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Demography and rising expectations

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Joint stock company births in Greece (1830–1909): Demography and ‘rising expectations’

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Research on the history of the joint stock company has focused on advanced capitalist countries. Among the latecomer countries to be neglected is Greece.

This paper is an outcome of a research project which seeks to redress this omission. It maps in detail trends over time in the frequency, size and sector of joint stock company start-ups in Greece between 1830 and 1909. In addition, it explores statistical correlations between joint stock company births and selected macroeconomic indicators and also examines the peaks in incorporation in relation to the historical conjuncture.

A main finding of the paper is that in the ‘long nineteenth century’ joint stock company births: expanded the modernizing sectors of the economy; represented a large capital commitment; came in waves, aided by periodical rises in ‘expectations’ and following rises in the rate of growth of agriculture or GDP.

Keywords: joint stock company start-ups, demography, peaks, modern economic growth, nineteenth century, Greece.

Introduction

The bulk of research on the joint stock company has taken a micro-economics direction which emphasizes aspects relating to its internal evolution and business organization. Moreover, the focus has been on the experience of advanced nations,

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in particular Britain and the USA (Walker, 1931; Shannon, 1932; Payne , 1980; Lamoreaux, 1988; Freeman, Pearson and Taylor, 2004).¹ General references linking the dissemination of the joint stock company to modern economic growth and the rise of capitalism have been made in the past by diverse prominent scholars, most notably Joseph Schumpeter (1947, p. 151), Douglass C. North and Robert Paul Thomas (1973, pp. 17, 155) and Simon Kuznets (1966, pp. 158–159). Recently , researchers working on national entrepreneurial histories are building data bases of joint stock company births and use them to explore trends in the frequency of company births (as a measure/proxy for the supply of entrepreneurship) in connection to trends in macroeconomic indicators. Three examples are: William Hausmann for the USA (2006); Pierangelo Toninelli and Michelangelo Vasta for Italy (2010); James Foreman Peck and Ioanna Sapfo Pepelasis for Greece (forthcoming, 2012).

Closer to our interest in this paper, is the body of ongoing historical research which maps joint stock company births in order to explore the evolution of the corporate sector and interconnections between joint stock company births and economic growth. Examples of work in this direction are: Pierangelo Toninelli (forthcoming 2012) for Italy and Pedro Neves for Portugal (2011). Although a common research agenda does not yet exist, this paper can be seen as part of this new trend. It concerns a latecomer country, Greece - up to now very little has been written on the history of its corporate sector (See below 3.1)- and is an outcome of an ongoing research project based at the Department of Economics at AUEB. The latter is constructing a comprehensive data base on joint stock company births which is of unique significance for Greek business history as no comparable statistical base exists at the moment for other forms of business organization.

This paper takes a macro approach: it charts the demography of incorporation between national independence in 1830 and 1909, a seminal year/turning point in the empowerment of the bourgeoisie and civil society. By demography we mean here: frequency, size, and sectoral distribution of joint stock company (or société anonyme) start-ups.

The paper opens with a historical survey of the major socio-economic developments in the period under review. In order to open the door for

interpretation of demography,. Section 2 discusses: how the joint stock company arrived in Greece; the legal framework and the advantages this form of business enterprise offered to company founders. Section 3, the core of the paper, examines the demography of joint stock company births. It begins with a brief presentation of the data set, sources and methodology. Next it charts in detail the total figures for the period under review and trends over time in the aggregate values of joint stock company start-ups. An exploration of statistical correlations between joint stock company births and selected macro-indicators follows. Section 3 closes with a detailed discussion of peaks in joint stock company births and the historical conjuncture. Section 4 consists of a short epilogue.

1. Transformations in economy and society, 1830–1909

The newborn Greek state was a small agrarian kingdom, whose population in 1830 was about one-third the size of the Greek communities still living elsewhere under Ottoman rule (Gallant, 2001, p. 34). The country was devastated by war and suffering intense fragmentation of both the economy and the polity – pockets of maritime commerce constituted the only escape route of Greece from backwardness and poverty (Clogg, 1992; Gallant, 2001, pp. 34–40; Dertilis, 2009). No industrial unit or factory chimney was to be seen. Banks were non-existent; hoarding and usury were the main financial activities. There was no modern framework of individual property rights. Most of the population was illiterate. With the notable exception of the heartland of currant production in the western Peloponnese, subsistence agriculture prevailed, and Greece was isolated from the expanding international market of the times.² Greece may have been in a situation of relative isolation, but its mercantile diaspora was in the midst of its golden age as a mediator in the expanding global trade in grain, cotton, coal and other basic commodities (Baghdiantz McCabe *et al.*, 2005).

By 1909, although Greece remained a non-industrialised country, it had become quite a different land in many respects.³ Territory and population had increased substantially, with the mainland incorporating the westernised Ionian islands (1864) and the regions of Thessaly and Arta (1881). The standard of living and level of literacy had improved. The share of agriculture in Gross Domestic Product (henceforth GDP) had declined, while commerce and shipping expanded

rapidly, along with urbanisation. The subsistence economy was gradually giving way to a mercantile-type family capitalism characterised by business ventures, most of which originated or were embedded in commerce.

Insert Table 1

By the beginning of the twentieth century, the Greek economy was more integrated, monetised and outward-looking, possessing strong links with the international financial market. The nation was less capital-poor, partly due to the growing interest of diaspora bankers and merchants in their homeland from the early 1870s onwards, and usury was less extensive (Haritakis, 1927, pp. 3–40; Franghiadis, 2007, pp. 83–109; Thomadakis, 1981, pp. 77–151; Kostis, 2003, pp. 17–38). The post-1870 decline in the discount rate of the country's main banking institution, the National Bank of Greece, illustrates improving conditions.

Insert Figure 1

Indeed, if a turning point can be discerned in economic growth, it was from the early 1870s onwards. At this point the country was in the midst of its first industrial stirrings, embarking on a long boom in currant exports, and per capita GDP was beginning to rise. Until then Greece had been struggling to recuperate from the economic devastation of the War of Independence.(Agriantonis, 1986; Franghiadis, 2007).

For the period under review, the important legal milestones came after the adoption of a parliamentary monarchy in 1864. In the last decades of the nineteenth century customary law was superseded by a more unified legal system with the German Civil Code as its point of reference (Dacornia, 2003; Clogg, 1992, chapter 3, pp. 47–81). Amongst the most important institutional changes affecting the framework of economic activity was the 1871 distribution of national estates with the consequent commodification of land and strengthening of property rights.⁴

In public administration a modern type of civil service and infrastructure were built *ex nihilo*. The rise of fiscal power and the capacity to undertake public

investments began to increase in the 1870s (Papageorgiou, 1988, pp. 112–162; Mavrogordatos, 2003, pp. 9–12; Lyrintzis, 2008, p. 90).⁵ This development rested on two pillars: the rise of monetary tax revenues (following the abolition of the tithe and corollary tax farming in 1882 and other measures) and renewed access to the international capital market following the lifting of the embargo which had been placed on Greek government loans by the international capital market following the 1843 default of the government on foreign loans.

_____ *Insert Table 2* _____

As for the social mosaic of the country, although certain features of the Ottoman past persisted, it too had become more westernised by 1909, the year of the military uprising of Goudi, the so-called ‘bourgeois revolution’ (Dertilis, 1977). Since 1870–1880 the importance in society of the professional bourgeoisie had become more pronounced and an urban working-class core had come into existence.

In a nutshell, during the period under review Greece embarked on economic growth. The decade 1870/1880 was a major turning point. The country made the transition from a period of recovery and slow growth to a period of rising per capita income, a quickening in internationalisation and new institutional arrangements, some of which were modernising. It was thus in this multifaceted environment that the JSC, an emblem of modernity, was transplanted and disseminated.

2. Fundamentals

Before embarking on an analysis of the historical statistics of JSC births, for reasons of enhancing interpretation, it is first necessary to present the following fundamentals: origins of the JSC in Greece; the legal framework for incorporation; and the advantages this form of business organization offered to the founders of firms.

2.1 Origins of the joint stock company in Greece and legal framework

The JSC was not implanted in Greece in a vacuum. The Napoleonic Commercial Code of 1807 would underpin all incorporations in the new Greek state until the eventual passing of the Company Act of 1920. The first Greek translation of the Code was published in 1815/17 by the powerful Greek traders' coalition of Constantinople and was adopted by the Revolutionary Assembly of Epidavros in 1822 during the early days of the War of Independence (Sklavenitis, 2000, pp. 67–75; Karavas, 1930, p. 13). As elsewhere in Europe, this Code became the gateway for the introduction of the JSC into Greece, where local enterprise was organised solely on the basis of individual proprietorships and (in)formal partnerships.

