134	-0.00652
	(0.00925)	(0.00946)	(0.0100)
Barce.Reprstrong.Real price public works (ln, lag1)	-0.0373**	-0.0241	0.00630
	(0.0146)	(0.0165)	(0.0184)
Barce.Reprnull.Real price public works (ln, lag1)	-0.0356	-0.0386	-0.0188
	(0.0224)	(0.0237)	(0.0238)
Bengasi.Reprweak.Real price public works (ln, lag1)	-0.0203*	-0.0192	-0.0170
	(0.0120)	(0.0126)	(0.0132)
Bengasi.Reprstrong.Real price public works (ln, lag1)	-0.0344**	-0.0309**	0.0158
	(0.0135)	(0.0150)	(0.0184)
Bengasi.Reprnull.Real price public works (ln, lag1)	0.00290	-0.000202	0.0158
	(0.0220)	(0.0233)	(0.0230)
Derna.Reprweak.Real price public works (ln, lag1)	0.00296	-0.000802	0.00473
	(0.0126)	(0.0135)	(0.0139)
Derna.Reprstrong.Real price public works (ln, lag1)	0.00710	0.00819	0.0345*
	(0.0175)	(0.0186)	(0.0197)
Derna.Reprnull.Real price public works (ln, lag1)	0.00369	0.00268	0.0116
	(0.0222)	(0.0235)	(0.0231)
Ghibli (lag4)		0.00100	
		(0.00457)	
Barce.Reprstrong.Ghibli (lag4)		0.0125	
		(0.0107)	
Barce.Reprnull.Ghibli (lag4)		0.00666	
		(0.00529)	
Bengasi.Reprweak.Ghibli (lag4)		0.00326	
		(0.00634)	
Bengasi.Reprstrong.Ghibli (lag4)		0.00914	
		(0.0109)	
Bengasi.Reprnull.Ghibli (lag4)		0.00414	
		(0.00539)	
Derna.Reprweak.Ghibli (lag4)		-0.00131	
		(0.00659)	
Derna.Reprstrong.Ghibli (lag4)		-0.00593	
		(0.0104)	
Derna.Reprnull.Ghibli (lag4)		0.00173	
		(0.00549)	
Rainfall in Bengasi (lag5)		-0.0131**	
		(0.00564)	
Rainfall in Bengasi (lag6)		-0.0118**	
		(0.00509)	
Barce.Reprstrong.Rainfall in Bengasi (lag5)		0.0274***	
		(0.0102)	
Barce.Reprnull.Rainfall in Bengasi (lag5)		0.0245***	
		(0.00933)	
Bengasi.Reprweak.Rainfall in Bengasi (lag5)		0.0102	
		(0.00801)	
Bengasi.Reprstrong.Rainfall in Bengasi (lag5)		0.0327***	
		(0.0106)	
Bengasi.Reprnull.Rainfall in Bengasi (lag5)		0.0171*	
		(0.00926)	
Derna.Reprweak.Rainfall in Bengasi (lag5)		0.0103	
		(0.00789)	
Derna.Reprstrong.Rainfall in Bengasi (lag5)		0.0153	
		(0.0101)	
Derna.Reprnull.Rainfall in Bengasi (lag5)		0.0122	
		(0.00978)	
Barce.Reprstrong.Rainfall in Bengasi (lag6)		0.00149	
		(0.00946)	
Barce.Reprnull.Rainfall in Bengasi (lag6)		-0.00236	
		(0.00966)	
Bengasi.Reprweak.Rainfall in Bengasi (lag6)		0.00528	
		(0.00740)	
Bengasi.Reprstrong.Rainfall in Bengasi (lag6)		0.00344	
		(0.00953)	
Bengasi.Reprnull.Rainfall in Bengasi (lag6)		-0.00859	
		(0.00956)	
Derna.Reprweak.Rainfall in Bengasi (lag6)		0.000740	
		(0.00742)	

