

# Gender, division of labour and technology in Greece. The cases of cotton and mining industry, 1870-1940\*

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## Introduction

This paper focuses on three interrelated subjects: a) the economic development and the industrial structure evolution of cotton and mining industry; b) the composition of workforce and gender division of labour; c) the interplay of gender and technology in the labour process of cotton and mining industry.

Feminist scholars have shown the significance of “gender” as a fundamental category of historical analysis, as a lens through which the examination of the past constitutes a challenge for the historians,<sup>1</sup> and studied “how gender differences are embedded and developed within as well as beyond the workplace”.<sup>2</sup> By using the analytical framework of “gender” in economic history, I shall argue that both, cotton industry and mines, though different productive processes, had had something in common: the relationship between technology and the gender division of labour. Undoubtedly the comparison of textile workers and miners has clear limitations. But while these two sectors have had completely different composition of workforce (the cotton industry has strong feminization, while in the mines the male participation is much higher), I shall argue that there are common gender characteristics in both labour processes.<sup>3</sup>

This paper may provide an interpretative framework, which will aid comparative studies related to the subject. The main sources include: the Population Censuses (1861-1940), the Industrial Censuses (1920 – 1930), Mines Censuses (1909-1937), the Business Archive of “Retsinas Bros. Mills S.A.” (1910-1940), the Business Archive of “Serifos - Spiliazeza Mines S.A.” (1905 -1927). In the first part of the paper, I shall examine the economic development of the Greek cotton industry, in the second part the focus is on the division of labour in cotton Industry, in the third part the analysis refers to the economic development of the Greek mining industry and the

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<sup>1</sup> Joan Scott, “Gender: a Useful Category of Historical Analysis”, in her *Gender and the Politics of History*, New York 1988, p. 28-50.

<sup>2</sup> Ava Baron, “Gender and Labor History: Learning from the past, looking to the future”, in A. Baron (ed.), *Work engendered. Toward a New History of American Labor*, London 1991, p. 36.

<sup>3</sup> For a comparison on the characteristics of the migrant labour systems in mining and textiles, see Holly Hanson, “‘Mill girls’ and ‘mine boys’: the cultural meanings of migrant labour”, *Social History*, vol. 21/2, May 1996, p.160-179.

fourth one refers to the division of labour in mining industry. Finally, there are some conclusions to be drawn.

### **Economic development of the Greek cotton industry**

In Greece, as in other Mediterranean countries, cotton industry has played an important role in industrial development; it has been one of the driving forces of industrialization. Until 1950 Greece was to a large extent an agrarian economy. Since the development of heavy industry was difficult, industrial growth was restricted mainly to the textile sector, with the cotton textile industry to the forefront. By 1907 there were about 30.000 workers in textiles and garment industry, and about 10.000 in cotton textiles, while in the secondary sector the total number of workers amounted to 190.000. [Table 1]

During the 19<sup>th</sup> century the cotton industry was the most developed sector of Greek industry. In 1875 the cotton industry employed the majority of the industrial workers (43, 8%) and used the biggest part of the horsepower (36, 4%), yet it acquired the highest percentage of added value in comparison to other industrial branches (tanning industry, wheat mills). This sector was developed under a protective customs duties regime (since 1884) and was supported by currency devaluation, high purchase orders for the army needs, while it intensified the workforce exploitation. However, the restricted internal market, lack of industrial credit, and the kind of products decreased the profit margin of the steam-driven spinning mills. The tight profit margin was probably the main reason for the delay in renewing the mechanical equipment of the factories. The Greek cotton industry largely unable to compete on foreign markets, sheltered behind increasingly high tariff barriers.<sup>4</sup> The potential production of the textile industry developed as shown in Table 2. However, restricted internal market and the pressure of textiles imports from Western Europe have had serious consequences on the development of the sector.

Cotton industry was characterized by strong geographical concentration: Piraeus, a port-city which eventually developed into the country's most important industrial centre, Hermoupolis (Syros), Volos, Patras. In Macedonia, Naoussa and Thessalonica which remained under the ottoman rule until 1912. Although the size of the Greek cotton firms was small compared to the west-european or even Spanish cotton mills, the Greek cotton industry mills possessed one of the highest positions as it regards the concentration of production and workforce. In 1920, among the biggest enterprises with more than 25 workers, the textile industry represented 20,86% of the total enterprises and occupied the 84,4% of the workers in the sector (tobacco industry held the second position and power production the third).<sup>5</sup> In 1930, textile industry

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<sup>4</sup> Chr. Agriantoni, *Oi aparhes tis ekviomichanisis stin Ellada ton 19o aiona* [The Beginnings of Industrialization in Greece in 19<sup>th</sup> century], Athens 1986, p. 209, (in greek); Chr. Agriantoni, "Investissements des industriels et retard technologique", G. Dertilis (dir.), *Banquiers, usuriers et paysans. Réseaux de credit et stratégies du capital en Grèce 1780-1930*, Paris 1988, 128-144, 262-266 ; Chr. Hatziossif, *I giraia selini. I viomichania stin elliniki oikonomia, 1830-1940* [The old moon. Industry in the Greek Economy, 1830-1940], Athens 1993, pp. 72-74 (in greek).

<sup>5</sup> Ministère de l' Économie Nationale, *Statistique Générale de la Grèce, Recensement des entreprises industrielles au 18 Décembre 1920*, Athènes 1926.

continues to hold the first position among the biggest enterprises occupying more than 25 workers, with 18,16% of the total enterprises and 23,48% of the workforce.<sup>6</sup>

As it regards the uncertainty associated with the demand, and the solution to get economies of scale, vertical integration responded successfully to the organisation part. The Greek cotton industry was characterised from early stages by its certain level of integration, as in some spinning mills bleaching and dyeing, or weaving was also undertaken. Nevertheless, until the beginning of 20<sup>th</sup> century, the predominant form of production was production in stages. In the interwar period a high level of vertical integration existed. [Table 3] Vertical integration appears to be closely related to competitiveness, not so much as it regards productivity but product quality improvement.

During the interwar period the Greek cotton industry was marked by quantitative expansion and rapid development (in the 1920s) and by slackening productive expansion, capital concentration tendencies and structural changes (in the 1930s).<sup>7</sup> The rapid expansion of the sector materialized through the establishment of numerous small enterprises all over the country, and was favored mainly by the overwhelming labor offer after the arrival of 1.500.000 refugees from Minor Asia in 1922.

Despite the interwar expansion, the biggest part of the cotton industry machinery was old, low efficient and cost expensive. Most of the enterprises did not have the suitable machinery to manufacture thin thread and textiles of high quality; only a small number of factories were equipped with modern machines. The weaving mills had simple mechanically-driven looms, a limited number of double-sized looms and finishing machines. Even in the 1930s automatic looms were spare in Greece.<sup>8</sup>

Despite the growth of interwar years the Greek cotton industry was never as competitive as the major European counterparts, even less competitive than the Catalan cotton industry. Due to the lack of coal reserves, industrialists had to import British coal, which was of relatively high cost. Furthermore they were dependent on the small and diverse internal market, in which demand fluctuated wildly according to the summer harvest and the income of the agrarian household.

As a consequence, the Greek cotton industry never specialized in specific or high quality products. The vast majority of its products were sold in internal market. The emphasis was on mass production of cheap and rough products that would be consumed by the country's peasant and labour strata. The cost of production was thus a crucial factor to be considered. The intense internal and external competition led the industrialists to cost-cutting measures (in order to reduce the total cost of production). This could be achieved in two ways: first by the extension of the working day and the intensification of labour, increasing the number of power looms and spinning machines each worker minded; second, by the introduction of new machinery, which would allow employers to reduce the number of workers, deskill

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<sup>6</sup> Ministère de l' Économie Nationale, *Statistique Générale de la Grèce, Recensement des établissements des entreprises industrielles et commerciales effectué en Septembre de 1930*, Athènes 1934.

<sup>7</sup> Hatziiossif, *ibid*, p. 95-96.

<sup>8</sup> Just in the beginning of 1930s, the biggest and oldest textile industry in Piraeus, "Retsinas" mill, renews its machinery from the British firm "Platt", placing orders the total coming up to 11.000 pounds. Retsinas Archives, Board Minutes, 13.5.1931, September 1934, October 1934. Generally see Higher Economic Council, *Erevna kai gnomodotisis epi ton viomichanion vamvakos [Inquiry for the cotton industries]*, Athens 1937, p. 15. (in greek).

those who remained and reduce labour costs.<sup>9</sup>

### **Labour in cotton industry**

The textile industry has generally been viewed as a sector suitable for the employment of female workers. Partly this is due to the tradition that textile production was “women’s work” in the pre-industrial household economy and later its classification as a light (rather than heavy) manufacturing industry and therefore seen as suitable for the “nimble hands” of female workers. Widespread is also the view held by textile producers that female workers were both more “docile” and “cheaper” alternative to male employees (and were readily available as an inexhaustible labour pool).