The first proper, fully fledged JSC to be established on Greek soil was not the result of private initiative.⁶ It was founded in 1828 by Governor Ioannis Kapodistrias, an ex-diplomat of the Russian Empire who had become the first head of state of Greece the previous year. This JSC was the state bank 'Ethniki Hrimatistiki Trapeza', which after a nebulous existence was dissolved in 1834, shortly after the assassination of its founder. Yet the idea of a joint stock bank of issue persisted, and, soon after the formal adoption of the Napoleonic Commercial Code as law in 1835, a second attempt was made with a decree enabling the establishment of such a bank. In the end, however, no proper charter was drawn up as negotiations between the project's British backers and the state broke down.⁷

The first successful JSC that was registered following independence was a result of private initiative. It was the marine insurance company 'I Achaia', established in 1836 in the port of Patras, the country's centre for the international trade in currants – the main export item to the West. The business elite of this town had tight links with merchant-entrepreneurs in the Ionian islands and the Adriatic, who, as already mentioned, had been the first amongst Greeks to adopt the JSC as a form of business organisation.

The royal decree for the first post independence JSC 'I Achaia' portrays the great expectations which surrounded the introduction of the novel institution of the JSC into Greece. It included a statement from King Otto which presumed that this virgin enterprise would from its profits make contributions to the public welfare! The high performance and social responsibility expected from the JSC was not

unique to Greece –it was common to countries of continental Europe in the post-1815 restoration, while such Cameralist-type requests can be found, for example, in public documents presenting the navigation companies founded in the Lombardo-Veneto region in the 1830s.⁸

Like all pre-1920 JSCs, 'I Achaia' operated within the legal framework provided by Articles 29–37, 40 and 45 of the Commercial Law Act of 1835. This law did not specify a minimum capital or number of shareholders, and the conditions for company registration were sparse; nevertheless, a royal decree was required. (Karavas, 1930, pp. 13–14).

By 1857–9, if not earlier, the Ministry of the Interior, responsible for the founding and operation of JSC companies, was concerned with the inability of the Code to discriminate between genuine business and fraudulent endeavours in the guise of a corporate form (Anastasopoulos, 1946, pp. 153–157). Towards the end of the century the two main political parties, the Modernist (or Neoteric) and the Nationalist, were of the view that a new legal framework was required, and two attempts were made to establish a Company Act, both fruitless. A first draft law modelled on the Italian Commercial Code of 1882 was prepared in 1889 under the premiership of the Modernist Charilaos Trikoupis, who envisioned Greece as becoming the financial centre of the Eastern Mediterranean (Tricha, 2001, p. 36). A second draft law, this time based on the Belgian amended (in 1881 and 1886) Commercial Code of 1873, was prepared in 1896, under the premiership of Trikoupis' rival, the traditionalist head of the Nationalist Party, Theodoros Deligiannis.

Yet no change came about in the legal framework and Greece did not follow the example of other European countries that introduced Company Acts at the time. Arguably, we may speculate that such a failure was not the result of indifference and ignorance but of a combination of petty rivalries between the two main parties and disagreement within the business 'corporate' elite itself as to the shape a new law should take. Furthermore, the shock of the national humiliation in the Greco-Turkish War of 1897 spread demoralisation in public life and retarded the already slow process of institutional change.

The Napoleonic commercial code of 1807 gave little protection to investors, but its prolongation was not catastrophic. As we will see in Sections 3.4 and 3.5,

the JSC continued to spread in the 1890s and 1900s and two out of the four peaks of the period under review materialised in these two last decades).

How did the JSC manage to spread in spite of this bottleneck?

The answer is that given the small size of the country and the prevalence of personal/family type of mercantile capitalism joint stock companies were basically privately owned firms, not listed on the stock exchange. With the notable exception of public utilities, which though publically listed were actually controlled by tight knit banking JSC founders, even when numerous, were known to each other as they belonged to family and/or business networks.⁹ Hence, joint stock company founders made use of a long tradition of personal bonds of high trust in order to overcome the obstacle of poor protection given to investors under the existing legal system (Aivalis and Pepelasis Minoglou, 2008). And with this comment, we now turn to an analysis of the advantages incorporation offered to company founders.

2.2. Why incorporation?

Throughout the period under review the JSC was certainly a symbol of modernity and in this lay part of its attraction to those who embraced it. Despite an element of imitation which made sense in a country that was striving to catch up with the West, ‘mimicry’ can provide only a partial explanation (Gershenkron, 1962). The basic motivation driving the adoption of incorporation by company founders was that it offered tangible advantages. The evidence from founding charters points to the existence of a mechanism which gave the JSC a lead *vis-à-vis* traditional forms of business organisation. It provided limited liability and the possibility for dispersion of risk. It also allowed for a substantial concentration (pooling) of capital resources and an internalisations of costs. In Greece the infrastructures of the market economy were still underdeveloped, as already noted above.

Incorporation was also a venue for ‘team work’ of a higher level in a country in which, outside the extended family, general trust amongst members of society was low, property rights were insecure, and accountability and transparency of transactions were limited. Team work involved cooperation in the management of the JSC. Data on the shareholder base of JSCs (derived from the AUEB project) reveal that co-founders: i) basically belonged to the country’s business elite and ii)

relied on these new entities as customers or suppliers or both for their other largely family-based business enterprises (Pepelasis,2010).¹⁰ A good example is marine insurance, in which merchant ship-owners would embrace the JSC as a form of business organisation: they would set up a marine insurance company in which they – and their merchant houses, which were organised as partnerships – would be the main clients not only for insurance but also for discount business. In this way they could internalise the cost of acquiring capital and could spread the risk amongst a large number of shareholders, which in some cases reached more than 300. Hence, the owners of a JSC firm would also have transactional relations with it and they comprised a homogeneous interest group which could exercise collective control. JSCs were formed by individuals and entities that would then constitute a network of production and service activities.

This interdependency really means that ‘shareholders’ were not simply ‘savers’ who would park their money in the equity of a company but active agents of related and interdependent activities. For instance, it was usual for banks/bankers, represented on the board of directors or participate as founding shareholders in JSC start-ups, to simultaneously provide loans to these businesses, as was the case, for example, with the chemical and fertiliser company ‘Elliniki Etaireia Chimikon Proionton kai Chimikon Lipasmaton’ (1909).¹¹

In sum, the fundamentals discussed here reveal:

Firstly, that in the ‘long’ nineteenth century the legal framework for incorporation remained constant and hence other factors (which we analyse below) impacted on trends in the demography of JSC births.

Secondly, that the nascent corporate sector was not an enclave. It had multiple links with non-corporate business. The JSC enabled entrepreneurs to diversify with less risk into new –capital and knowledge intensive -activities that enhanced in a complementary way their pre-existing core business operations.¹²

Both of these ‘findings’ are important for the interpretation of the historical statistics which we discuss below.

3. Demography of joint stock company births

3.1. Data-base, sources and methodology

The newly compiled database on which this paper is based includes gross incorporation (births) of JSCs rather than net incorporation (births minus deaths) as, at the time, existing companies were not obliged by law to declare dissolutions. It covers the total population of 303 new JSCs (i.e. not reconstitutions of active firms) established in Greece between 1830 and 1909 and draws on information from the (royal) legal decrees of incorporation and the 251 founding charters which have been recorded in the *Greek Government Gazette* and located in archives.¹³

The methodology pursued in charting the demography of JSC births is based on observations per start-up regarding: date of birth, declared purpose(s) of start-up/sector, and nominal registered capital. Information on sectors is available for 300 companies and on registered capital for 219 companies. Registered capital is not available at all for start-ups founded before 1840; yet, the sample we have is large enough and represents a major portion of the population of births.

The data base contains estimates per annum, per decade and for the period as a whole. All monetary amounts expressed in current prices have been transformed into constant 1914 drachmas.¹⁴ Additionally, all amounts expressed in foreign currencies were transformed to constant 1914 drachmas.¹⁵ Finally, data on the start-up phase of companies should be treated with caution and not equated with final outcomes. This caveat is particularly relevant in the context of the impact the nascent corporate sector had on macroeconomic outcomes, structure and institutions.

Before embarking on the examination of the data base it is useful at this point to embed this original research in the existing historiography on the Greek JSC. The fact that Greece has never become a mature industrial economy and the prevalence of family capitalism have been major factors that have worked against the development of an interest in the Greek joint stock company. Most of the existing historiography on the topic is of a legal orientation.¹⁶ The earliest economic analysis of the Greek joint stock company (or *société has anonyme*) was undertaken by Angelos Angelopoulos in his pioneering 1928 study on *sociétés*

anonymes in Greece has few statistics. (Here, we use the term joint stock company [JSC] for sociétés anonymes.) Over the years and much more recently, the most in depth study is that of Stathis Tsotsoros (1994) on the formation of Greek industrial capital, compiled a statistical database, but it concerns only balance sheets of industrial JSCs during the interwar period.¹⁷

3.2. Aggregate values

The total number of 303 JSC start-ups established during our period of study seems to have represented only a small fraction of the general population of enterprise births in Greece at the time.¹⁸ The majority of the latter consisted of individual proprietorships or partnerships, usually general and far less frequently of the limited liability type, that is, the société en commandité.

