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Claire Giordano and Francesco Zollino

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Claire Giordano and Francesco Zollino*

Abstract

In this paper we provide a detailed explanation of the methodology underlying the construction of a new labour and capital stock dataset for Italy since 1861. The existing seminal paper (Rossi, Sorgato and Toniolo 1993) only covered the period 1911-1990 for labour and 1890-1990 for capital; moreover, sectoral disaggregation was limited. The labour dataset presented here includes both headcount and full-time equivalent annual estimates and provides a ten-sector breakdown. Net capital stock annual estimates are instead disaggregated by asset type (transport equipment, machinery and equipment, and construction, in turn divided into residential and non-residential). We then analyse the key features of the structural change in the Italian economy over the more than 150 years since unification. This dataset, combined with the new historical national accounts time series published by the Bank of Italy, finally makes a sectoral analysis of Italy's long-run development possible.

JEL Classification: N00, N01, O10

Keywords: labour, capital, historical national accounts, Italy

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1. Introduction¹

Until not too long ago, undertaking an in-depth analysis of Italy's long-run development from its political unification in 1861 until current times was an ambitious and, quite frankly, impossible venture. Historical series on value added and GDP existed, but were riddled with approximations and inconsistencies, as for example Cohen and Federico (2001) effectively spell out. Finely disaggregated historical series of inputs were not available, if not for the most recent periods (labour), or were not deemed particularly reliable, similarly to the existing output series (capital). Confronted with these data issues, the eager scholar was forced to abandon the idea of providing a picture of 150 years of growth and productivity trends in unified Italy, and had to make do with either focusing on shorter time periods or relying on fragmentary and not always satisfactory quantitative evidence. Thanks to the statistical reconstruction project promoted by the Bank of Italy in occasion of Italy's 150th anniversary, the above-mentioned venture has now become possible, although it undeniably still remains ambitious.

The present paper describes in detail the sources, methodologies and technicalities underlying the reconstruction of Italy's labour and capital inputs, which were first used by Broadberry, Giordano and Zollino (2011; 2013) in order to conduct a sectoral analysis of Italy's long-run development.² The dataset has since then been revised and updated.³

The paper is organized as follows. Section 2 contains a description of the historical reconstruction of two measures of labour: the headcount number of workers (HC) and the number of full-time equivalent workers (FTE), both at a ten-sector breakdown (namely, agriculture, mining, manufacturing, public utilities, construction, trade, transport and communication, credit and insurance, private services, government services). Section 3 recounts the capital stock reconstruction. It refers to the total economy and is broken down into machinery and equipment, means of transport and constructions (residential and non-residential). Section 4 provides some preliminary evidence on the structural change and development of Italy's economy from 1861 to 2013, elaborated on our reconstructed series. Section 5 concludes and states a research agenda for future work on the topic. Appendix 1 explains how we pieced together unit wage data for the overall period, which we use in Section 4. In Appendix 2 we report our new labour and capital stock datasets in full.

¹ Although the whole paper is the result of joint work of the two Authors, Section 2, Appendix 1 and Tables A1 and A2 may be attributed to Claire Giordano and Section 3 and Table A3 to Francesco Zollino. The remaining sections are a common product. We are grateful to an anonymous referee and to our discussants Giovanni Federico and Luisa Picozzi, and to all the participants of the Workshop "I conti nazionali dell'Italia: la nuova ricostruzione dei dati storici, 1861-2011", held at Banca d'Italia, Rome, in 2012 for comments on previous versions of this paper. We also wish to thank Federico Barbiellini Amidei, Stephen N. Broadberry, Emanuele Felice, Stefano Fenoaltea, Alfredo Gliobianco, Massimiliano Iommi and Paolo Malanima for useful conversations on the historical sources and methodologies used. We are grateful to Gianni Toniolo for his precious encouragement and suggestions. We also heartily thank Alberto Baffigi, Giovanni Federico, Ferdinando Giugliano and Roberto Golinelli for sharing their data with us.

² Our original series were fully consistent with the new historical national accounts reported in Baffigi (2011).

³ The series here presented are therefore consistent with the newer vintage of historical national accounts to be published in Baffigi (2015).

2. Labour input in Italy, 1861-2013

2.1 The headcount number of workers per sector

In order to build long-run series of the HC number of workers, we divided our reconstruction into two periods (1861-1951 and 1951-2013), for which two different methodologies were used, owing to the different degree of data availability. For the first ninety years, we first had to make the only official data sources available (population censuses) comparable through time, and then had to tackle the problem of how to interpolate them by using appropriate indicators. For the period 1951-2013 continuous series from various sources had to be spliced, given the constraints of the 1951 population census and of the most recent official national accounts series (1992-2013).