Workforce in the Greek textile industry augmented from 2.300 workers in 1875 to 7.000 around 1910-1920, to 16.000 in the 1930s, with a strong participation of female labour force [Table 4]: at the beginning men workers were less than half the total labour force, while after the 20’s they represented more than half, almost one third of the total labour force. The composition of the labour force, by age and gender in the interwar period [Table 5] shows a strong participation of young women (under the age of 18) that augmented in 10 years, with consequent decrease in the number of women and men over the age of 18. Undoubtedly, the refugees from Asia Minor created pressures to the labour market.

The process of feminization in textiles took place in a context in which the Greek economy began, from the 1900’s., to diversify away from textiles, and in which men began to work in more highly paid sectors, such as chemicals and construction or began to immigrate to USA. For women (industrial) workers however such an alternative was not a choice. Moreover, female workers were subject to intense exploitation; they worked a 12 hour day (compared to between 8 and 10 hours in most crafts) and were increasingly forced to handle two ring frames or 3-4 looms. Segmented labour market (in industrial cities like Piraeus or Hermoupolis) corresponded to the needs of different productive processes and technology choices.<sup>10</sup>

The technical needs of production weren’t by no means irrespective of the gender perspective. The whole organization of labour in the Greek cotton industry was based on gender division of labour. Gender division of labour oriented women and men workers to different tasks with consequent wage inequality. As in many other industrializing countries, the “modern” employment model was adopted, which dictated the employment of a small number of male qualified technical staff and a large number of female operatives as unskilled workers. Female workforce in this division of labour is regarded as “supplementary” and “temporary”, in contrast to the “permanent” core male labour.<sup>11</sup>

This “model” of employment transferred to the workplace social assumptions on gender roles. As in the rest of Western Europe and Mediterranean countries, in

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<sup>9</sup> Leda Papastefanaki, “*Andres, gynaiques, paides kai paidiskai...*” *Ergasia kai technologia stin elliniki klostoyfantourgia. I viomichania Retsina ston Peiraia (1872 -1940)* [“Men, women, boys and girls...” *Labour, Gender and Technology in Greek Textile Industry. The Retsinas Cotton Mill in Piraeus (1872-1940)*], unpublished PhD. Thesis, University of Crete, 2002 (in greek).

<sup>10</sup> In this paper the data sets on labour in cotton industry are based on a representative industrial sample, the payrolls and the personnel records of “Retsinas Mill” (Piraeus, 1872-1940). For an analysis of the sources, see Papastefanaki, *ibid*.

<sup>11</sup> Papastefanaki, *ibid*, p. 243- 343.

Greece also, the belief that men were the bread winners outside the domestic environment, and that the contribution of women to the household expenses should be complementary, their main role being child upbringing and housekeeping, was transposed to the new factory environment.<sup>12</sup> As a result, supervisory work, and what was considered “skilled labour”, remained the privilege of men, while female labour, was conceptualized as low-grade and poorly paid. Wage differential was to a large extent based on job differentiation and gender division of labour.

As for the women themselves, their inferior status was consolidated. Male heads of household were to a large extent able to command the best paid posts within the industry, hence the patriarchal family relations were transposed to the factory, with male foremen and spinners overseeing the work of youngsters, women and children. For most women, factory work remained a complementary activity and they quitted factory work when they began to have children (though, given the low real income, they continued to undertake paid labour at home)

Cotton manufacturers themselves were influenced by the dominant gender roles as it regards the employment of male and female labour. A common reason for feminizing the textile labour force was therefore economic, because of the inherent cost-effectiveness of female labour, female wages being lower by virtue of gender. This cost advantage encouraged textile employers to feminize the workforce in their factories. In Greece, such massive participation of women and girls in the expanding sector of textile production was part of the process of lowering labour costs in a struggle for survival in a competitive environment.

Besides the economic reason, manufacturers used the gender division of labour in order to conserve the social hierarchy inside the workplace. The role of the family was then crucial: family connections were of great importance in both recruitment and work patterns. Through these means, the dominance of the family and the patriarchal relations that so often characterized it was transposed to the factory. Gendered social hierarchies replicated themselves in the new workplaces, helping to establish an environment in which women were more likely to be identified as subordinate members of the workforce and those with domestic responsibilities were expected to perform them in addition to any paid or unpaid work. A growing tendency to associate women with “domesticity” and to identify work outside the home with maleness served further to undermine many women’s position in paid work, and reinforce their family based identity. Capitalist development in general tended to idealize the family.

Technological choice and the uses of technology confirmed and intensified the gender division of labour in the cotton industry, since men and women had different and unequal access to technology and technical education. Boys had access to a lower and middle level of technical education by attending lower technical schools (for craftsmen, artisans, technicians, low-level engineers) operated by Municipalities. Since there wasn’t any analogous formal system of apprenticeship and lower – middle level technical education for girls in Greece until 1940s, formal and informal technical education implied the segmentation of labour markets according to gender.

The introduction of new technologies in cotton industry, which have been widely discussed in economic history literature, by incorporating to a high degree the

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<sup>12</sup> See for example, Wally Secombe, “Patriarchy stabilized: the construction of the male breadwinner wage norm in nineteenth-century Britain”, *Social History* 11/1 (1986), p. 53-76; S. Horrell - J. Humphries, “Women’s labour force participation and the transition to the male-breadwinner family, 1790-1865”, *Economic History Review* 48/1 (1995), p. 89-117.

older skills of spinners and weavers,<sup>13</sup> intensified the gender division of labour and the hierarchies, downgraded women's labour and it favoured the rotation of female labour force and job mobility in urban areas.<sup>14</sup>

The introduction of technology and mechanization has been associated mainly with the feminization of the workforce. In many cases, the introduction of new technology permitted cheaper female workers to replace more expensive male ones. The “Retsinas mill” for example in Piraeus opted for introducing new labour saving machinery around 1900: replacing self acting mules by ring frames, modernizing its weaving shed and finishing section. The introduction of the ring frame was the key technological innovation of the beginning of the 20<sup>th</sup> century. It had a cost advantage over the self acting mule, most especially in the lower counts in which much of Greek industry specialized. Moreover, ring frame was easy to operate by female workers. Until II WW, all Greek cotton manufacturers had replaced old spinning machines with new ones, although the long-standing enterprises replaced the old machinery with new one at a slower pace. The introduction of ring spinning offered an opportunity to employ more females, considered as “unskilled”, while the introduction of power looms removed some of the requirements for skill and strength that had helped male weavers to retain their jobs. However, as the nature of jobs changed and along with it the identity of those who performed them, those same tasks became re-evaluated in terms of ‘skill’ designation and pay. With ring spinning that no longer required such skill or strength, nor the employment of a number of assistants, females could be employed but the task came to be considered as low skill, “female” work.<sup>15</sup>

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<sup>13</sup> For the technological choice of spindles in the cotton industry world, see the discussion: Lars Sandberg (1969), “American Rings and English Mules: the role of economic rationality”, *Quarterly Journal of Economics*, LXXXIII, 1969, p. 25-43; G. Saxonhouse – G. Wright, “Rings and mules around the world: A comparative study in technological choice”, *Research in Economic History*, suppl. 3 (1984), p. 271-300; Saxonhouse - Wright, “New evidence on the stubborn english mule and the cotton industry, 1878-1920”, *Economic History Review* 37 (1984), p. 507-519; W. Lazonick “Industrial relations and technical change: the case of the self -acting mule”, *Cambridge Journal of Economics* 3 (1979), p. 231-262; W. Lazonick, “Managerial capitalism and economies of speed”, *Competitive advantage on the shop floor*, Harvard University Press, London 1990. For the problem of technological choice in textile industry of Greece, see Papastefanaki, *ibid*, p. 78-86. Also, L. Papastefanaki, “Technology transfer services in Greek Textile Industry (1870-1940): Industrialists, agents and engineers”, in European Business History Association, *Proceedings of the 8<sup>th</sup> Annual Conference “From Industry to Services?”* CD-Rom (Barcelona, 16-18 September 2004).