On average, less than four new JSC births occurred per annum during the period under review. Within this rather anaemic rhythm, actual incorporation was erratic.¹⁹ There were years with none or only one JSC company birth, whereas in particular times there were leaps and bounds. However, although no consistent upward momentum can be observed in the number of births, the 1870s were a watershed. The majority of years during which there were none or only one start-up were before 1870 and over 75% of JSC births and all peaks in births materialised after this date (see below 3.5 for peaks). The fact that 1870 was a watershed in terms of JSC births is not coincidental. As noted in Section 1 after 1870 there was: a quickening in the pace of economic growth; state formation; institutional modernization and internationalization. A major move forward was the lifting in 1879 of the financial embargo was followed by a massive foreign capital inflow. In the span of 15 years over 350 million gold francs in real terms were made available to the Greek government by the international capital market (Pepelasis Minoglou, 1995, p. 257). This gave a push to incorporation as access to the international capital market allowed the state to provide licenses and concessions to JSCs registered in Greece, which it could not do before because it lacked the capital to fund them (Papayiannopoulou, 1989, p. 24; Yiannitsis, 1977, pp. 248–249). Until then there had been very few Greek registered JSC births in public utilities,²⁰ but thereafter only few Western-based companies were granted concessions.²¹

Utilising the information we have for the registered capital of 219 of JSC start-ups, we see that it amounted to 1,082,953.426 constant 1914 drachmas.²² In reality the total capital of incorporation was much larger, but even this known capital commitment was significant in the capital-poor Greek economy, as this sum represented 16.6% of total non-agricultural GDP for the period under review and was equivalent to 60% of the credit granted to private business by the leading financial institution, the National Bank of Greece, over the same period (Dertilis, 2009). The year 1870 was –an even more important than for JSC births- watershed in terms of capital commitment as nearly 90% of the known registered capital of JSC start-ups belongs to the period 1870-1914.

Insert Table 3

Last but not least, for the period as a whole, the median start-up capital of Greek JSC companies might have been low by Western standards,²³ but it was nevertheless emblematic of big business in Greece. An initial sample of the material on the founding capital of partnership-based firms suggests that the median registered capital of individual corporate entities was much higher than the capital endowment of non-corporate firms.²⁴ This phenomenon in itself is an indication of the fact that the JSC became a vehicle for the rise of large-scale productive units, a *sine qua non* requirement of Kuznetian economic growth. One last observation before closing this section: mean registered capital was of JSC start-ups was consistently higher than median registered capital, the distance between the two reaching its highest in the 1880s: a decade marked by a boom in railways and banking. With this comment, we now turn to an analysis of the sectoral composition of the nascent corporate sector.

3.3 Sectors

Joint stock company births were not evenly spread throughout the economy. Placed at the modernising margin, they did not mirror the structure of GDP.²⁵ For the period as a whole only 0.2% of JSC births were in agriculture, the largest sector, which – with the prime exception of the Ionian islands – was largely household based.

Insert Table 4

Services, the second largest sector of the economy, accounted for over 80% of JSC start-ups. These births however were not located in the realm of the familiar. They were concentrated, not in the traditional activities of commerce and sail-powered shipping, but on the avant-garde frontier. Specifically, they dominated the emergence of early marine insurance, as well as large-scale banking and had a seminal presence in the novel area of steam -shipping (which can be likened to the industrialisation of marine transport). Notably, railway companies (which can similarly be likened, through the use of steam engines, to the industrialisation of land transport) and organisations set up for the benefit of enhancing the ‘public sector’ such as the ‘state monopolies’ were exclusively organised as JSCs.

Insert Table 5

For the period as a whole, over one in ten JSC start-ups were in the small but expanding sector of industry. Within the latter, mining was a main attraction amongst the founders of JSCs, many of whom, as in the case of marine insurance, were members of the diaspora. Manufacturing JSC start-ups, which were slightly fewer in number than mining firms, were primarily located in the avant-garde enclaves: namely, metallurgy, mechanical engineering and chemical fertilisers. Food, textiles and tanning, which accounted for the bulk of manufacturing in Greece at the time, were almost totally absent in the population of the nascent corporate sector.²⁶

Moving from the number of company births to registered capital, the basic observation is that sectoral distribution of the two was not identical. Disparity between them partly reflects variation in the average amount of start-up capital across sectors. Notably, although banking accounted for roughly one-tenth of company births, slightly over half of total start-up registered capital was in this branch, which was almost completely monopolised by the presence of diaspora financiers. The median of registered capital per banking start-up was nearly seven times the overall median. Railway companies accounted for under 4% of JSC

births and yet they were second in importance to banks, as they provided 12.6% of total recorded registered capital. Railway companies were one of the largest sectors of JSC start-ups and were highly internationalised with a significant presence of foreign and diaspora interests amongst company founders.

Let us at this point return to the numbers and sectors of JSC births and examine the dynamics, i.e observe the trends over time.

Incorporation was not static in composition. It started off as a mono-culture. Until the mid-1860s, nine out of ten JSC births were in services, and nearly eight out of the nine were marine insurance companies. This early prevalence of marine insurance is linked to the perennial importance of the sea for Greek enterprise and the drive as well as the relative ease with which shipping recovered from the Greek War of Independence compared to other branches of the economy (Dertilis, 2009, chapter on marine insurance). It is also linked to the expertise in incorporation in insurance handed down by the diaspora communities. The influence of the latter can be seen in the continuation of practices initiated by diaspora marine insurance companies in Trieste, where insurance companies also functioned as discounting (unofficial financial) firms (Gekas, 2008). Despite its initial vitality, the domestic-based marine insurance sector did not last long. Around 1870, the transition from sail to steam triggered several defaults of domestic marine insurance firms. The activity was overtaken by foreign companies, and by 1872 marine insurance was almost totally eclipsed amongst JSC start-ups (Kardasis, 1999). The sectoral composition of the nascent corporate sector changed markedly after 1870:

Firstly, there was a diversification of JSC births within services towards banking, finance in general, collective action entities and public utilities and public benefit organisations; and

Secondly, there was a fall in the share of services within incorporation and a rise in industry, initially mining and then manufacturing. It should be underlined here that prior to 1870 only six JSCs had been set up in industry. Hence, it could be argued that from 1870 onwards industry, with 103 start-ups, became an important element of incorporation with almost equal weight to services, which accounted for 112 start-ups between 1870 and 1909.

In conclusion, in the period under review joint stock company births represented large capital commitments and were placed in avant garde sectors. An incubation period of monoculture (1830-1860/70) was followed by expanding horizons (c. 1870-1909) during which the birth rate was higher and there was a more marked diversification. The timing of the post 1870 shift coincided chronologically with a move forward in economic growth. It is on the basis of this last observation that we raise the question: whether there existed statistical correlations between trends in incorporation (a meso-level phenomenon) and trends in basic macro-indicators? And to an exploration of this we now turn.

3.4 Exploration of statistical correlations between joint stock company births and macro-economic indicators ¹

The first task undertaken here is to explore whether we can detect long waves in the economy. The presence of a long economic cycle indicating capital accumulation in an otherwise agricultural economy (agriculture was non-monetised with the notable exception of currants), has been investigated using appropriate smoothing filters and spectral analysis of leading macroeconomic indicators characterizing the Greek economy, on the basis of historical estimates, namely: the growth rate of smoothed agricultural and total real GDP using the 1914 GDP deflator (1914=100) and nominal agricultural and total GDP, expressed in Latin Monetary Union Drachmas. These macroeconomic series are used as a 'proxy' to standard conjectural indicators (such as the index of industrial production used in business cycle empirical analysis) and the temporal evolution of their growth rates has been compared with the annual count of JSC births in order to mark off any coincident peaks in incorporation during 1840-1909.

Our methodology consists of the following steps. Real GDP (Agricultural = ARGDP, Total = RGDP) is calculated as the logarithm of nominal GDP over the 1914 GDP deflator. As one would expect, the resulting series are not trend-stationary as implied by the presence of a unit root (Augmented Dickey Fuller statistic with one lag). Observation suggests that the regression residuals of an AR(1) integrated process instead are 'white noise' whereas the (log-standardized)

¹ I wish to thank Elpiana Emmanouilidou for her contribution to this Section of the paper.

spectrum of the associated prediction exhibits successive peaks in the period 1865-1885 with the most conspicuous in the 1870s (see the conclusion of the above section and graph 1). Next, the log-real series are smoothed using a moving-average filter with a 7-year window. The statistical correlation of the smoothed series with the annual birth count is significant at around 32% (Kendall's tau is used). Finally, growth rates are calculated using first differences of the smoothed series. The spectrum of the resulting growth rates for the period 1840-1909 starts off with a peak around 1840. Since then the growth rate in GDP is characterized by four successive intermediate peaks of lower but equal height around 1865, 1871-3, 1880 and 1885. These peaks are more dramatic if we focus on the growth rate of agriculture.

Insert Figures 2 and 3

The spectral densities of agricultural GDP are plotted against the annual count of JSC births. This comparison provides evidence that the peaks in the rate of growth of agriculture of 1871-3 and 1907 nearly coincided with the peaks in JSC births 1872-3, 1907-1909. Because there was also a peak in agriculture in 1865 and in 1901, we may argue that in these two cases the spikes in JSC births were preempted by twin peaks in agricultural GDP.