	(1)	(2)	(3)
Derna.Reprstrong.Rainfall in Bengasi (lag6)		0.0181* (0.00967)	
Derna.Reprnull.Rainfall in Bengasi (lag6)		0.00830 (0.00944)	
Indigenous population (ln)			0.398 (2.619)
Barce.Reprstrong.Indigenous population (ln)			1.178 (2.687)
Barce.Reprnull.Indigenous population (ln)			-1.082 (2.790)
Bengasi.Reprweak.Indigenous population (ln)			-2.354 (4.122)
Bengasi.Reprstrong.Indigenous population (ln)			1.549 (2.722)
Bengasi.Reprnull.Indigenous population (ln)			-1.795 (2.713)
Derna.Reprweak.Indigenous population (ln)			0.304 (4.216)
Derna.Reprstrong.Indigenous population (ln)			2.523 (2.715)
Derna.Reprnull.Indigenous population (ln)			-2.275 (2.781)
Sheep heads number (ln)			-0.317 (0.271)
Barce.Reprstrong.Sheep heads number (ln)			0.267 (0.273)
Barce.Reprnull.Sheep heads number (ln)			0.511 (0.404)
Bengasi.Reprweak.Sheep heads number (ln)			0.463 (0.402)
Bengasi.Reprstrong.Sheep heads number (ln)			0.279 (0.273)
Bengasi.Reprnull.Sheep heads number (ln)			0.918** (0.379)
Derna.Reprweak.Sheep heads number (ln)			0.0997 (0.414)
Derna.Reprstrong.Sheep heads number (ln)			0.330 (0.273)
Derna.Reprnull.Sheep heads number (ln)			0.845** (0.368)
Railcargo (ln, lag1)			-0.0608 (0.0459)
Barce.Reprstrong.Railcargo (ln, lag1)			0.0132 (0.0683)
Barce.Reprnull.Railcargo (ln, lag1)			-0.0450 (0.0601)
Bengasi.Reprweak.Railcargo (ln, lag1)			0.0268 (0.0667)
Bengasi.Reprstrong.Railcargo (ln, lag1)			0.0353 (0.0702)
Bengasi.Reprnull.Railcargo (ln, lag1)			-0.0522 (0.0583)
Derna.Reprweak.Railcargo (ln, lag1)			-0.0474 (0.0636)
Derna.Reprstrong.Railcargo (ln, lag1)			0.0903 (0.0711)
Derna.Reprnull.Railcargo (ln, lag1)			0.0241 (0.0590)
Constant	0.0534 (0.707)	0.522 (0.745)	7.623 (10.06)
N	477	477	477
R^2	0.800	0.785	0.795
p	8.65e-93	9.89e-82	4.55e-91
F	17.76	14.35	17.28

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 3.11: **OLS OF LOG REAL BARLEY PRICE (1926-1939), REPRESSION AND CITIES AS DUMMIES**
N.B: prices are in Lira at the 1927 baseline, production is in quintals as are imports and exports, rail goods are in tonnes, public works in thousands of Lira, rainfall in mm, and temperature in degrees Celsius. *Reprstrong* includes the period between June 1930 and January 1935, *Reprnull* includes the months between January 1935 and June 1939.

3.4.3 The economy between 1935 and 1939

Tables 3.12 and *3.13* include three new control variables: the wages of Indigenous bakers and workers and the quantity of barley sold in both provincial markets. Barce is included in the Bengasi province. We chose bakers and workers because these jobs were carried out increasingly by the local population, especially manual work due to numerous public works.

In *table 3.12 for* Barce alone, the coefficient for the sheep price is positive but not significant.

The coefficient of wages is positive and highly significant, suggesting that barley prices were correlated to wages. There is, however, a problem of reverse causality. Based partly on Morgantini it can be assumed that wages were adjusted to the cost of living and not vice versa.[99]

This is more evident for Indigenous bakers than workers in the building industry, whereas the relationship between the barley price and quantity sold is clearer, with a significant negative correlation at the 10% level.

Table 3.13 compares Barce with the other two towns in the same period. There are some differences, in particular with Bengasi over sheep prices, a coefficient that is slightly negative but not statistically significant and with high standard error. Timber price coefficients are different in Barce compared to the other two markets, where the coefficients are strongly significant and positive, compared with Barce. The correlations between wages and the barley price in Bengasi and Derna, although remaining positive in absolute terms, are sharply negative compared to Barce.