<sup>14</sup> For the relation of technological change to gender division of labour in textiles, Mary Freifeld, “Technological change and the self-acting’ mule: a study of skill and the sexual division of labour”, *Social History* 11 (1986), p. 319-43; Deirdre Busfield, “Job definitions and Inequality: the “unskilled” women workers of the West Riding textile industry, 1850-1914”, *Textile History* 19/1 (1988), p. 61-82; Helen Harden Chenut, “The Gendering of Skill as Historical process: the case of French Knitters in Industrial Troyes, 1880-1939”, in L. Frader – S. O Rose. (ed.), *Gender and Class in modern Europe*, Cornell University Press, London 1996, p. 77-107; Jutta Schwarzkopf, “Gender and Technology: Inverting established patterns. The Lancashire Cotton Weaving Industry at the start of the 20<sup>th</sup> century”, in M. Walsh (ed.), *Working out gender: perspectives from labour history*, Aldershot 1999: 151-166.

<sup>15</sup> Papastefanaki, “*Andres, gynaiques, paides kai paidiskai...*”, *ibid*, p. 302-343. For a general analysis on definitions of “skill” concerning gender relations, see Anne Philips- Barbara Taylor, “Sex and skill: Notes toward a feminist economics”, *Feminist Review* 6 (October 1980), p. 79-88; Ava Baron, “Contested terrain revisited: technology and gender definitions

Gender played a key role in determining the level of skill and the level of payment in cotton industry. The association of female labour with low skill, absence of qualifications and training and low pay was not a new phenomenon exclusively associated with the development of mechanized production. The advent of rapid technology change posed new challenges both to the organization of textile production and to social norms and constructions of gender. The process of technological change had the capacity to change the relations of production and promote an increasing division of labour. It was male workers who were normally able to arrogate to themselves the highest paid, highest status jobs. They were also able to reconstruct the notion of skill to identify it with masculinity. Skilled jobs were by definition those undertaken by males. If a female worker undertook a task, it could not be skilled work, since females were by definition untrained and unskilled. There was a tendency within textile production for men to command the specialist skilled jobs such as engineer and foreman, and for women to take the burden of shop floor production. The same task or process, when transferred from a male to a female worker or simply performed by a female was generally considered less skilled deserving a lower payment by virtue of the operative being female. In Greek cotton mills, women earned as little as 50-60% of male wages under fixed wage structures. In “Retsinas Mill”, women were increasingly assigned to tasks that were inferior in terms of status, pay, training provision, responsibilities, strategic decision-making, supervision and control of labour, and prospects.<sup>16</sup> The division of tasks was not constant, but evolved over time depending on the conjuncture of technology, labour cost and social constructions of gender. The perceived “lower output” of female workers was no doubt also due to women (particularly in household production) having to divide their time between textile production and domestic work to a greater degree than men.

The study of the workplace in “Retsinas Mill” shows that different levels of male and female labour (skilled, semiskilled, unskilled) coexisted in the shopfloor, depending on the technical needs of production. Nevertheless, male labour of all levels exceeded (in wages, hierarchy and social status) the equivalent levels of female labour. Besides specific cognitive or “physical” skills (like corporal strength for men, or dexterity - “nimble hands” for women, the factory system generated a new skill (for both, men and women): the general capability to work long hours at a steady pace without damaging the quality of a product, the materials or the machines.

In the case of Greek cotton industry, gender division of labour was connected with the degradation of female work. “Skilled” work in the textiles was certainly a socially constructed notion, related to gender representations and gender hierarchies in the family and in the workplace. Moreover, engendered labour organization in textile industry was related to economic interests of capitalist entrepreneurs, who sought for cheap labour as the only competitive advantage they had.

### **Economic development of Greek mining industry**

Mining activity in modern Greece started out in the 1860s. European capital (chiefly French) showed an interest in the development of mining in the country, though European investments in the Greek mining industry remained limited. In the

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of work in the printing industry, 1850-1920”, in B. Wright (ed.), *Women, Work and Technology*, Ann Arbor 1987, p. 58-83.

<sup>16</sup> PapastefanakI, *ibid*, p. 270-271.

late nineteenth century some mining companies went bankrupt in Greece, mainly because of a lack of capital.<sup>17</sup> Nevertheless, the constant devaluation of the drachma from 1877 to the early twentieth century encouraged the exportation of ores and exerted significant pressure on wages. The improving cycle of the international economy permitted mining enterprises which were operating in the country to realise high profits by exporting large quantities of raw material. From 1890 to 1905 - 1907, mining activity in Greece flourished and the total volume of exports more than tripled. In the first decade of the twentieth century, mining, particularly in the case of foreign companies, declined as the rise in the price of the drachma, and consequently the rise in day-wages, reduced the competitiveness of Greek ores on the international markets. On the eve of the First World War, in 1912 - 1914, the mining sector in Greece as a whole experienced a temporary recovery of exports, but from 1915 to 1925 mining production and that of metallurgy products was drastically reduced. In the interwar years, prices of Greek ores were exceptionally low on the international markets, and for that reason felt the influence of international economic fluctuations more sharply. [see Figures 1, 2]

The share of ores in the country's total export trade was low, ranging from 2% to 6% at the most in periods of demand, at a time when agricultural products had a 60-70% share in the export trade. The share of exports and of mining and quarrying products and metallurgy products consumed in the country was a low percentage of the total of the net national income. On the eve of the Second World War was just 0.6% of net national income.

From the nineteenth century to 1940, the mined ores were exported as raw materials to the international markets (chiefly pyrite, iron ores, manganese, magnesite) and, to a limited extent, metallurgy products (lead, burned magnesia and dead burned magnesia) [see Figure 3, Table 6]. At the same period, the attempt to set up iron metallurgy was a failure and the linkage of mining with domestic industry was virtually non-existent. Most mines were small-scale enterprises in which operations were carried out by primitive means of mining, without ore-processing plant, and with a small batch furnace operation with a small daily output. In 1940, only a few mines were equipped with modern mechanical means of extraction and loading or with grinding plants. The practice of the renting of mines and of sub-contracting, by means of which operations were carried out, was particularly common in Greece. It was, however, a convention which pinned down scope for capital accumulation at low levels. The “operator” of a mine, whether a contractor or a lessee, had to pay rent and did not make investments in installations or equipment. Furthermore, the lack of mining credit, the absence of technical supervision by the state, the want of research and specific knowledge about deposits, and the inadequacy of technical education were factors which impeded the rational operation of the mines.<sup>18</sup>

Consequently, the basic characteristics of mining from the 1860s to the Second World War were: the lack of processed mining products and a metallurgy base, dependence on exports, the spread of capital, low productivity, and the inflexibility of the cost of production. Mining at that period was a labour-intensive

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<sup>17</sup> “Due to want of adequate capital” as the British Consul estimates. FO, No 576 Miscellaneous Series, Diplomatic and Consular Reports, *Report on the Mineral Resources of Greece*, London 1902, p. 16.

<sup>18</sup> Generally, see L. Papastefanaki, “Exoryktikes epicheiriseis kai ergasia. I periptosi tou Aigaiou (1860-1960)” [“Extractive enterprises and labour. The case of the Aegean (1860-1960)”], Proceedings of Scientific Conference *Istorika Metalleia sto Aigaio, 19os-20os ai* [*Historical Mines in the Aegean, 19<sup>th</sup>-20<sup>th</sup> centuries*], Athens 2005, p. 27-47 (in greek).

“industry” with non-existent or low added value. Low productivity in the mines was due to the absence of modern technology as regards extraction and the transportation of ore, and the lack of a systematic and long-term operating programme,<sup>19</sup> though some engineers tend to link low output with the particular character of Greek labourers.<sup>20</sup> It is a fact, however, that productivity in the mines in the interwar years fluctuated at low levels. [Figure 4]

### Labour in mining industry

The country's mining enterprises (with the exception of the Lavrion mines) were small-scale units with small or non-existent mechanical equipment and based mainly on the use of cheap labour. It was by means of this cheap labour that the fluctuations in the prices in the ores market - which sometimes left excessive profit margins and sometimes made continuation of productive activity unprofitable - were dealt with. Reliance on cheap labour instead of on technological renewal and the rational organisation of production had the advantage that in periods of falling prices, production was reduced and the enterprise was safeguarded from serious losses. However, cyclical high unemployment and underemployment and a consequent reduction in workers' incomes depending upon business cycles resulted.<sup>21</sup>

During the opening phase of mining activity in the Greek state, around 1870, it was necessary to import a skilled workforce from abroad (Spain, Italy) to the mining areas of Greece if extraction was to begin.<sup>22</sup> The gradual shaping of the labour market

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<sup>19</sup> Xen. Zolotas, *I Ellas is to stadion tis ekviomichaniseos [Greece in the stage of industrialization]*, Athens 1926, p. 77, (in greek); Them. Charitakis, “To metalleftikon kai lignitikon zitima kai o technikos kai viomichanikos exoplismos tis choras” [“The mines and lignite question and the technical and industrial equipment of the country”], in N. Kitsikis (dir.), *I oikonomiki erefna ton megalon technikon zitimatou [The economic research of serious technical questions]*, TEE, Athens 1933, p. 368 (in greek).