2.1.1 Census years (1861-1951)

Official and systematic monthly surveys on employment were introduced in Italy only in the early 1950s.⁴ A long-run perspective covering the first century of united Italy's history hence has to rely on mainly two sources for labour: population censuses (from hereon PCs) and industrial censuses (ICs). The former censuses (taken in 1861, 1871, 1881, 1901, 1911, 1921, 1931, 1936, 1951) give us a measure of the active population, which includes, as well as full-time labourers, also part-time or seasonal workers, self-employees, domestic industrial producers and the (temporarily) unemployed.⁵ Conversely, ICs (conducted in 1911, 1927, 1937-1939, 1951) provide figures concerning only the employed workers (*addetti*) in industrial firms at the time of the survey, hence generally not including seasonal labourers, workers involved in cottage industry, etc.⁶ Therefore, if PCs overstate the number of engaged persons, ICs tend to underestimate it.

Vitali (1970)'s seminal work in making the PCs comparable over time was later marginally revised and extended by Zamagni (1987) and Fuà and Scuppa (1988).⁷ However, all these studies begin with the 1881 census: the 1861 and 1871 ones were discarded due to "their dubious reliability and scarce detail, both at sector and regional level" (Vitali 1970, p. 3). Zamagni is less pessimistic ("I think that something could be done at least with the 1871 census to link it with later ones", Zamagni 1987, p. 211). Moreover, scholars such as Stefano Fenoaltea have used the unrevised data from the 1871, and even the 1861, PCs in

⁴ Some earlier monthly surveys on employment were conducted in previous years, yet they only covered some sectors of the economy and were not continuous over time. Examples are the surveys published by the Ministero delle Corporazioni in *Bolletino del Lavoro e della Previdenza Sociale* from 1920 to 1932 and *Sindacato e Corporazione* from 1933 to 1943.

⁵ The question asked in the first censuses was in fact "what is your main occupation?", regardless of the fact the person answering was actually working full-time or even employed in that moment.

⁶ Some partial industrial censuses were conducted in previous years, such as in 1876 by the Ministero di Agricoltura, Industria e Commercio published in Ellena (1880), to which we will later return, and in 1903 published in Ministero di Agricoltura, Industria e Commercio (1906).

⁷ Fuà and Scuppa reclassified the later 1971 and 1981 PCs in order to make them comparable to Vitali's estimates which reached 1961; Zamagni also revised the employment estimates in the textile industry in 1891, 1901 and 1911, as we shall later explain.

their studies.⁸ Federico and Malanima (2004) too use data from the first two PCs on labour-force in agriculture, revised to take into account the underestimation of the female workforce in the original census data, following Vitali (1970).⁹ But to our knowledge no systematic attempt at linking these two censuses to the following, for all sectors, has yet been made. Daniele and Malanima (2009; 2011), in fact, include the first two PCs in their reconstruction of labour supply in benchmark years, but for the overall 150-year period operate at regional, rather than sectoral level, since their analysis stops at a three-level sectoral breakdown (agriculture, industry, services). Furthermore, apart from the issue of boundary changes, it is also not clear what other revisions Daniele and Malanima conducted on the 1861 and 1871 PCs (Daniele and Malanima 2009, p. 23; but also Daniele and Malanima 2011, p. 6). A harmonisation of ICs was instead attempted by Chiaventi (1987), Cainelli and Stampini (2002) and Federico (2003). Whilst the former use the 1951 economic classification of sectors, Federico works on all the censuses up until 1991, adopting the 1991 classification in his published work.

Our first contribution was hence that of linking the first two PCs of the Italian Kingdom to the following ones revised by Vitali (1970) and Zamagni (1987).¹⁰ In general, we are much aided by the fact that our analysis is at national level – albeit sectoral – and we do not attempt a further disaggregation by region.¹¹ We here explain the step-by-step methodology used for 1871 and then pass on to describe the different or additional assumptions made for 1861.