Finally, the model without sheep prices displays a huge difference between the correlation of the number of sheep and barley prices in Barce, unlike in Bengasi and Derna, as for the Indigenous population. However, this may be due to collinearity resulting from the relative lack of freedom in the research. Hence the results in *tables 3.11* and *3.12* are considered with a significantly higher number of observations.

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[99] Morgantini, A.M. (1938), *La Libia occidentale nei suoi principali aspetti economico-statistici nel quinquennio 1931-35*, Tripoli, pp.224-227.

Table 3.12- OLS OF LOG REAL BARLEY PRICE (1935-1939), BARCE

	(1) Production model	(2) Climate model	(3) No Price sheep model
Real price sheep (ln)	0.134 (0.173)	0.121 (0.161)	
Real price wheat (ln)	0.584**** (0.143)	0.661**** (0.149)	0.510**** (0.103)
Real price timber (ln)	-0.0222 (0.171)	0.0434 (0.253)	0.255 (0.169)
Real price coal (ln)	0.223 (0.184)	0.187 (0.192)	0.226** (0.102)
Barley production (ln, lag1)	-0.144** (0.0671)		-0.0805 (0.0522)
Wheat production (ln, lag1)	0.146** (0.0688)		0.0777 (0.0542)
Barley export (ln, lag1)	-0.0254**** (0.00673)	-0.0272**** (0.00736)	-0.00211 (0.00675)
Barley import (ln, lag3)	0.0135 (0.00845)	0.00514 (0.00853)	0.00899 (0.00552)
Real price public works (ln, lag1)	-0.0195 (0.0210)	-0.0227 (0.0239)	-0.0118 (0.0167)
Barley sold in province (ln)	-0.0459* (0.0257)	-0.00797 (0.0274)	-0.0126 (0.0219)
Real value of wage Indigenous baker	0.808*** (0.293)	1.019**** (0.280)	0.475** (0.204)
Real value of wage Indigenous worker	0.511** (0.216)	0.721*** (0.252)	0.384* (0.213)
Rainfall in Bengasi (lag4)		0.00639 (0.0101)	
Rainfall in Bengasi (lag5)		0.00750 (0.00860)	
Rainfall in Bengasi (lag6)		-0.00624 (0.00789)	
Barce Indigenous population (ln)			0.715**** (0.144)
Sheep heads number (ln)			-0.710*** (0.240)
Railcargo (ln, lag1)			-0.0557 (0.0425)
Constant	-1.280 (1.228)	-2.546 (1.572)	1.960 (2.838)
N	54	54	54
R^2	0.749	0.732	0.854
p	5.41e-17	4.82e-13	8.51e-22
F	32.04	18.77	59.12

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 3.12: **OLS OF LOG REAL BARLEY PRICE (1935-1939), BARCE**
N.B: prices are in Lira at the 1927 baseline, production is in quintals, as are import and exports, railway goods are in tonnes, public works in thousands of Lira, rainfall in mm, and temperature in degrees Celsius. Barley sold is in quintals. Wages are in Lire 1927 for hour.