<sup>20</sup> George Charitakis, *I elliniki viomichania (viomichania-metalleia-ergasia) [Greek industry (industry – mines- labour)]*, Athens 1927, p. 95-96 (in greek).

<sup>21</sup> The data for this section on mines is derived chiefly from use of the official publications of the Mines Inspectorate, consular reports, and from the important, but fragmentary, Archive of the Seriphos Mines. The main sources which I have used: Elias Gounaris, “Peri ton en Elladi metalleion, orycheion, latomeion kai ton ergasion aftou kata ta eti 1901-1907” [“On the mines and quarries in Greece and their works in the years 1901-1907”], *Deltion Ypourgeiou Oikonomikon [Bulletin of the Ministry of Economics]*, 1909, 5-6, p. 356-392; El. Gounaris, “I ekmetallefsis ton metalleion tis Ellados kata to etos 1909” [“The exploitation of Greek mines in the year 1909”], *Deltion Ypourgeiou Oikonomikon [Bulletin of the Ministry of Economics]*, 1910-1911, vol. B; Ministère de l'Économie Nationale, Inspection des Mines, El. Gounaris, *L'exploitation des mines en Grèce pendant l'année 1910*, Athènes 1911; El. Gounaris, “I metalleftiki kinesis tis Ellados kata to 1913”, *Deltion Metalleion kai Alykon [Bulletin of the Mines and the Salt pans]* III, October 1914; Inspection des Mines, *Tableaux Statistiques du mouvement minier de la Grèce pendant les années 1909-1916*, Athènes 1910-1917; Ministère de l'Économie Nationale, Inspection des Mines, *Le mouvement minier de la Grèce pendant les années 1925-1926. Tableaux Statistiques*, Athènes 1926-1927; Ministère de l'Économie Nationale, Inspection Générale des Mines, *Statistique de l'industrie minière de la Grèce pendant les années 1927-1937*, Athènes 1928-1938; Ministère de l'Économie Nationale, Statistique Générale de la Grèce, *Recensement des employés et ouvriers des entreprises industrielles et commerciales et relevé des salaires effectués en Septembre 1930. Comparaison avec des salaires plus anciens et plus récents*, Athènes 1940.

<sup>22</sup> Chr. Agriantoni, *Oi aparhes ... [The Beginnings ...]*, *ibid*, p. 292-293 (in greek); G. Dertilis, “Les capitaux entre l' industrialisation et ses alternatives, G. Dertilis (dir.), *Banquiers*,

in the mines began at a very early stage, together with the first operations.<sup>23</sup> As early as the 1880s, work in the mines gave rise to a flow of internal migration: people from the islands and mountain regions moved, usually without their families, to the places where mining was taking place in order to work in dependent labour relations.<sup>24</sup> The men and women workers in the mines had to a greater or lesser extent ties with the agricultural economy and agricultural households, depending upon how systematic the enterprises were, the level of the day-wages and the distance between their place of origin and the mine. This was a proletariat in the making, which often retained a strong link with the agricultural economy, chiefly because of the low wages. In order to support agrarian family economy, young children of both sexes are employed, as in the case of magnesite fire-bricks manufacture in Euboea. They are used “for carrying bricks and stone and in chipping off the visibly defective portions off the lumps of ore”.<sup>25</sup> Around 1900 the British consul describes the conditions in the labour market in the mines:

“Labour is very cheap in Greece and the peasant population intelligent, well disposed to foreigners, and quite free from the Socialistic tendencies of the age. All mines at present working in this country employ native labour, and, as far as I can gather, with most satisfactory results”<sup>26</sup>

Indeed, in 1896-1900 about 8.500-9.500 workers (adults and children of both sexes) were working in the mines and the metallurgy of the region of Attica, where the biggest two mining and metallurgical companies of Lavrion were, the “Compagnie Française de Laurium” and the “Société des Usines de Laurium”.<sup>27</sup> However, the workforce of the mines was not constantly characterised by transitoriness, temporariness and a permanent connection with the agricultural economy, as has been argued.<sup>28</sup> There is evidence that a proletariat of the mines which worked on a stable

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*usuriers et paysans. Réseaux de credit et stratégies du capital en Grèce 1780-1930*, Paris 1988, p. 210-211.

<sup>23</sup> L. Papastefanaki, “Misthoti ergasia” [“Waged labour”], K. Kostis – S. Petmezas (dir.), *I anaptyxi tis ellinikis oikonomias kata ton 19o aiona (1830-1914) [The Development of Greek Economy in 19<sup>th</sup> century (1830-1914)]*, Athens 2006, p. 253-291 (in greek)..

<sup>24</sup> In 1890, in the “Société des usines des Laurium” at Lavrion, of the 1,500 employees, only 1.3% were non-Greek. The rest originated in Laconia (27%), Phokida (23%), Euboea (12.5%), the Cyclades (11.4%), the islands of the Argosaronic Gulf (3.5%), Epirus (3.3%), the Peloponnese (apart from Laconia, 3.1%), Attica (3%), Athens (2.6%), Phthiotida (1.4%), and Macedonia (1.1%). See, G. Dermatis, *Lavrion, to mavro fos. I metalleftiki kai metallourgiki viomichania sto Laurio 1860-1917. Elliniki kai evropaiki diastase [Lavrion, the black light. The mining and metallurgical industry in Laurio 1860-1917. Greek and European dimension]*, Athens 2003, p. 285-286 (in greek); also, Chr. Agriantoni, «Spaniolika et Kyprianos: deux petites cités ouvrières à Lavrion», *Villages ouvriers, Utopie ou réalités? Colloque International au Familistère de Guise, L' archeologie industrielle en France, Revue du CILAC*, 24-25/1994, 149.

<sup>25</sup> FO, *Report on the deposits of magnesite ore and the manufacture of magnesite fire-bricks in Euboea*, London 1895, p. 3.

<sup>26</sup> FO, No 576 Miscellaneous Series, Diplomatic and Consular Reports, *Report on the Mineral Resources of Greece*, London 1902, p. 17.

<sup>27</sup> A. Kordellas, *O metalleftikos ploutos kai ai alykai tis Ellados [The mineral's wealth and the the salt pans of Greece]*, Athens 1902, p. 59 (in greek).

<sup>28</sup> Georgia Petraki, “I monografia mias apergiias mesa apo ton ethniko typo. I apergia ton metallorychon tis Kamarizas ton Aprili tou 1896” [“The story of a strike through national

and permanent basis in the country's systematic mining operations quickly took shape. In the interwar period, miners from Melos island immigrated to Lavrion,<sup>29</sup> Serifos,<sup>30</sup> Larymna,<sup>31</sup> or in the Aliveri coal-mines.<sup>32</sup> In periods of a slump in mining activity, as in the years 1910 - 1930, miners from Melos and Lavrion, for example, headed for the mining regions of France.<sup>33</sup> Since mining enterprises were of small size and they didn't work regularly but they depended strongly on the demands of foreign markets, the employers didn't invest in new technologies. On the contrary, they based on sub-contracting systems and gender division of labour in order to reduce the cost of labour and the total cost of production.

In the mines, working hours were 12 hours a day; social security was non-existent. The Miners' Fund and the mutual assistance funds of certain mining enterprises dealt with the problems which arise from work in mines (unemployment, accident, illness, death) only *ad hoc* and in part.<sup>34</sup> In the early twentieth century, in the climate of the country's urban modernisation, a legislative framework was imposed which regulated work in the mines, technical management, hours of work, and accidents at work. As is usually the case, state intervention and the creation of the legislative framework did not change radically or immediately the manner of exploitation of the workforce in the mines.<sup>35</sup> Among the matters which the state intervention sought to regulate was that of women's and children's labour. The law "On Mines" prohibited the employment of women and children in jobs underground, though it is likely that the exclusion of women and children from underground work in mines started earlier, in the 1890s. For the time being, we lack the relevant information.

Research up to the present into work in the mines in Greece has ignored the significance of gender in the workplace, since it is regarded as a sector of exclusively male labour. As such, it is considered, indirectly, not to be marked by gender relations.<sup>36</sup> Feminist historians have shown, nevertheless, that the identity of male workers is structured in relation to gender identities, which affect and are affected by employment.<sup>37</sup>

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press. The strike of the miners in Kamariza, April 1896"], *Proceedings of the 4<sup>th</sup> Scientific Meeting of Southeast Attica*, Kalyvia 1992, p. 526-527 (in greek); Fotini Orfanou, "Oi protes ergatikis kinitopoiiseis sto Lavrio" ["The first workers' protestations in Lavrio"], *Dokimes* 7 (1998), p. 129-131 (in greek).