In the remaining two peaks in JSC births that of 1882 and 1893 no coinciding spike can be observed in agricultural GDP. However we see something different

1. The peak in JSC births of 1882-3 was located between two peaks in agriculture.
2. The peak of JSC births in 1893 coincided with a trough in agriculture, but it was located between two peaks in GDP growth. Perhaps a substitution effect was at work.

At this point let us depart from pure 'quantitative analysis' and let us enrich interpretation of historical conjuncture by turning to a more spherical view of the timing of the peaks in JSC.

3.5. The timing of peaks in joint stock company births and the wider historical conjuncture

An examination of the features of each peak in conjunction to concurrent socio-economic developments reveals that each peak was: ‘provoked’ by a displacement (an exogenous so to speak shock) which raised business expectations and channeled accumulated ‘surplus ‘ capital (perhaps some from agriculture) towards the nascent corporate sector, a sector identified with the avant garde...

The first peak (1872–3) was associated with the repatriation of some prominent Greek diaspora bankers such as Andreas Syngros, who had been based in Constantinople (Dertilis,2009). The reasons for this repatriation surge were complex, but amongst the attractions were the expansion of property rights (and the market economy) with the distribution (i.e. privatisation) of national lands in 1871 and other events which resulted from the strengthening ability of the state to formulate and implement national policy following the introduction of parliamentary democracy in 1864.

In this first peak, the largest number of company births (a total of 55) materialised towards the end of Greece’s first industrialisation spurt (*c.* 1867–1873) (Agriantonis,1986) . Mining firms came first – a total of 27 – and banking firms second – a total of 11. With respect to registered capital, banking start-ups came first with a total registered capital of nearly 100,000,000 drs and mining followed suit with a total registered capital of *c.* 50,000,000 drs.

At the core of this peak lay an intense wave of speculation in mining. Here the incentive was probably to issue shares that could be sold at speculative prices. The speculation in mining came to an abrupt end with the burst of the infamous Lavrion mine bubble in 1873, which was probably associated, through a process of mimicry, to a wider European phenomenon, as indicated by the 1873 boom in mining shares in Germany (Yiannitsis, 1977, p. 239; Angelopoulos, 1928, pp. 15–16; Kindleberger, 1993, pp. 195–196).

The second peak (1882–3) consisted of 19 JSC births: a smaller number than in the first peak, but there was a wider diversification. It included most of the sectors of the first peak, with the major new element and driver – the railways – accounting for 4 start-ups and 67% of registered capital. Banking, Construction,

steam-shipping, land drainage and the provision of cultural activities were also present.

This second peak in company births followed a boom year in the growth rate of non-agricultural GDP, which indicated a rise in urban and semi-urban economic activity. Let it be noted here that in 1881 registered capital of JSC births skyrocketed – largely as a result of the creation by diaspora bankers of the Athens based ‘Bank of Constantinople’ - to an unprecedented 462,748,454 drs, which was over twice the size of non-agricultural GDP in the corresponding year.

It also corresponded with the re-entrance of Greece into the international capital market following the lifting in 1879 of the embargo mentioned above. Indeed, this second peak in company births coincided with a major geographic expansion of the Greek state, with the annexation of the large, fertile provinces of Thessaly and Arta. It is possible that the challenge of integrating these grain-rich plains, which lacked any transportation and banking infrastructure, stimulated an entrepreneurial drive which the forward-looking corporate sector could host.

In the third peak (1893) 12 JSCs were established, in the areas of heavy and light industry, banking, steam-shipping, publishing and mutual assistance. The largest start-up was the Bank of Athens, which alone accounted for 64% of registered capital. This peak occurred in a year renowned for the declaration of a moratorium on foreign public debt.²⁷ However, despite the impasse in Greek public finances, the previous year had seen a boom in the growth rate of non-agricultural GDP. Moreover, there was an intense sense of achievement in the building of the new Greece. The national railway project was in full swing, and the Corinth Canal, the construction of which was completed by a Greek-registered JSC company, was inaugurated (Papayiannopoulou, 1989, pp. 37-42). Moreover, there was surplus capital around looking for new investments as the nearly 20-year boom in the exportation of Corinthian currants ended in 1893 (Franghiadis, 2007).

The second and third peaks were separated by a ten-year interval. The fourth peak took longer to arrive (1907–9) and it lasted longer than the previous ones. It involved the foundation of 41 JSC companies and it covered altogether many more branches than any of the previous peaks. It consisted of companies in land and sea transport, public benefit organisations, insurance, medical services, banking, mining, chemicals and fertilisers, processing of agricultural goods, publishing, and

mutual assistance societies. In terms of registered capital, this peak was driven by shipping (29,200,448 drs) and banking (14,140,705 drs).

Significantly, this last peak was placed at the tail-end of the so-called hidden 'economic miracle' of 1905-1910, due to the expansion of shipping and other activities (Dertilis, 2009, pp. 863–891; Kostis, 2003, pp. 17-38). As in the case with the first two peaks, the timing of the fourth one suggests that large increases in company births were mostly a response to the opportunities generated by the forward movement of the economy, which fed high business expectations. However, legal factors were also at work: this peak came almost a decade after the introduction of an inheritance tax in Greece in 1898, which in spite of its being less than 1% 'may' have increased the attraction of the JSC as a tax-avoiding device. (As this connection is tenuous, because of the length of the interval between 1898 and 1907, the word may is in quotation marks.)²⁸

The peaks as an entity were emblematic of the twin feature of evolution and continuity which characterised early incorporation in Greece. The first peak was the narrowest of all in scope. The subsequent peaks consisted of start-ups progressively allocated in more varied economic branches. This can be interpreted as an indication that an evolutionary process of increasing diversity was at work. The peaks were also emblematic of continuity because the bulk of registered capital in each peak was concentrated in two sectors, the one of which was banks. Accumulated capital (as detected from the spikes in agriculture and other data presented here) preceded each peak and sought during the peak to formalize and expand the financial system. Namely, the first peak was driven by capital registered in banks and mining; the second by capital registered in railways and banks; the third by capital solely registered in banks; and the fourth by capital registered in shipping and banks. Apparently, the nascent corporate sector was an important medium for the rise of banking in a capital poor country... and hence it may be argued that in at least one way it contributed to growth and did not simply reflect it.

In a nutshell, peaks in JSC births were associated with the wider historical conjuncture –which is meant here to include also institutional change. The idea that incorporation did not operate in a vacuum but that 'the context matters' and that several interrelationships existed with the wider environment is not new and

has been expressed in a variety of perspectives and works, such as Simon Kuznets (1966) -as already mentioned in the text- and more recently such as for example Andrea Colli *et al.* (2003).

4. Epilogue

This paper has argued that:

1. The conventional belief that the Company Act of 1920 marks the starting point of the JSC in Greece is wrong. The data base constructed from company charters (1830-1909) reveals that incorporation was important long before 1920. It offered advantages to business persons, it was substantial in terms of capital commitment and lay at the avant garde of the Greek economy.
2. The JSC was introduced from above, but as the legal framework for incorporation failed to evolve and adapt, other forces drove the shift of JSC births from a period of incubation to a period (time-thread) of expanding horizons commencing circa 1870.
3. Joint stock company births came in surges/waves. Peaks in incorporation did not occur haphazardly. In what was an agrarian economy it was the case that each peak was : i) related to a spike (or lay between twin spikes) in the rate of growth agricultural GDP (or GDP); and ii) was provoked so to speak by a displacement (an 'exogenous' so to speak shock) which raised business expectations and increased the supply of surplus capital towards avant garde activities (i.e the nascent corporate sector). It could be argued that Joint Stock Company founders seemed to prefer to ride a tide- their entrepreneurial drive being motivated by (and perhaps further feeding) 'rising expectations'. The use of the words 'rising expectations' as is already clear in the text having her no connection with the 'rising expectations hypothesis' in the economics and development literature(s).

In conclusion, the time is now ripe to go one step further and explore, with the use of econometric tools, the evolution of incorporation as measured by annual birth counts conditional on the basis of the features of the firm making up the

population in our data base. Such an exercise might perhaps provide new insights into the behaviour of early Greek incorporation.

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Primary Sources

1. *Efimeris tis Kiverniseos* [Greek Government Gazette], Selected Issues: 1830–1909, Athens.
2. Law for ‘General Commerce’, Decree of 19 April/11 May 1835, Article 19, and Commercial Code, Articles 29–37, 40–41 and 45 in Hellenic Republic, Ministry of the Government, Codification Department, *Diarkis Kodikas Nomothesias* [Continuous Code of Law Making], Volume 11, Commercial Law.
3. Haritakis, Georgios, A. Kalliavas and N. Mikelis (1931). *Oikonomiki Epetiris tis Ellados 1929* [Economic Yearbook of Greece for 1929]. Athens, Association of Greek Banks.
4. The newspapers: *Paligenesia, Ermis, Aion*.