Table 3.13- OLS OF LOG REAL BARLEY PRICE (1935-1939), CITIES AS DUMMIES

	(1)	(2)	(3)
	Production model	Climate model	No Price sheep model
Real price sheep (ln)	0.134	0.117	
	(0.118)	(0.124)	
Bengasi.Real price sheep (ln)	-0.173	-0.128	
	(0.162)	(0.169)	
Derna.Real price sheep (ln)	0.0616	0.0664	
	(0.171)	(0.182)	
Real price wheat (ln)	0.584****	0.632****	0.567****
	(0.128)	(0.128)	(0.117)
Bengasi.Real price wheat (ln)	-0.163	-0.474**	-0.462**
	(0.214)	(0.201)	(0.183)
Derna.Real price wheat (ln)	-0.425**	-0.476***	-0.471***
	(0.173)	(0.174)	(0.159)
Real price timber (ln)	-0.0222	-0.0659	0.240
	(0.174)	(0.179)	(0.240)
Bengasi.Real price timber (ln)	0.915***	0.536	0.0309
	(0.342)	(0.330)	(0.372)
Derna.Real price timber (ln)	0.727***	0.759***	0.589*
	(0.265)	(0.269)	(0.300)
Real price coal (ln)	0.223	0.226	0.133
	(0.149)	(0.157)	(0.153)
Bengasi.Real price coal (ln)	0.334	0.529	0.853**
	(0.350)	(0.361)	(0.337)
Derna.Real price coal (ln)	-0.227	-0.264	-0.167
	(0.370)	(0.385)	(0.425)
Barley production (ln, lag1)	-0.144**		
	(0.0591)		
Bengasi.Barley production (ln, lag1)	-0.0874		
	(0.0897)		
Derna.Barley production (ln, lag1)	0.157*		
	(0.0865)		
Wheat production (ln, lag1)	0.146**		
	(0.0603)		
Bengasi.Wheat production (ln, lag1)	0.0783		
	(0.0903)		
Derna.Wheat production (ln, lag1)	-0.160*		
	(0.0874)		
Barley export (ln, lag1)	-0.0254****	-0.0267****	-0.0157**
	(0.00611)	(0.00627)	(0.00690)
Bengasi.Barley export (ln, lag1)	0.0191**	0.00959	0.00793
	(0.00928)	(0.00899)	(0.00988)
Derna.Barley export (ln, lag1)	0.0231**	0.0242**	0.0151
	(0.00973)	(0.0101)	(0.0102)
Barley import (ln, lag3)	0.0135	0.00796	0.00100
	(0.00834)	(0.00737)	(0.00687)
Bengasi.Barley import (ln, lag3)	0.00278	-0.00473	-0.00538
	(0.0119)	(0.0104)	(0.00976)
Derna.Barley import (ln, lag3)	-0.00962	-0.00397	-0.00210
	(0.0118)	(0.0108)	(0.00975)
Real price public works (ln, lag1)	-0.0195	-0.0214	-0.0141
	(0.0212)	(0.0225)	(0.0216)
Bengasi.Real price public works (ln, lag1)	0.0243	0.0260	0.0306
	(0.0295)	(0.0314)	(0.0299)
Derna.Real price public works (ln, lag1)	0.0197	0.0226	0.0169
	(0.0299)	(0.0318)	(0.0306)
Barley sold in province (ln)	-0.0459*	-0.0262	-0.00529
	(0.0249)	(0.0234)	(0.0241)
Bengasi.Barley sold in province (ln)	-0.0213	-0.0246	-0.0368
	(0.0342)	(0.0326)	(0.0341)
Derna.Barley sold in province (ln)	0.0632**	0.0444	0.0125
	(0.0288)	(0.0277)	(0.0291)
Real value of wage Indigenous baker	0.808****	0.983****	1.146****
	(0.222)	(0.222)	(0.198)
Bengasi.Real value of wage Indigenous baker	-0.564	-0.164	-0.152
	(0.387)	(0.360)	(0.326)
Derna.Real value of wage Indigenous baker	-0.678*	-0.840**	-0.998***
	(0.345)	(0.355)	(0.348)
Real value of wage Indigenous worker	0.511**	0.749****	0.849****
	(0.219)	(0.208)	(0.217)

Continued on next page

	(1)	(2)	(3)
Bengasi.Real value of wage Indigenous worker	-0.384	-0.0308	-0.178
	(0.358)	(0.320)	(0.325)
Derna.Real value of wage Indigenous worker	-0.266	-0.519*	-0.898***
	(0.316)	(0.309)	(0.304)
Rainfall in Bengasi (lag6)		0.000627	
		(0.00692)	
Bengasi.Rainfall in Bengasi (lag6)		-0.0119	
		(0.00998)	
Derna.Rainfall in Bengasi (lag6)		-0.00293	
		(0.0104)	
Indigenous population (ln)			0.833
			(1.062)
Bengasi.Indigenous population (ln)			-1.444
			(1.321)
Derna.Indigenous population (ln)			-2.459
			(1.531)
Sheep heads number (ln)			-0.464
			(0.333)
Bengasi.Sheep heads number (ln)			0.880**
			(0.433)
Derna.Sheep heads number (ln)			0.953**
			(0.433)
Railcargo (ln, lag1)			-0.131***
			(0.0396)
Bengasi.Railcargo (ln, lag1)			0.0149
			(0.0540)
Derna.Railcargo (ln, lag1)			0.0918
			(0.0559)
Constant	-1.095	-1.364	3.208
	(0.914)	(0.933)	(5.217)
N	162	162	162
R^2	0.776	0.747	0.786
p	1.14e-25	3.17e-24	9.02e-27
F	11.83	11.25	12.53