<sup>29</sup> *Melos*, 15.3.1927, p. 4.

<sup>30</sup> *Melos*, 1.3.1930, p.3.

<sup>31</sup> *Melos*, 1.5.1930, p.4.

<sup>32</sup> *Melos*, 1.6.1932, p.3.

<sup>33</sup> Greg. Belivanakis, *Milioi metallorychoi sti Gallia stis arches tou aiona mas [Miners from Melos in France in the beginning of our century]*, Melos 1996 (in greek).

<sup>34</sup> El. Gounaris, *I ekmetallefsis ton metalleion tis Ellados kata to etos 1910 [The exploitation of Greek mines in the year 1910]*, Athens 1911, p. 7-8, 97-102 (in greek).; A. Liakos, *Ergasia kai politiki stin Ellada tou mesopolemou. [Labour and politics in the interwar Greece]*, Athens 1993, p. 379-380 (in greek).

<sup>35</sup> The legislative framework of this period consisted of the law "On Mines"(1910) and the "Mining Work Regulations" (1911). Ministère de l'Économie Nationale, Inspection des Mines, El. Gounaris, *L'exploitation des mines en Grèce pendant l'année 1910*, Athènes 1911, p. 6.

<sup>36</sup> Dermatis, *ibid*; Petraki, *ibid*; Orfanou, *ibid*.

<sup>37</sup> On masculinity, see Cynthia Cockburn, *Brothers: male Dominance and technological change*, London 1991; Ava Baron, "Contested terrain ...", *ibid*; Ava Baron, "An 'other' side of gender antagonism at work: men, boys and the

In the beginning of the 20<sup>th</sup> century about 10.000-11.000 workers were working in the mining companies, among them 300-500 women, who worked in the surface. The number of female workers involved was rather small. [Figure 5] In the next years until Second World War, the total workforce (male – female) was diminished at about 5.000-8.000 workers, depending on the business cycles. In spite of the reduction in the total workforce, women's involvement in the mines increased from 1910 onwards for two main reasons: (a) the long absence of men at the military fronts in the war (the Balkan wars 1912-1914, the First World War 1914-1918, the military campaign in Asia Minor 1918-1922), and (b) the more general crisis in the mining and metallurgy sector in the interwar years. [Figures 6,7,8]

The composition of the workforce by age in the mines in 1930 shows that the male workers were roughly distributed evenly throughout the age range from 15 to 70, with the greatest concentrations in the age brackets from 15 to 59. On the other hand, the women are concentrated in mainly in the 15 - 24 age categories, while their representation in the 10 - 14 and 25 - 59 brackets is less than that of the men. Women, that is to say, were younger than the men when they worked in mines. [Table 7] A comparison between the age composition of those working in mines and those working in the textile industry for 1930 shows that the composition of the ages for the women working in mines is similar to that of the women working in a “women's” sector - the textile industry. However, the age composition is not similar when it comes to the men working in mines and in the textile industry. In mines, the largest percentage of male workers are those over the age of 30 (57%), while in the textile industry the largest percentage of male workers is in the age category of 10 - 19 (41%). [Table 8] We can assume, in the light of the data, that the position of women in the division of labour both in the mines and in the textile industry was linked to their position in the division of labour in the family, as daughters to begin with, and as mothers and wives later. On the other hand, the strong presence of men over the age of 30 in the mines lent the sector features of a more permanent “male” job.

So dissimilar an age composition in male workers in the mines and in the textile industry and so similar an age composition of female workers in the mines and the textile industry are connected with the gender division of labour and with the organisation of labour itself. In the mines, men and women did not do the same jobs; on the contrary, there was a clear division of labour by gender. In the mines where women worked,<sup>38</sup> the jobs on the surface which involved the breaking and sorting of

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remasculinization of printers' work, 1830-1920”, in A. Baron (ed.), *Work engendered. Toward a New History of American Labor*, London 1991, p.47-69; Mary Blewett, “Manhood and the market: the politics of gender and class among the textile workers of Fall River”, in A. Baron (ed.), *Work...*, *ibid*, p. 92-113; Nancy Hewitt, “The voice of virile labor”: Labor militancy, community solidarity, and gender identity among Tampa's Latin workers, 1880-1921”, in A. Baron (ed.), *Work...*, *ibid*, p. 142-167; Pat Ayers, “The making of men: masculinities in interwar Liverpool”, in M. Walsh (ed.), *Working out gender: perspectives from labour history*, Aldershot 1999, p. 66-83; Valerie Burton “Whoring, drinking sailors’: reflections on masculinity from the labour history of 19<sup>th</sup> century British shipping”, in M. Walsh (ed.), *Working out ...*, *ibid*, p. 84-101; see also the forum on masculinity in *Gender & History* I (summer 1989).

<sup>38</sup> According to statistical data, in the 1910's women are employed in the mines and metallurgical factories in “Compagnie Française de Laurium” and in “Société des usines des Laurium” (Lavrión), in “Anglogreek Society of Magnesite” (Limni, Chalkida), in “Société Hellénique des Mines” (Mantoudi, Kymi). Also in the mines of “Société des Mines de Skyros”, “Société Hellénique des Mines Lokris” (Larymna). In 1920's women are employed

the ores were carried out by them. The extraction jobs in the galleries were done by the men. The transporting of the ores was carried out both by men and women, but was assessed differently, depending on the worker's gender. The supervisors and the foremen of the mines were all men.

The absence of reliable statistical data makes it impossible to measure real wages in the long run. Nevertheless, I have concentrated all the scattered data as concerns wages and the division of labour at Lavrion and Melos. [Tables 9-10] It seems, however, that everywhere women were paid much less than men. The statement of the French Consul in Greece in 1918 that "*les moins payés sont les mineurs: 6 drachmes au maximum [in the coal-mines] à Kymi*", and that "*la femme est payée beaucoup moins cher. Dans les mines, elle gagne de 2 à 2.5 drachmes*"<sup>39</sup> shows the main trend in wages.

According to the available sources, miners, timber men, scallers, smelters and their assistants, labourers, women, and children worked in the mines. In the classifications of the sources of the period, the combination of categorisations based on the nature of the job and the specialisation with categorisations of a biological type ("women", "children") is striking. It is from the same logic of the classification in the sources that the "self-evident" conclusion stems that women and children were defined as members of a biological category and were included in the labour market as such. By way of contrast, the biological category of "men" is not recorded, since they, equally "self-evidently", constituted the necessary occupational categories in the mines. In this way, the division of labour in the mines was based on "skilled" work which was carried out by men and "unskilled" work carried out by women and children.<sup>40</sup> Work was ranked as unskilled or skilled according to gender, age and the position of the workers in the family division of labour.

As elsewhere, the organisation of work in Greek mines was based chiefly on the sub-contracting system in which the contractor undertook the extraction in a specific undertaking and was paid by the company at piece-rates by virtue of a pre-agreed, negotiable rate, which changed according to the nature of the task. The contractor, as an intermediary lessee, undertook to engage, supervise, pay, and dismiss the workers whom he used in extraction in the specific undertaking himself.

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also in the mines of the "Société Française Serifos- Spiliazeza" (Serifos), of the "Société Financière de Grèce" (Mantoudi), in lignite mines of the "Société Anonyme des Produits et des Engrais Chimiques (Milessi, Coroni), in the lignite mines of Euboea (Aliveri, Kymi). In the 1930's women are also employed in the mines "Vauxites Parnassou" and in the mines of "Société Anonyme des Produits et des Engrais Chimiques" (Stratoniki, Agioi Theodoroi). Ministry of National Economy, Service of the Inspection of Mines, Elias Gounaris, *I ekmetallefsis ton metalleion tis Ellados kata to etos 1910 [The exploitation of Greek mines in the year 1910]*, Athens 1911, table VI; El. Gounaris, "I metalleftiki kinesis tis Ellados kata to 1913", *Deltion Metalleion kai Alykon [Bulletin of the Mines and the Salt pans]* III, October 1914, p. 156-157; Ministry of National Economy, General Inspection of Mines, *Statistiki tis metalleftikis viomichanias tis Ellados kata ta eti 1927-1932, 1935, 1937 [Statistics of the mining industry of Greece for the years 1927-1932, 1935, 1937]*, Athens 1928-1938.

<sup>39</sup> France/Ministère des Affaires Etrangères, Europe 1918-1940, vol. 159, "La question ouvrière en Grèce", 15.8.1918.

<sup>40</sup> In Melos, women and children constituted an "unskilled" labour force, which employed "in cleaning the smaller particles of the mineral, [...] in transporting the material for shipment". FO, Miscellaneous Series, No 303 Reports on subjects of general and commercial interest, *Report on the Mineral resources of the island of Milo (with plan)*, London 1893, p. 4.