Archives

1. Benakeios Library of the Hellenic Parliament, periodicals and rare documents/books section.
2. State Archives in Ermoupolis, Syros.
3. Notaries Archives of Athens.
4. National Bank of Greece, Judicial Series. A1, S40 Subseries 8, Legalisations Files: 1235, 1246, 1315, 1440, 2421, 1443.

References

- Agriantonis, Christina (1986). *Origins of Industrialisation in Nineteenth-century Greece*. Athens: Commercial Bank of Greece, Foundation of Research and Education (in Greek).
- Aivalis, Konstantinos and Ioanna Pepelasis Minoglou (2008). “A Preliminary Analysis of Early Corporate Governance in Greece: 1850–1909. European Business History Association. Annual Conference 2008.”
www.hist.uib.no/ebha/papers/aivalis-minoglou_ebha_2008.pdf.
- Anastasopoulos, Georgios (1946). *History of Greek Industry, Vol. 1 (1840–1884)*. Athens: Greek Publishing Company (in Greek).
- Angelopoulos, Angelos (1928). *Sociétés Anonymes in Greece*. Athens: Greek Society of Scientific Studies (in Greek).
- Baghdiantz McCabe, Ina, Gelina Harlaftis and Ioanna Pepelasis Minoglou (eds) (2005). *Diaspora Entrepreneurial Networks: Four Centuries of History*. Oxford: Berg.
- Blair, Margaret and Lynn Stout (1999). “A Team Production Theory of Corporate Law.” *Va. Law Review* 85: 247–328.
- Clogg, Richard (1992). *A Concise History of Greece*. Cambridge: Cambridge University Press.
- Colli, Andrea, Paloma Fernandez Perez and Mary Rose (2003). “National Determinants of Family Firm Development? Family Firms in Britain, Spain and Italy in the Nineteenth and Twentieth Centuries.” *Enterprise and Society* 4 (March): 28–64.
- Dacoronia, Eugene (2003). “The Evolution of the Greek Civil Law: From its Roman-Byzantine Origins to its Contemporary European Orientation.” In H. L. MacQueen, A. Vaquer and S. Espiau (eds), *Regional Private Laws & Codification in Europe*. Cambridge: Cambridge University Press.
- Dertilis, G.V. (1977). *Social Transformation and Military Intervention, 1880–1909*. Athens: Exantas (in Greek).
- Dertilis, G.V. (1993). *Ineffectual or Effective? Taxes and Power in the Modern Greek State*. Athens: Alexandria (in Greek).

- Dertilis, G.V. (2009). *History of the Greek State, 1830–1920*. Athens: Estia (in Greek).
- Dritsas, Margarita (1997). “Naissance et Évolution des Entreprises Grecques au XXe Siècle.” In Michael Moss and Philippe Jobert, *Naissance et Mort des Entreprises en Europe XIXe–XXe Siècles*. Bourgogne: Université de Bourgogne.
- Foreman-Peck and Ioanna Sapfo Pepelasis (forthcoming 2012). ‘Entrepreneurs and Businessmen in Greece during the Long Nineteenth Century’. In eds. Gabriel Tortella and Gloria Quiroga , *Entrepreneurship and Growth: An International Historical Perspective* , London: Palgrave MacMillan.
- Franghiadis, Alexis (1990). *Peasant Economy and Export Trade: Currant Viticulture in Southern Greece, 1830–1925*. Ph.D. Thesis. Florence: European University Institute.
- Frangiadhis, Alexis (2007). *The Greek Economy, 19th–20th Century*. Athens: Alexandria. (in Greek).
- Freeman, Mark, Robin Pearson and James Taylor (2004). “The Politics of Business: Joint Stock Company Constitutions in Britain, 1720–1844.” www.econ.upf.es/ebha2004/papers/7F2.doc.
- Gallant, Thomas, W. (2001). *Modern Greece*. London: Arnold.
- Gamble, Andrew and Gavin Kelly (2000). “The Politics of the Company.” In Andrew Gamble, Gavin Kelly and John Parkinson, *The Political Economy of the Company*. Oxford: Hart, 21–50.
- Gekas, Athanasios (Sakis) (2008). “A Sector ‘most beneficial to commerce’: Marine Insurance Companies in Nineteenth-century Greek Port Cities.” Entrepreneurial History Discussion Papers, www.ehdp.net.
- Gerschenkron, Alexander (1962). *Economic Backwardness in Historical Perspective*. Cambridge, MA: Belknap Press.
- Hadziiossif, Hristos (1993). *Elderly Moon: Industry in the Greek Economy, 1830–1940*. Athens: Themelio (in Greek).
- Haritakis, Georgios (1927). *Greek Industry (Industry-Mining-Labour)*. Athens: Estia (in Greek).

- Hausmann, William J. (2006). "Entrepreneurship in the United States: Defining the Field, Its History, and an Empirical Model of Long-Term Trends." In Youssef Cassis and Ioanna Pepelasis Minoglou (eds), *Country Studies in Entrepreneurship: A Historical Perspective*. London: Palgrave, MacMillan, 25–49.
- Karavas, Konstantinos (1930). *Theoretical and Practical Textbook of Sociétés Anonymes*. Athens (in Greek).
- Kardasis, Vasilis, A. (1999). *Syros: Crossroad of the Eastern Mediterranean, 1832–1857*. Athens: Cultural Foundation of the National Bank of Greece (in Greek).
- Katsiardi-Hering, Olga (1986). *The Greek Community of Trieste, 1750-1830*, Vols. A and B Athens: University of Athens (In Greek).
- Kendall, Maurice. (1938). "A New Measure of Rank Correlation". *Biometrika* 30 (1–2): 81–89. doi:10.1093/biomet/30.1-2.81.
- Kindleberger, Charles (1993). *A Financial History of Western Europe*. New York and Oxford: Oxford University Press.
- Kostelenos, Georgios, Demitrios Vasileiou, Emmanouel Kounaris, Socrates Petmezas and Michail Sfakianakis (2007). *Gross Domestic Product, 1830–1909*. Athens: Centre of Economic Planning and Research (in Greek).
- Kostis, Kostas (2005). "The Formation of the Greek State." In Faruk Birtek and Thaleia Dragonas (eds), *Citizenship and the Nation State in Greece and Turkey*. New York: Routledge, 18–36.
- Kostis, Kostas in collaboration with Giorgos Kostelenos (2003). *History of the National Bank of Greece, 1914–1940*. Athens: National Bank of Greece (in Greek).
- Koutsis, Georgios (1944). *The Evolution of Greek Sociétés Anonymes*. Athens (in Greek).
- Kuznets, Simon (1966). *Modern Economic Growth Rate Structure and Spread*. New Haven: Yale University Press (2nd ed. 1967).
- Kyrkilitsis, Andreas (1934). *Banks in Greece*. Athens: Graduate School of Economics and Commercial Studies (in Greek).

- Lamoreaux, Naomi, R. (1988). "Partnerships, Corporations, and the Theory of the Firm." *The American Economic Review* 88, no. 2 (May), Papers and Proceedings: 66–71.
- Lyrintzis, Christos (2008). "State, Power and Politics (1830–1880)." In Katerina Gardika *et al.*, *Formation of the Greek State, International Framework and Politics in the 19th Century*. Athens: Nefeli (in Greek).
- Mann, Michael (1984). *The Autonomous Power of the State*. European Sociology Archives.
- Mavrogordatos, George Th. (2003). "Political Developments: From Goudi to the Minor Asia Catastrophe." In Vasilis Panayiotopoulos (ed.), *History of Modern Hellenism, 1770–2000*. Volume 6. Athens: Ellinika Grammata: 9–30 (in Greek).
- Melios, Nikos (1987). *Copais, 19th and 20th Century*. Unpublished typescript. Athens (in Greek).
- Neves, Pedro (2011). The Development of Portuguese Corporate Sector during the 19th century : an assessment based on the joint stock company start-ups EBHA Annual Conference 24-26 August.
- North, Douglass C. and Robert Paul Thomas (1973). *The Rise of the Western World: A New Economic History*. Cambridge Economic History. Cambridge: Cambridge University Press.
- O'Brien, Patrick Karl (2006). *The Formation of a Mercantilist State and the Economic Growth of the United Kingdom, 1453–1815*. UNU WIDER Research Paper (75).
- Pagano, Ugo (2010). "Legal Persons: The Evolution of Fictitious Species." *Journal of Institutional Economics* 6, no. 1 (March): 117–124.
- Papageorgiou, Stefanos (1988). *The Greek State (1821–1909)*. Athens: Papazisis (in Greek).
- Papayiannakis, Lefteris (1982). *The Greek Railways (1882–1910): Geopolitical, Economic and Social Dimensions*. Athens: Cultural Foundation of the National Bank of Greece (in Greek).
- Papayiannopoulou, Evi (1989). *The Corinth Canal: Technical Feat and Economic Challenge*. Athens: Cultural and Technological Foundation of the Greek Bank of Industrial Development (ETBA) (in Greek).