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 3.13: **OLS OF LOG REAL BARLEY PRICE (1935-1939), CITIES AS DUMMIES**
N.B.: prices are in Lira at the 1927 baseline, production is in quintals, as are imports and exports, rail goods are in tonnes, public works in thousands of Lira, rainfall in mm, and temperature in degrees Celsius. Barley sold is in quintals. Wages are hourly and in Lira at the 1927 baseline.

3.4.4 Robustness

The validity of our model is confirmed using a Wald Test for structural breaks. We wished to test the presence of two structural breaks in April 1930 and January 1936 in the Barce market. We tested three models from *table 3.6*: the *Base model*, the *Production model 2* and the *No Price sheep model* related to the Barce market.

Table 3.14- WALD TEST RESULTS

	(04/1930)	(01/1935)
Base Model	102.6772	11.588
	(0.000)	(0.003)
Production model 2	62,626	19.848
	(0.000)	(0.031)
No Price sheep model	60.475	37.672
	(0.000)	(0.000)
N	159	159

Chi2 value
P-value in parentheses

Table 3.14: **WALD TEST RESULTS**

Table 3.14 shows the results of the test. For each test significant p-values were obtained, with the highest values for the structural break in April 1930.

The test was repeated for the months after January 1935, with the best results in 1936.

This test suggests that changes in the local economy were related not only to repression but

also the process of resettlement after the closing of concentration camps.

The significance of the test without the sheep price variable, which also includes the Indigenous population in Barce and the number of sheep, appears to confirm this theory.

3.5 CONCLUSIONS

The empirical results confirm the hypothesis that the Italian repression between 1930 and 1933 changed the local Cyrenaic economy. Until 1930, the relationship between the sheep and barley prices in Barce, as well as Derna, was still characterized by the seasonality described by Pompeo Gorini in his paper at the beginning of the '20s.

Until June 1930, despite the war in Cyrenaica, the social and economic network in the *Gebel* was active Italian government political reports confirm this, with the Sanusi Brotherhood still a serious threat and able to count on the support of Indigenous tribes which paid or supplied the rebels with products. The trade through Egypt was fundamental to maintaining the resistance.

After June 1930, the repression started with the deportation of thousands of local people and animals from *Gebel* to the coast, and this event produced the first rifts in the local society and economy. As we have seen, the seasonal nature of barley and sheep prices persisted but was less evident than before.

We also noted that the relationship between forestry products and barley prices changed. The seasonality especially of timber and barley, with inverse coefficients in the period 1920-1922, was no longer present before the end of the decade. This coincided with the increase in public works by the Italian government, increasing the demand for construction materials. The building of a more extensive rail network for military purposes led to an increase in the transportation of goods and facilitated local trade.

The drought in Cyrenaica between 1931 and 1933 further damaged a territory already hard hit by repression, worsening an already difficult situation.

The crucial question concerns the relationship between sheep and barley prices in the period 1935-1939. After the repression, why did the situation not return to how it had been before 1930?

Data analysis and empirical results indicate that the most critical cause was probably resettlement after 1935.

The Indigenous population again grew quickly but not everybody could resettle in their native lands, so their lifestyle changed. Many Indigenous people moved towards the coast, in search of a job in Bengasi or Derna.

Imported livestock was also resettled with an increase particularly in 1936 when many thousands of sheep were brought in from Tripolitania because of the drought in Western Libya.

This may explain the end of seasonality. The increase in the Indigenous population and livestock after the end of the rebellion was tumultuous and poorly prepared by the colonial government. The consequence in the period considered and possibly longer was the complete disruption of the local economic and social network existing before the repression.