On Seriphos, as at Lavrion,<sup>41</sup> the intermediary lessees, the contractors, undertook the carrying out of certain extraction and transport tasks. In the case of Seriphos, in 1906, 32 extraction contractors were working at Koutalas and 22 at Mega Livadi.<sup>42</sup> In 1911, at least 17 contractors were working on the island on behalf of the company.<sup>43</sup> In 1915, on Seriphos there were six contractors who worked alone and did not employ any workmen. There were also 36 contracting teams which employed 480 - 500 individuals, all men. Of the 36 contracting teams, at least 15 employed relatives of the contractor.<sup>44</sup> In total, in the period 1906 - 1927, the names of 120 extraction and transport contractors have been identified. Of these, only five employed more than 30 workers, while most employed 2 - 10 labourers, not, moreover, on a constant basis. In all the contracting teams, and particularly in the small ones (with 2 - 20 individuals), 1 - 4 employees have been identified with the same surname as the contractor. The organisation of the work by the sub-contractor system seems to a large extent to have been based on systems of kinship and on the family division of labour. Although the data of this research are not yet adequate, the control exercised by the family over the work of its members (men and women) in contracting teams in the mines needs to concern us. To what degree did the wage which was paid to the members of the sub-contracting team constitute a part of the family wage? How and to what degree did the contractor, in sharing out duties at work in the contracting group, shape the gender division of labour in the extraction process and influence daily output?

The sub-contracting system of organisation of labour in mining also had obvious advantages for the enterprise, which was relieved of the cost of recruitment, training, and supervision of the workforce. The nature of mining jobs - in scattered and remote places - and the small size of the enterprises in Greece combined well with the specific system of organisation of the work, since in this way systematic investments in technology and the training of the workforce were avoided. Furthermore, the sub-contracting system facilitated the intensive - though non-systematised operation of the mines in periods of increased demand. The high number of accidents observable in Greek mines seems to have been due precisely to this contracting organisation of operation, which though intensive, was defective from a technical point of view. At Lavrion in the 1890s and on Seriphos in the early 20th century, accidents in mines seem to have been indissolubly bound up with the contracting organisation of labour, as is evidenced both by the Reports of the engineers and the claims of the workers' associations.<sup>45</sup> In spite of the relevant legislation on provision for accidents, even in the interwar years accidents remained at

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<sup>41</sup> On subcontracting system at Lavrion, see Chr. Agriantoni, "Spaniolika et Kyprianos..." *ibid*, p. 149; G. Petraki, *ibid*, p. 502-503.

<sup>42</sup> Archive of the Seriphos Mines, "Lists of Extraction Contractors", 1906-1907.

<sup>43</sup> Archive of the Seriphos Mines, "Notes on Workers' Payments", 1911.

<sup>44</sup> Archive of the Seriphos Mines, Payroll book of office workers and contractors, 1915.

<sup>45</sup> Ministry of Economics, Socrates A. Papavasileiou, *Ekthesis peri tis epitheoriseos en Lavrio metalleion idia de peri ton aition ton para ti Galliki Etaireia ton metalleion Lavriou symvainonton eis tous ergatas dystychimaton...* [Report on the Inspection of the Lavrion Mines, mainly on the causes about workers' accidents in the French Company of Lavrion Mines...], Athens 1893, p. 5-7, 15-16 (in greek); C. Speras, *I apergia tis Serifou, itoi afigisis ton aimatiron skinon tis 21Augoustou 1916 eis ta metallorycheia tou Megalou Leivadiou tis Serifou* [The strike in Serifos Mines, 21 August 1916], Athens 1919 (new edition with introduction by L. Cottis, Athens 2001), p. 44 (in greek).

proportionally high levels,<sup>46</sup> because of the organization of labour by sub-contracting system.

The high number of accidents and more generally the recognition of the “laborious and unhealthy”<sup>47</sup> conditions which prevailed in the workplace of extraction lent to work in the mines a character of danger and risk. The character of risk matched the social model of masculinity. The male identity, masculinity, was structured in relation to social features which are attributed to the “daring” and “risk-taking” make-up of the male miner. We can suppose that the content of the work of miners and the concept of “skilled labour” in the mine are not irrelevant to this construct of masculinity. The exclusion of women (institutionalised by state intervention in 1911) from underground jobs tended towards the creation of this male identity.

## Conclusion

The division of labour did not depend only on the technical needs of production in the work processes which we have examined. It seems that both in the textile industry and in the mines, there was a gender division of labour, in the sense that men and women performed different tasks and so were paid differently. The gender division of labour, that is to say, was supported by inequality of payment and the wage gap between men and women workers. The gender division of labour interacted with the process of technical change and the use of technology, giving rise to inequalities in the workplaces: men and women had dissimilar and unequal access to technology and technical training. Of course, the reasons for the implementation of gender division of labour were not only economic and were not concerned exclusively with reducing cost. The content of the work and of the concept of “skilled labour” took on multiple meanings which are not connected exclusively with technical / technological matters. “Skilled work” was invested with meanings and took on significances which were determined by the social hierarchy of the genders (e.g., the “submission” of the women workers in the textile industry to the factory system, the “risk-taking” character of miners and the risks which they undertook). Class and gender power relations, competition for the retention of the social hierarchy were acted out in a gender field in the workplace. From this point of view, the importance of the family and the fluctuating position (of juveniles and adults) of men and women in production and in the family are central to an understanding of the operation of the gender division of labour both in the productive process and in the use of technology.

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<sup>46</sup> Solon Papademetriou, *Stoicheia tou ellinikou metalleftikou dikaiou [Elements about the Greek Mining Law]*, Athens 1921, p. 168. (in greek).

<sup>47</sup> Papademetriou, *ibid*, p. 160-161;

**ANNEX –  
TABLES AND FIGURES**

**Table 1. Composition of workforce in Greek industry, 1907**

<i>Sector</i>	<i>Male Number</i>	<i>Female Number</i>	<i>Male (%)</i>	<i>Female (%)</i>
<i>Textiles</i>	12.334	17.251	41,69	58,31
<i>Food</i>	11.977	103	99,15	0,85
<i>Chemicals</i>	1.154	105	91,66	8,34
<i>Constructions</i>	20.745	37	99,82	0,18
<i>Energy Production Distribution</i>	578	-	100	-
<i>Metallurgy</i>	14.700	53	99,64	0,36
<i>Wood</i>	16.648	316	98,14	1,86
<i>Leather</i>	18.837	221	98,84	1,16
<i>Paper</i>	2.224	100	95,7	4,3
<i>Tobacco</i>	2.519	90	96,55	3,45
<i>Without special reference</i>	2.137	1.432	59,88	40,12

Source: Population census, 1907.

**Table 2. Productive potential of the Greek cotton manufacture,  
1874-1940**

<i>Year</i>	<i>Factories</i>	<i>Spindles</i>	<i>Looms</i>
1874	18 *	36.468	-
1899	20	80.000	1.050
1905	34	99.300	1.165
1910	-	65.000	-
1914	33	78.975	1.561
1920	24	128.975	1.562
1928	84	211.440	3.226
1935	101	262.000	5.340
1940	..	306.844	5.500
* spinning mills only			

Sources: Ministère du Commerce et de l'Industrie, *Exposition Universelle Internationale de 1900 à Paris. Rapports de Jury International. Groupe XIII, Fils, Tissus, Vêtements*, Imprimerie Nationale, 2 vol, Paris 1902; Ministry of Finances, *I elliniki viomichania [The greek industry]*, Athens 1931(in greek) ; Higher Economic Council, *Erevna kai gnomodotisis epi ton viomichanion vamvakos [Inquiry for the cotton industries]*, Athens 1937(in greek); Agriantoni, *ibid* ; David Asséo, *La filature de coton dans le monde en 1910. Une analyse comparée (1908-1913)*, Geneva 1989; Hatziiossif, *ibid*.

**Table 3. Vertical integration in Greek cotton industry, 1935**

	Number of plants	Spindles	Looms
Spinning mills	23	90.496	-
Weaving mills	51	-	2.096
Spinning and weaving	27	171.504	3.244
Total	101	262.000	5.340

Source: Higher Economic Council, *Erevna kai gnomodotisis epi ton viomichanion vamvakos* [Inquiry for the cotton industries], Athens 1937.

**Table 4. Labour force in the Greek cotton industry, 1875-1936**

Year	Male	Female
1875	696	1.632
1920	2.036	5.817
1932	3.720	8.818
1933	4.020	9.494
1934	4.347	10.764
1935	5.079	11.115
1936	5.282	11.551

Source: Al. Mansolas, *Renseignements statistiques sur les établissements industriels à vapeur en Grèce*, Athens 1876, p. 44 ; Al. Mansolas, *La Grèce à l' exposition universelle de Paris en 1878. Notions statistiques, catalogue des exposants*, Athens 1878, p. 100; Higher Economic Council, *ibid*, p. 13.