- Payne, Peter L. (1980). *The Early Scottish Limited Companies, 1856–1895: An Historical and Analytic Survey*. Edinburgh: Scottish Academic Press.
- Pepelasis Minoglou, Ioanna (1995). “Political Factors Shaping the Role of Foreign Finance. In John Harriss, Janet Hunter and Colin M. Lewis (eds), *The New Institutional Economics and Third World Development*. Routledge.
- Pepelasis, Ioanna Sapfo (2010). “Entrepreneurial Typologies in a Young Nation State: Evidence from the Founding Charters of Greek Société Anonymes, 1830–1909.” In Jose Luiz Garcia Ruiz and Pier Angelo Toninelli (eds), *The Historical Determinants of Entrepreneurship*. Pickering and Chatto.
- Persson, Gunnar Karl (2010). *An Economic History of Europe Knowledge, Institutions and Growth, 600 to the Present*. Cambridge: Cambridge University Press.
- Petmezas, Socrates D. (2003). *The Greek Agricultural Economy during the 19th Century: The Regional Dimension*. Irakleion: University of Crete Publications (in Greek).
- Psalidopoulos, Mihalis M. and Yorgos Stassinopoulos (2009). “A Liberal Economist and Economic Policy Reform in Nineteenth-Century Greece: The Case of Ioannes Soutsos.” *History of Political Economy* 41, no. 3: 491–517.
- Schumpeter, Joseph (1947). “The Creative Response in Economic History.” *This Journal* VII, no. 2 (November): 149–159.
- Schumpeter, Joseph (1963). *History of Economic Analysis*. New York: Oxford University Press (5th printing).
- Shannon, H.A. (1932). “The Coming of General Limited Liability.” In E.M. Carus-Wilson, *Economic History*. Reprints edited for The Economic History Society. Volume 1. London: Edward Arnold (Publishers) Ltd: 358–379.
- Sklavenitis, Triantafyllos (2000). “The Traders’ Coalitions of Smyrna and Constantinople (1806–1920).” In *Hellenism Outside the National Borders: Cultural and Social Life*. Scientific Symposium 30 and 31 October. Athens: Moraitis School, Foundation for the Study of Neohellenic Civilisation, 67–75 (in Greek).
- Syrmaloglou, Adamantios (2007). *Bankruptcy or Taxation, Fiscal Policy in the Parliament of Greece 1862–1910*. Athens: Metamesonykties/After Midnight Publications (in Greek).

- Thomadakis, Stavros (1981). *Credit and Monetisation of the Economy, Discounting and the National Bank of Greece*. Athens: Cultural Foundation of the National Bank of Greece (in Greek).
- Thurik, Roy and Sander Wennekers (1999). “Linking Entrepreneurship and Economic Growth.” *Small Business Economics* 13: 27–55.
- Toninelli, Pierangelo and Michelangelo Vasta (2010). Italian Entrepreneurship: Conjectures and Evidence from a Historical Perspective’. In Jose Luiz Garcia Ruiz and Pier Angelo Toninelli (eds), *The Historical Determinants of Entrepreneurship*. Pickering and Chatto.
- Toninelli, Pierangelo, (forthcoming,2012) ‘Joint Stock Companies: Dynamics, Legal Institutions and Regional Economic Disparities in Italy, 1859-1914’. EBHA Annual Conference, Paris August 30-September1.
- Tricha, Lydia (2001). *Charilaos Trikoupis et Les Travaux Publics*. Athens: Kapon.
- Tsotsoros, Stathis N. (1994). *The Formation of Industrial Capital in Greece (1898–1939)*. Vol. 2. Athens: Cultural Foundation of the National Bank of Greece (in Greek).
- Valaoritis, Ioannis (1902). *A History of the National Bank of Greece, 1842–1902*, Vol. 1. Athens: National Bank of Greece (2nd ed. 1980) (in Greek).
- Vaxevanoglou, Aliko (1994). *Greek Capitalists, 1900–1940: A Social and Economic Perspective*. Athens: Themelio (in Greek).
- Walker, C.E. (1931). “The History of the Joint Stock Company.” *The Accounting Review* 6, no. 2 (June): 97-105.
- Yiannitsis, A.V. (1977). “Foreign Direct Investments and the Formation of the Modern Greek Economy.” *Review of Social Sciences* 30-31, Second and Third Quarterly: 234–353 (in Greek).

Notes

1. For the concept of the latecomer country see: Gerschenkron (1962).
2. For indices of economic progress between 1880 and 1909, see: Dertilis (1977, pp. 235–245). Tions,

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3. Early, because industrialisation was still in its initial phases (Agriantonis, 1986; Kuznets, 1966).
 4. Namely, the lands previously held by Ottomans and which had come into state ‘ownership’ following the War of Independence. See: Petmezas, 2003 (pp. 23–56); Franghiadis, 2007 (pp. 24–26).
 5. For terminology see: Mann (1984) and O’Brien (2006). For Greece see: Kostis (2005). For the rise in revenues from taxes see the last row in Table 1. For a general overview of nineteenth-century political economy, which however takes a stance emphasising obstacles to growth, see Psalidopoulos and Stasinopoulos (2009). For the massive inflow of foreign capital, see Pepelasis Minoglou (1995).
 6. For first share, but what appear as unincorporated, marine insurance companies see: Kardasis, 1999 (pp. 195–197, 345–356, 419–422); Koutsis, 1944 (pp. 14–16).
 7. See: Resolution Z of 2 February 1828, *Efimeris tis Ellados*: pp. 38–39; Valaoritis, 1902 (pp. 1–5); Kyrkilitsis, 1934 (pp. 3–4).
 8. For Cameralism see: Schumpeter, 1963 (pp. 159–160). I wish to thank Guiseppe De Luca for bringing the Italian case to my notice.
 9. For information on company founders see: Yiannitsis, 1977, pp. 237–238; (Pepelasis, 2010).
 10. Here the term ‘team work’ is closely related to the term ‘team production’, which is used in a contemporary context for US public corporations in: Blair and Stout (1999).
 11. For other such examples see: Hadziiossif, 1993 (pp. 209–210, 221–234).
 12. This second observation is technically speaking not purely non-statistical has been based in part on statistical analysis of company founders. See again (Pepelasis, 2010).
 13. All the legal decrees for the founding of the 303 JSC start-ups were published in the *Greek Government Gazette*. Of the 251 founding charters used in our database, 228 were published in the *Greek Government Gazette*, 21 were discovered in the Notarial Association of Athens (in the archives of the nineteenth-century notaries: Ioannis Androulakis, Georgios and Ioannis Antoniadis, Gerasimos Afentakis, Antonios Bournias, Diogenis Diogeneidis, Ilias Glykofrydis, Georgios Gryparis, Stefanos Kondylis, Argyris Peppas, K. Pitaris), and 2 were in the General State Archives of Ermoupolis.
 14. Using the implicit deflator from the historical time series of Kostelenos(2003).
 15. Using the exchange rates in Dertilis(2009).
 16. For example, Karavas (1930).
 17. Moreover, some other more general studies have explored various facets of the Greek JSC. See: Dertilis (2009); Dritsas (1997); Hadziiossif (1993); Karavas (1930); Kostis (2003); Vaxevanoglou (1994).
 18. No compilation exists at a national level of the births of non-corporate firms which form historically the majority of enterprises in Greece. These types of firms were by law required to register at their local commercial court. A preliminary sample derived from the port of Ermoupolis on the Cycladic island of Syros reveals the following information. Whereas in the year 1850 a total of

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- 29 non-JSC firms/partnerships were established, for all of the decade of 1850 in the Cyclades, the total number of JSC births in the Cyclades was only five (all in Ermoupolis). Furthermore, for four sample years in the 1890s (1890, 1893, 1894, 1895) a total of 24 non-JSCs/partnerships were created in the Cyclades, whereas for the whole of the 1890s there were only one JSC birth, again only in Ermoupolis. Source: Catalogue of the registered commercial (non-JSC) firms in the islands of the Cyclades derived from the source: Companies 'Etairikon' 1837–1946 State Archives, Ermoupolis.
19. These findings fit the general observations on business start-ups of Thurik and Wennekers (1999, pp. 27–55).
 20. The first being the Athenian horse-drawn carriages 'Geniki Etaireia Polyforeion' (1860).
 21. For the two exceptions of foreign-based companies in large public works: the Paris based 'Société Internationale du Canal Maritime de Corinthe' (1881) and the French and later British 'Lake Copais Co. Ltd' (1867) (Papayiannopoulou, 1989; Melios, 1987). Moreover, it is notable that the five major railway companies – the 'SAP' (Athens Piraeus Railways), the 'SPAP' ('Sidirodromoi Thessalias' [Thessaly Railways]), the 'SVDE' (Railways of North-western Greece), and the 'SAS' (Athens National Borders Railway) – depended on financial contributions from the state either in the form of direct grants or through the loan capital the state raised abroad for the purpose (Papayiannakis, 1982, pp. 135–173).
 22. Henceforth wherever the term 'drs' is used, what is meant is constant 1914 drachmas.
 23. See again Table 3, column 2.
 24. The founding charters of 67 partnership-based firms established between 1903 and 1922 have been discovered at the Judicial Series of the National Bank of Greece. These were small companies in terms of registered capital. Twenty of these partnerships had a registered capital of under 10,000 drachmas. Most were general partnerships, but the largest firm was the limited (liability) partnership company 'Sklavounis and Simitis', which was established in Piraeus in 1908 and its registered capital was 388,889 drachmas (National Bank of Greece. Judicial Series. A1, S40 Subseries 8, Legalisations, Files: 1235, 1246, 1315, 1440, 2421, 1443).
 25. For sectoral distribution of GDP see: Table 4 and Thurik and Wennekers (1999).
 26. It should be underlined that not all modernising initiatives were occupied by the JSC. For example, a few steam-engine based factories were JSC companies as was the case elsewhere at the time (Angelopoulos, 1928, p. 19).
 27. The first default was in 1843 and as a result the Greek state was excluded from the international capital market for 36 years.
 28. Since here we have raised the legal issue let us note that: A rise in the fiscal demands made on JSCs by the state came from 1877 onwards, as a tax on distributed profits of JSC companies was introduced. However, although this tax is estimated as yielding at least 5% of government revenue, it does not