We turn now to the limits of the research. No data have yet been found for prices after June 1939, which could be a significant problem because it is impossible to assess whether the situation in the *Gebel* returned to the normal conditions of seasonality after the repression. A Wald Test in the final months of 1938 shows a new structural break. Between the end of 1938 and the first months of 1939, the correlation between sheep and barley prices in Barce returned to negative, and this indicates a return to seasonality for agriculture and breeding activities.

It coincides with the phase of mass Italian settlement (the so-called *Ventimila*), but there are insufficient observations to understand if the situation was temporary or returned in the Cyrenaic economy and society.

3.5.1 Considerations for the future

This paper reconstructs the impact of repression and indirectly Indigenous resettlement after 1933 and the effects on the Cyrenaic economy.

The focus is on the relationship between the two most important Indigenous activities: agriculture and breeding. In a tribal and still strongly nomadic society, the system of concentration camps was like a bomb blast for the economy. The limits of our research are related essentially to the incomplete data. However, in the future new sources may be found to make up for this deficiency.

Crucial to the reconstruction of data is as thorough as possible an understanding of Cyrenaic society, its economy and climate during the fascist period and in the period before the Italian invasion. Investigating Libyan conditions during Othman rule is also fundamental to a better understand of the years between 1911 and 1940.

An analysis of the economic development of Cyrenaica in the years under fascism contributes to the understanding of developments in Libya after the end of the Second World War and an assessment of the legacy left by Italian rule after 1945. The history of Libya is reflected in prices, although data from the Idris and Gheddafi governments may be lacking. The Civil War after Gheddafi's regime also hinders work in this direction.

The third and last area of interest where this research may be applied is for the economic history not only of developing countries but also of industrial countries at the turn of the nineteenth century. The

relationship between agriculture and breeding was strong in pre-industrial economies, and it is safe to assume that the correlation between livestock and cereal prices is also important, since most of population was engaged in these activities. The price model can be applied to individual markets and differences can be found for every region in different countries. Of course, knowledge of the peculiarities of each country is of fundamental importance, and this research is a good starting point.

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ANNEX

This section provides a description of each variable used in the research. Some are not present in the models because they were not statistically significant or a high collinearity between them existed, such as for goats and sheep.

Annex A- DESCRIPTION OF VARIABLES

Variable	Description
Average temperature	Average temperature in Barce, Bengasi and Derna
Barley production	Production of barley in quintals
Barley export	Export of barley in quintals
Barley import	Import of barley in quintals
Barley sold	Barley sold in Bengasi and Derna provinces in quintals
Barley surface	Barley surface in hectares
Coal sold	Coal sold in Bengasi and Derna provinces in quintals
Ghibli	Number of monthly ghibli winds
Goats sold	Goats sold in Bengasi and Derna provinces in livestock heads
Indigenous population	Cyrenaic Indigenous population
Barce Indigenous population	Barce Indigenous population
Livestock slaughtered	Sheep and goats slaughtered in Bengasi and Derna provinces in livestock heads
Price barley	Price barley in Lire for quintal
Price coal	Price coal in Lire for quintal
Price goats	Price goats in Lire for livestock head
Price sheep	Price sheep in Lire for livestock head
Price wheat	Price wheat in Lire for quintal
Price timber	Price timber in Lire for quintal
Rainfall	Rainfall in mm in Barce, Bengasi and Derna
Public works	Public works ended at the end of month in thousands of Lire
Railcargo	Goods transported through railway in tons
Sheep heads number	Number of sheep in Cyrenaica in livestock heads
Sheep sold	Sheep sold in Bengasi and Derna provinces in livestock heads
Wage Indigenous baker	Wage of an Indigenous baker in Lire for hour
Wage Indigenous worker	Wage of an Indigenous worker in construction sector in Lire for hour
Wheat surface	Wheat surface in hectares
Wheat production	Wheat production in quintals
Wheat sold	Wheat sold in Bengasi and Derna provinces in quintals
Timber sold	Timber sold in Bengasi and Derna provinces in quintals

Annex A: **DESCRIPTION OF VARIABLES**

INDEX OF FIGURES

INDEX OF GRAPHS

INDEX OF TABLES