**Table 5. Composition of the labour force in textile industry, by age and gender, 1920-1930 (%)**

Year	Men -18	Men +18	Women -18	Women +18
1920	7	18	28	47
1930	6	16	39	39

Source: Ministère de l' Économie Nationale, *Statistique Générale de la Grèce, Recensement des entreprises industrielles au 18 Décembre 1920*, Athènes 1926 ; Ministère de l' Économie Nationale, *Statistique Générale de la Grèce, Recensement des établissements des entreprises industrielles et commerciales effectué en Septembre de 1930*, Athènes 1934.

Figure 1

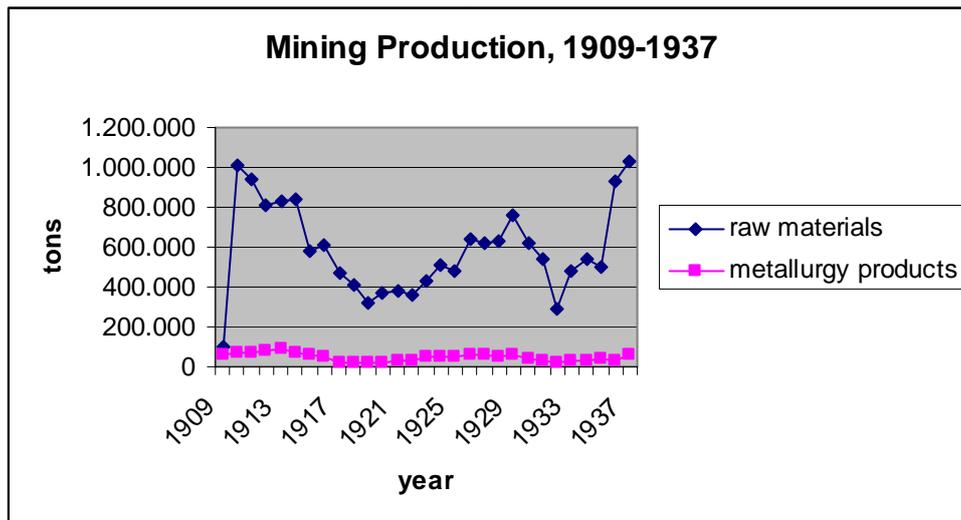


Figure 2

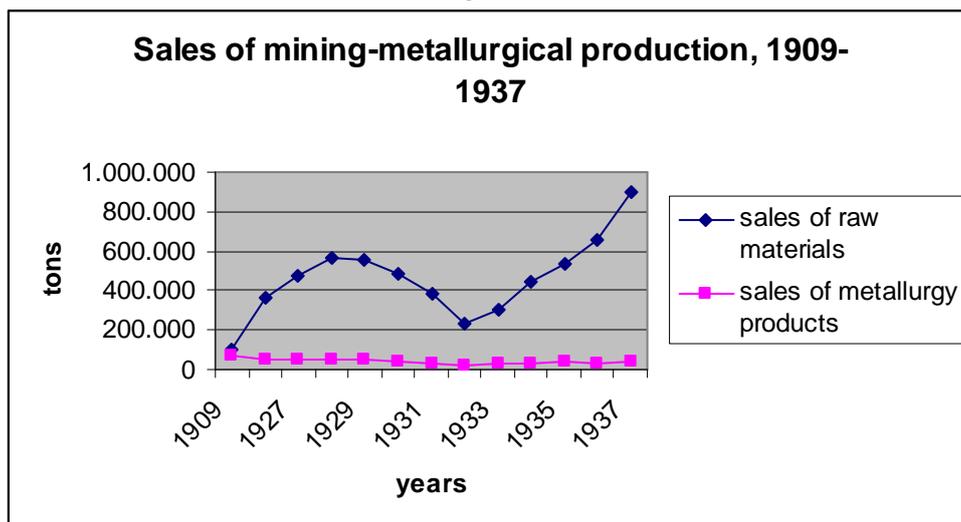


Table 6. Exports of minerals and metals, 1926-1939 (tons)

year	minerals	metals
1926	169.904	5.040
1927	224.886	5.514
1929	328.379	8.050
1930	412.218	6.909
1931	317.557	3.510
1932	189.574	10.256
1933	303.675	15.234
1934	408.343	22.512
1935	528.303	12.492
1936	646.913	16.886
1937	973.125	25.663
1938	959.083	12.202
1939	881.014	3.475