appear to have been a major drawback for JSC births, as shortly thereafter came the second peak in JSC births (Syrmaloglou, 2007, pp. 216–227).

Table 1. Selected macro indicators, benchmark years

	1830	1870	1909
Territory (km ²)	47,516	50,211	63,201 ¹
Population	753,400 ²	1,457,894	2,631,952 ¹
Urban population	–	18%	28%
Literate population	–	18% ¹	33%
Share of non-agricultural sectors in GDP	19.6% ³	29.96%	36.31%
GDP per capita in drachmas	209.5 ⁴	207.6 ⁵	285.3 ⁶
Exports plus imports per capita in drachmas	11 ⁷	130	122 ⁸
Monetary circulation in million drachmas	11.6 ⁹	64.8	171.6
Revenues from taxes in million drachmas	19 ¹⁰	35.7	110.4

¹ Figure is for 1907.

² Figure is for 1828.

³ Figure is for 1833.

⁴ Figure is for 1832–1842.

⁵ Figure is for 1863–1872.

⁶ Figure is for 1903–1912.

⁷ Figure is for 1851.

⁸ Figure here is for 1908. It should be noted here that following the accession of the large region of Thessaly and Arta in 1881 a part of external trade became internal.

⁹ Figure is for 1842.

¹⁰ Figure is for 1833.

Sources: Compiled from Dertilis (2009) and Kostelenos *et al.* (2007).

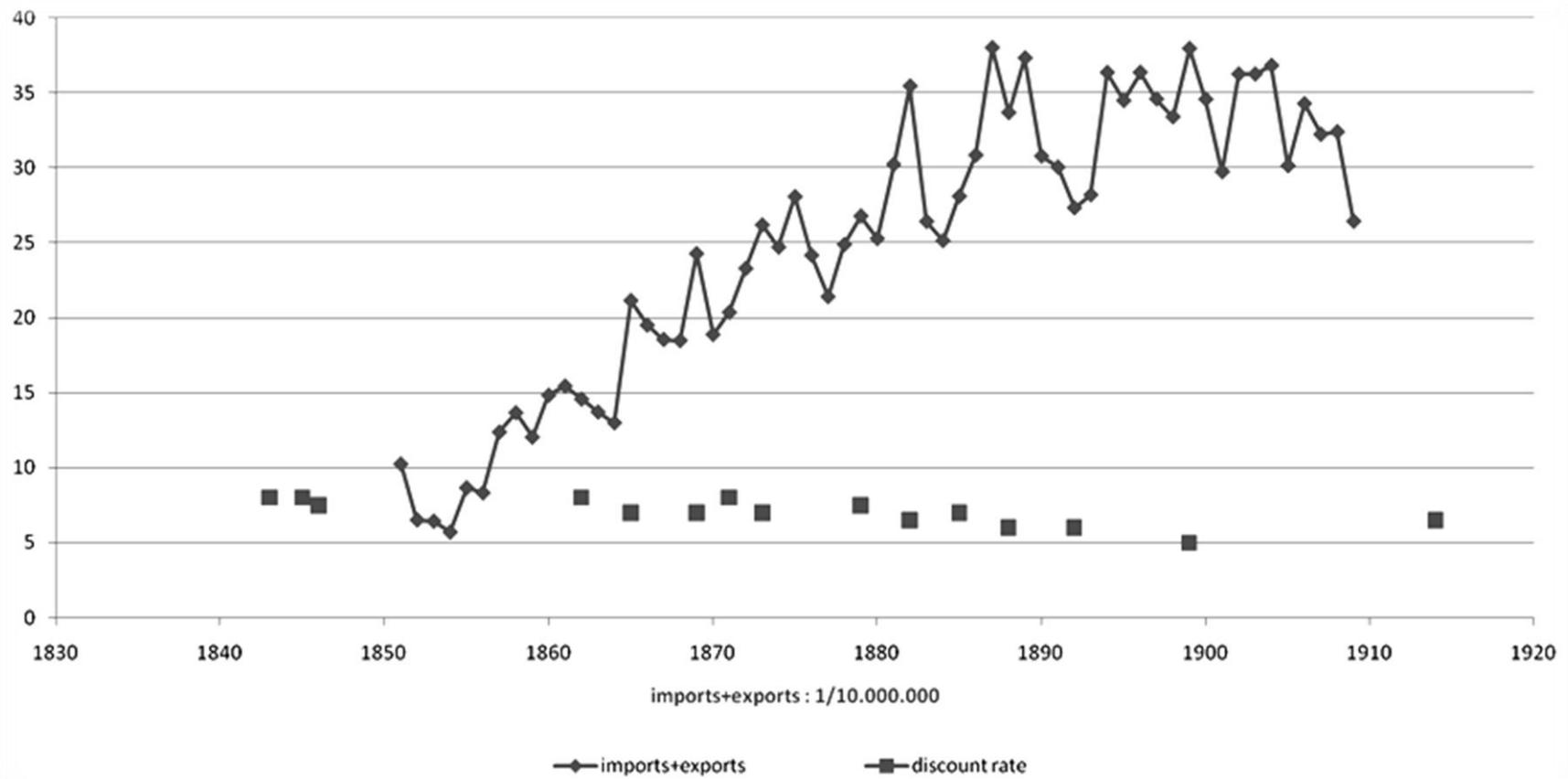


Figure 1. Trends in trade and discount rate (of the National Bank of Greece)

Source: Compiled from Dertilis (2009, Vol.2). The unit of account for trade is drachmas.

Table 2. Conditions and important milestones in economy and society*

	1830–1860	1860–1870	1870–1880	1880–1900	1900–1909
State formation	Obligatory primary education (1834) Creation of the National Bank of Greece (1841)	Accession of Ionian islands (1864)	Intensification of centralisation of state machinery	Accession of Thessaly and Arta (1881) Construction of public works under French Naval Mission (1884–1890)	
Political sphere	Absolutist Monarchy (1832/3) Constitutional Monarchy (1844)	Royal Republic Universal franchise (1864)	Introduction of principle of Parliamentary majority (1875)	Rise of collective action	Goudi Uprising(1909)
Legal sphere	Byzantine Hexabiblos basis for civil code		Draft of French/Italian/Saxon-inspired Civil Code (1874)	German Civil Code as point of reference	
Fiscal sphere	Ottoman system of taxation (Tithes and tax farming) Budgetary arbitrariness		Tax on profits of JSCs (1877) Tithe is abolished (1881)	Imposition of International Financial Control (1898) Introduction of inheritance tax (1898)	
Property rights	Predominance of customary law State holds extensive tracts of land No property rights for peasants		Distribution of national lands Property rights for peasants (1871)		

* The period under review has been divided into five sub-periods. The length of each sub-period is determined by the richness/wealth of events. For example, the first is the longest as it was not so rich in the number of structural changes.

Sources: Clogg (1992); Dacoronia (2003); Dertilis (2009); Kostis (2005).

Table 3. Aggregate values of JSC births

(Number of observations for number of JSC births = 303. Number of observations for registered capital of JSC start-ups = 219)

	Total number of JSC births	Total registered capital (in drs)	Registered capital provided in foreign exchange (in drs)	Mean registered capital per JSC start-up (in drs)	Median registered capital per JSC start- up (in drs)	Median registered capital per JSC start up converted into pounds sterling
1830–1839	5	Not known				
1840–1849	12	14,361,669	0	3,590,417	2,271,954	122.810
1850–1859	12	20,331,450	0	1,848,314	1,598,214	69.930
1860–1869	46	58,789,578	8%	1,367,199	1,058,873	29.270
1870–1879	79	179,704,494	25%	3,667,439	1,089,565	28.970
1880–1889	42	518,200,868	70%	18,507,174	2,668,009	81.270
1890–1899	29	76,537,103	32%	4,028,269	1,485,149	41.780
1900–1909	78	215,028,265	50%	3,308,127	1,041,667	29.590
1830–1909	303	1,082,953,426	52%	4,944,993	1,153,846	34.480

Source: Compiled from selected issues of the *Greek Government Gazette*, 1830–1909.

Table 4. Sectoral composition of GDP, 1840-1909

Benchmark year	Agriculture	Services	Industry	TOTAL
1840	84%	14%	2%	100%
1850	75%	21%	4%	100%
1860	72%	22%	6%	100%
1870	70%	20%	10%	100%
1880	68%	22%	10%	100%
1890	64%	25%	11%	100%
1900	60%	25%	15%	100%
1909	56%	26%	18%	100%

Source: Compiled from data in Kostelenos *et al.*, 2007.

Table 5a. JSC births per category of economic activity
(Number of observations = 300)

	1830–39	1840–49	1850–59	1860–69	1870–79	1880–89	1890–99	1900–09	1830–1909
Agriculture					1			3	4
Insurance	4	9	10	31	4	3	1	5	67
Banks	1	3		4	11	3	4	9	34
Other financial services					4	1	1		6
Commerce				3	2	2	2	11	20
Sea transport-shipping			1	1	3	2	1	8	16
Land transport-railways				1		6	3	1	11
Collective action					1	7	6	4	18
Public utilities				1	2	1		3	7
Other services				1	1	2	1	3	8
Mining-metallurgy				1	29	2	2	13	47
Manufacturing			1	1	17	9	7	14	49
Construction				2	1	4	1	4	13
TOTAL	5	12	12	46	76	42	29	78	300

Source: Compiled from selected issues of the *Greek Government Gazette*, 1830–1909.

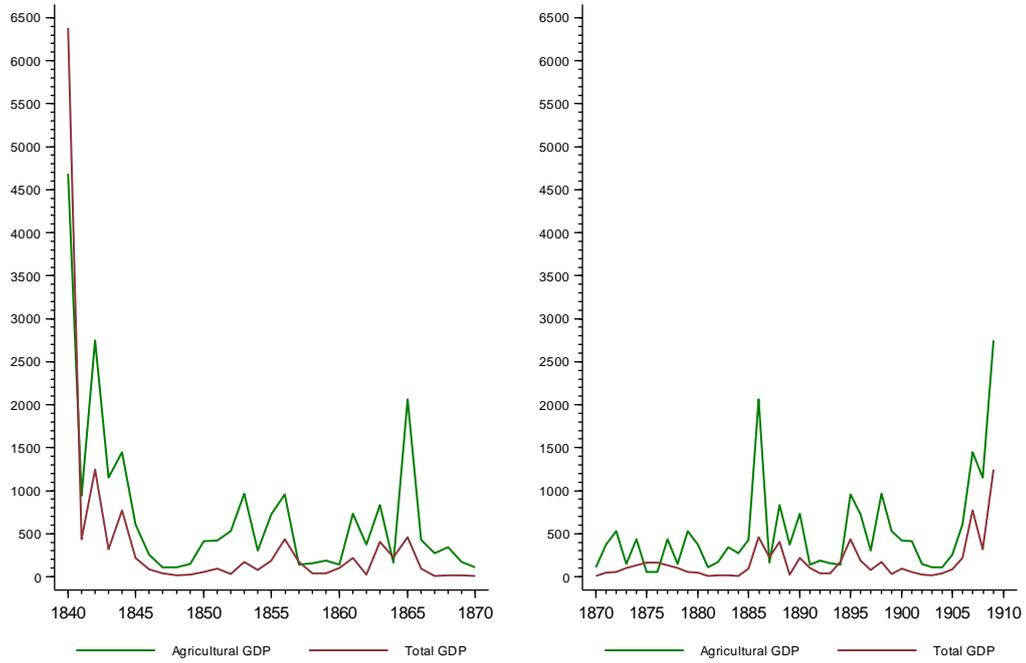
Collective action	Mean	.	.	.	.	.	.	.	.
	Median	.	.	.	.	.	.	.	.
	Sum	.	.	.	.	.	.	.	.
	Col. Sum %								0.00%
Public utilities	Mean	.	.	51,884	1,044,750	.	.	7,970,675	4,342,234
	Median	.	.	51,884	1,044,750	.	.	1,204,819	868,898
	Sum	.	.	51,884	2,089,499	.	.	23,912,024	26,053,407
	Col. Sum %								2.41%
Other services	Mean	.	.	.	.	.	1,485,149	3,877,758	3,279,606
	Median	.	.	.	.	.	1,485,149	337,079	911,114
	Sum	.	.	.	.	.	1,485,149	11,633,275	13,118,423
	Col. Sum %								1.21%
Mining-metallurgy	Mean	.	.	710,317	2,348,709	2,356,908	2,418,831	1,358,507	2,030,515
	Median	.	.	710,317	1,014,493	2,356,908	2,418,831	1,150,033	1,106,580
	Sum	.	.	710,317	58,717,736	4,713,816	4,837,662	16,302,084	85,281,616
	Col. Sum %								7.87%
Manufacturing	Mean	.	3,314,815	90,797	840,603	546,614	566,021	1,116,686	882,960
	Median	.	3,314,815	90,797	467,199	487,013	285,149	562,935	491,031
	Sum	.	3,314,815	90,797	6,724,828	3,826,299	3,962,147	15,633,599	33,552,485
	Col. Sum %								3.10%
Construction	Mean	89,500	.	150,344	588,816	3,775,035	7,383,721	1,163,813	2,162,932
	Median	89,500	.	150,344	588,816	4,148,412	7,383,721	1,138,721	1,123,596
	Sum	89,500	.	300,689	588,816	15,100,141	7,383,721	4,655,252	28,118,118
	Col. Sum %								2.60
Group Total	Mean	3,590,417	1,848,314	1,367,199	3,667,439	18,507,174	4,028,269	3,308,127	4,944,993
	Median	2,271,954	1,598,214	1,058,873	1,089,565	2,668,009	1,485,149	1,041,667	1,153,846
	Sum	14,361,669	20,331,450	58,789,578	179,704,494	518,200,868	76,537,103	215,028,265	1,082,953,426
	Col. Sum %								100.00%

Source: Compiled from selected issues of the *Greek Government Gazette*, 1830–1909.

Figure 2. TWO SUBPERIODS: 1840-1870 and 1870-1909

SMOOTHING: EVERY 7 YEARS -> TWIN PEAKS!

Spectrum of the annual growth rate of smoothed (MA7) real GDP



Annual birth counts against the growth rate of smoothed (MA7) real GDP

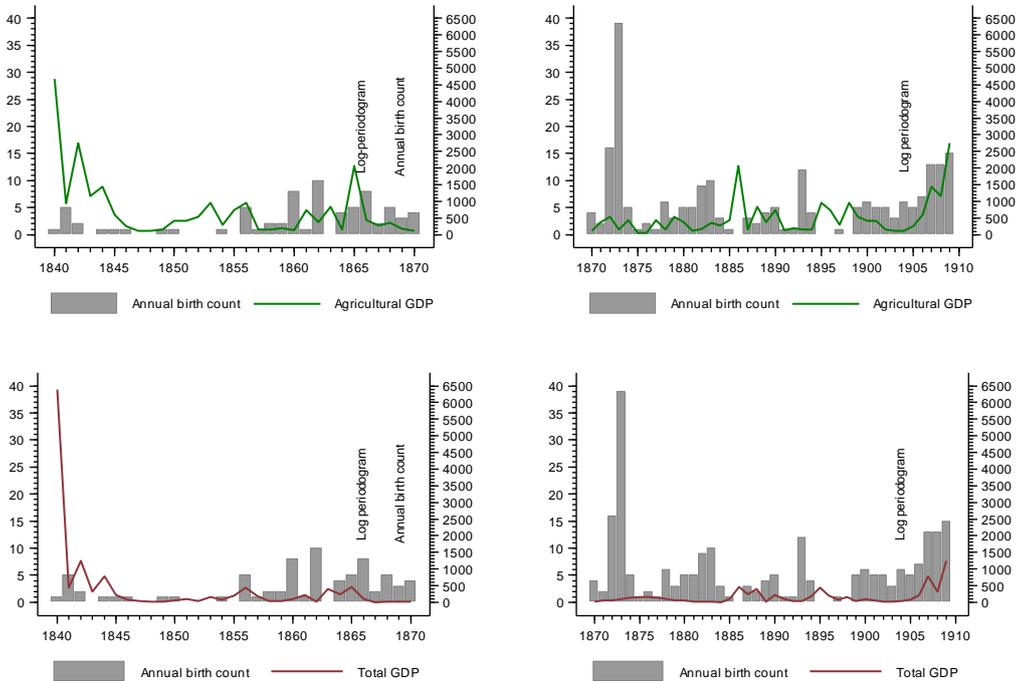


Figure 3. ENTIRE PERIOD: 1840-1909
SMOOTHING: EVERY 7 YEARS -> TWIN PEAKS!