Source: National Bank of Greece, *Oikonomiki Epetiris tis Ellados* 1934, 1939

Figure 3

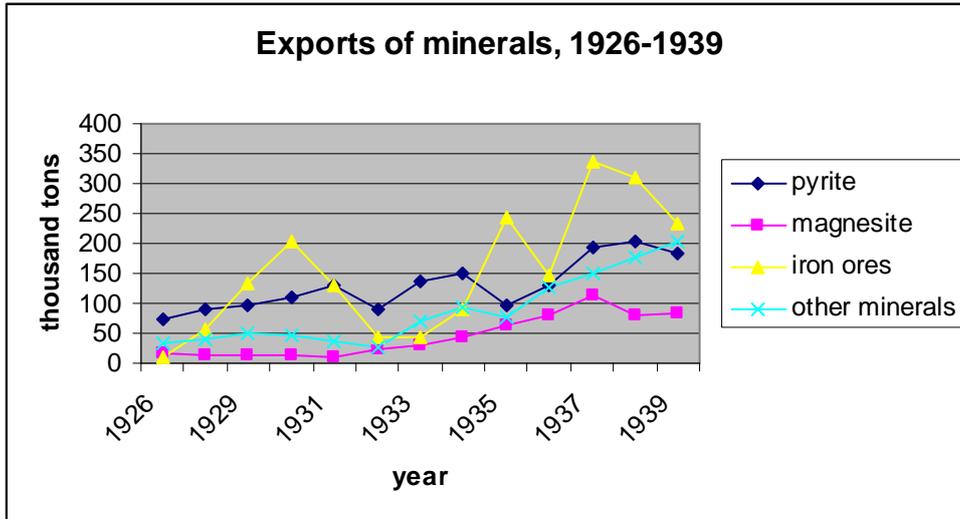


Figure 4

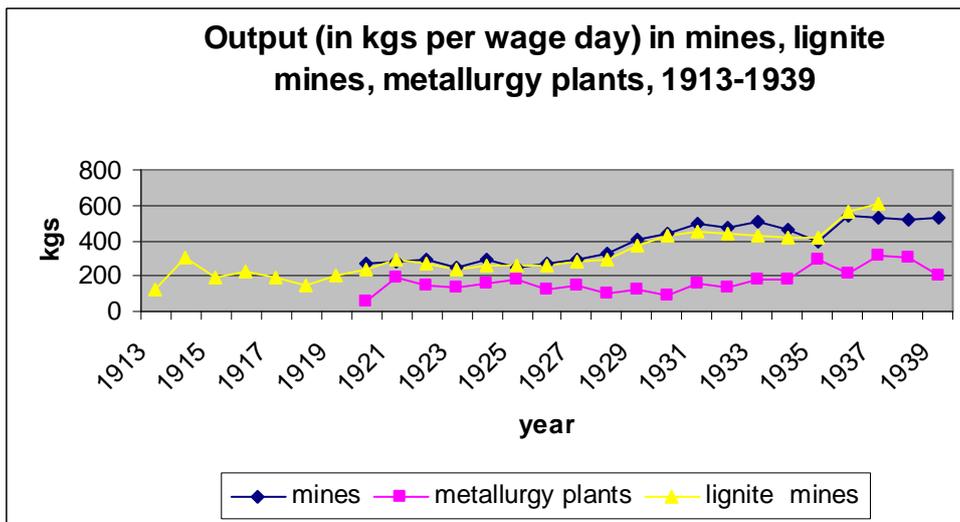


Figure 5

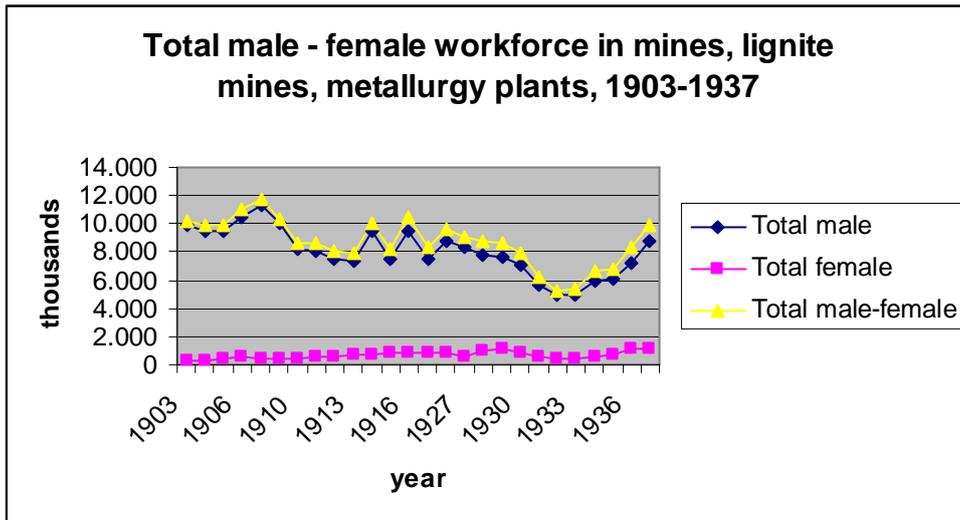


Figure 6

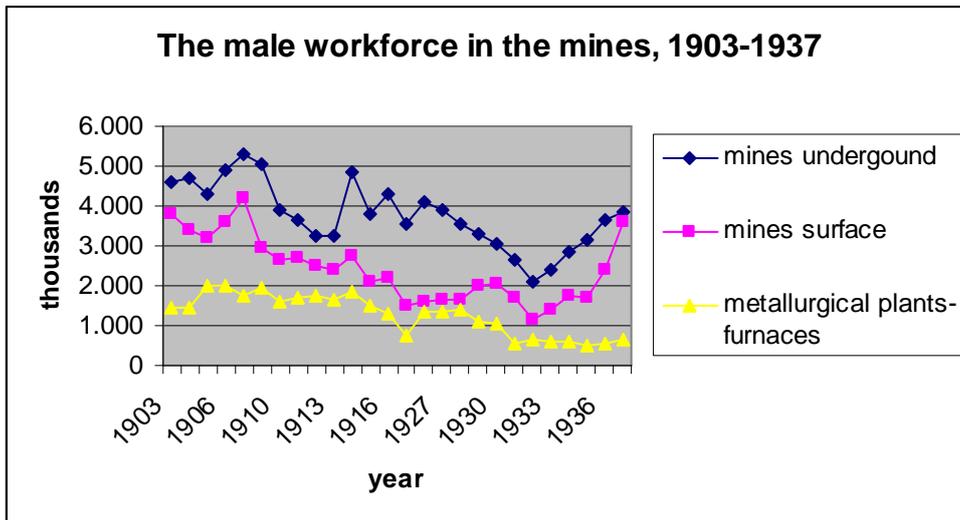


Figure 7

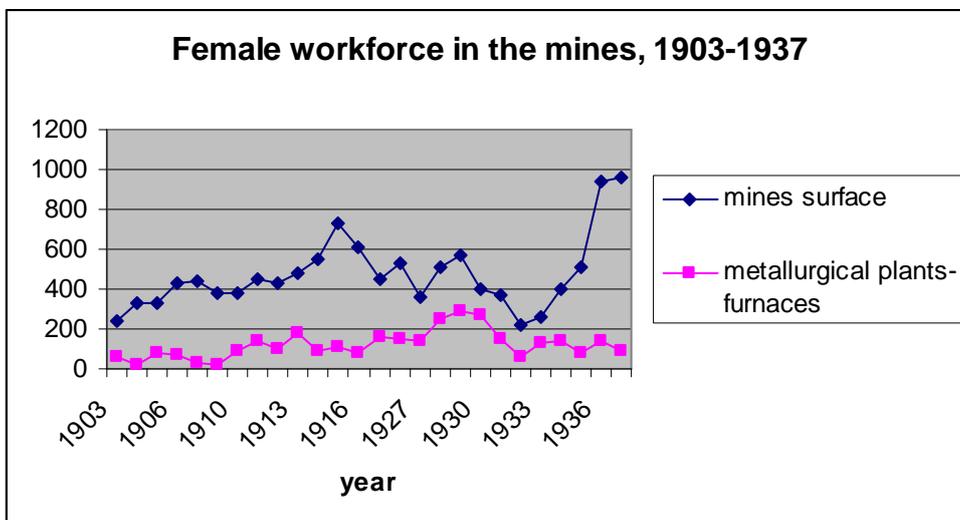
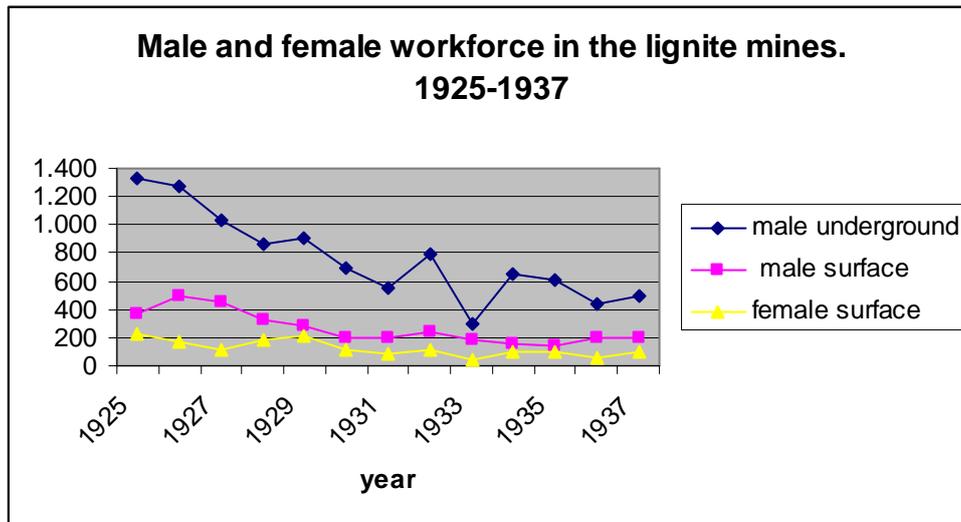


Figure 8



**Table 7. Composition of the workforce by sex and age in mines and quarries, 1930 (%)**

Age (years)	Male %	Female %
10-14	0,50	4,2
15-19	14,93	51,8
20-24	13,47	16,9
25-29	14,84	4,1
30-34	11,43	4,9
35-39	9,91	4,1
40-44	8,05	3,4
45-49	8,32	4,2
50-54	6,44	2,3
55-59	5,14	2,0
60-64	3,27	1,0
65-69	2,01	0,5
70+	1,02	0,2
Without age reference	0,68	0,5
Total	100,00	100

Source: Ministère de l'Économie Nationale, Statistique Générale de la Grèce, *Recensement des employés et ouvriers des entreprises industrielles et commerciales et relevé des salaires effectués en Septembre 1930. Comparaison avec des salaires plus anciens et plus récents*, Athènes 1940, p.102-105.

**Table 8. Composition of the workforce in the mines and textiles by sex and age, 1930 (%)**

Age (years)	Mines		Textile	
	Male	Female	Male	Female
10-19	14,2	56,8	41	58,3
20-29	27,7	22,8	26	22,4
30 +	57,37	19,7	31,8	18,9
Without age reference				
	0,62	0,5	0,96	0,34
Total	100	100	100	100

Source: Ministère de l' Économie Nationale, Statistique Générale de la Grèce, *Recensement des employés et ouvriers des entreprises industrielles et commerciales et relevé des salaires effectués en Septembre 1930. Comparaison avec des salaires plus anciens et plus récents*, Athènes 1940, p. 144-145, 152-155.

**Table 9. Wages and division of labor in Lavrion, 1877**

Professional category	Wage (per day) in French francs
children	0,80 – 1,40
women	0,80 – 2,00
women in water separation plant	2,00-3,00
miners	3,00-3,50
labourers in the mines	2,00-2,50
smelters	3,60-4,00
Smelters' helpers	2,50-3,80
foremen	3,00-5,00

Source: A. Kordellas, *I Hellas exetazomeni geologikos kai oryktologikos [Greece as concerns geology and mineralogy]*, Athens 1878, p. 86.

**Table 10. Wages and division of labour in Manganese and Sulphur mines in Milo(Melos), 1893**

Enterprise	job	Wage (per day) in Greek drachmas
Sulphur mines	miners	3,50- 4,00
	smelters	3,50- 4,00
	labourers	2,00-3,00
“Serpieri et Cie”, Manganese mines	miners	2,50-3,50
	Women - children	1,00-1,75

Source: FO, Miscellaneous Series, No 303 Reports on subjects of general and commercial interest, *Report on the Mineral resources of the island of Milo (with plan)*, London 1893, p. 4.