- a) The first decision to be made concerned the choice of the *economic classification of sectors* to be adopted, an all but trivial issue, since the further away one moves from this reference classification, the more challenging, and subjective to interpretation, it is to categorise certain economic activities. We were aided in this decision by the fact that the previously mentioned PC revisions by Vitali and Zamagni were based on the 1961 economic classification. This was the natural choice for us as well. Table 1 illustrates how we conducted the reclassification of activities for the 1861 and 1871 PCs.¹² A few examples help understand the rationale of our re-classifications. Vitali (1970, p. 13) noted how until the 1901 PC, production and sales activities were not separated and all the related workers fell under the umbrella of the manufacturing sector, hence leading to its over-estimation. According to the 1961 classification however, “everyone is considered in the trade sector and only the workers in medium- and large-sized firms are classified in the industrial sector” (Vitali 1970, p. 14). Thus, for the years 1881 and

⁸ Fenoaltea (2001), for example, explains his reasons for not revising the 1861 and 1871 PC data, as in Vitali (1970) or Zamagni (1987). The scope of his work in fact is different, being the reconstruction of the regional distribution of industry, and not the temporal evolution of the labour-force (Fenoaltea 2001, p. 30).

⁹ Furthermore, Battilani, Felice and Zamagni (2014) use the 1871 PC to estimate the number of labourers in the private services sector, as a basis to estimate the value added of that sector.

¹⁰ We are well aware of the statistical shortcomings of the underlying censuses – particularly severe in the case of the 1861 PC – and of the arbitrariness of the many, often anachronistic, assumptions we were forced to adopt. However, by clearly spelling out the revisions here made to the census data, we hope to ease, and even encourage, future adjustments which could improve our estimates.

¹¹ See the previously mentioned Daniele and Malanima (2009; 2011) for a regional reconstruction, but solely for census years.

¹² It is not surprising that our classification presents some differences with respect to that of Fenoaltea (2001, pp. 30-39), since our aim – comparability through time – does not coincide with his, as mentioned in note 8.

1901, Vitali classified 5 per cent of bakers, pastry-makers and pasta-makers as workers in the food industry and the other 95 per cent as workers in trade. Similarly, 10 per cent of butchers were attributed to the same industry and 90 per cent to trade. Not having any ICs available in these years which reported data on workers in the food industry and which could have given us an idea of the number of workers who were truly engaged in manufacturing instead of trade, we adopted the same assumption (and percentages) for 1871 (and 1861).¹³

All writers and publishers were instead classified by the 1871 and 1881 PCs as workers in personal services; Vitali (1970) decided to assign 50 per cent of them to the paper industry.¹⁴ Similarly, all pavers, road sweepers and road workers were registered by the PCs in the personal services sectors. Vitali attributed 50 per cent of them to the construction industry. Superintendents and private employees (*intendenti e impiegati privati*) and clerks and public copyists (*scrivani e copisti pubblici*) were proportionally distributed amongst the extractive, manufacturing, utilities, credit and insurance and private services sectors in 1881. Vitali also assigned 60 per cent of “unclassified” labourers to manufacturing and 40 per cent to transport and communications. We adopted the same assumptions (and percentages) for 1871 so as to maintain comparability through time.

We instead made some different assumptions for certain categories of professionals, since assuming constant percentages seemed to be historically incorrect in these cases. For instance, doctors, midwives, nurses and vets were partitioned between government and private services by Vitali. We however assumed that in 1871 (and 1861) these were largely private practitioners and hence assign them only to the private services category.¹⁵ Teachers were also partitioned by Vitali in the two sectors (15 per cent to private services and 85 per cent to government services in 1881). Although State primary education did exist in Italy since 1859,¹⁶ we assumed the ratio of private teachers to be higher in 1871 (and even more so in 1861, as we shall later see). In particular, the number of teachers in primary schools in 1871 from *Annuario Statistico dell’Istruzione Italiana* (Istat 1956) is 65 per cent of the census figure. We hence attribute 35 per cent to private services and 65 per cent to government services for 1871. Finally, the utilities industry deserves special attention. This is the only sector for which we did not take Vitali (1970)¹⁷ at face value for the PCs covered by him. As Fenoaltea (2001, p. 39) pointed out, in fact, PCs in 1871 and 1881 only included workers in the gas industry; in 1901 the census also considered those in the electricity sub-sector, and only from the 1911 census onwards was the overall utilities sectors covered. Vitali attempted to overcome this problem in 1881 by considering 50 per cent of well-builders

¹³ As we shall later see, Ellena (1880) supplies a partial IC which, however, does not cover the food industry. Furthermore, the first complete trade census was taken in 1927, to our knowledge.

¹⁴ Note that Vitali did not attempt to justify this and the following reclassifications, nor did he report the percentages chosen. We gauged the latter from his “conversion table” (*tabella di ragguaglio*) in Vitali (1970, pp. 298-315).

¹⁵ This assumption is similar to that in Battilani, Felice and Zamagni (2014), when referring to employment in the private services sector.

¹⁶ The 1859 *Legge Casati* introduced compulsory free primary instruction of two years in Piedmont. In 1861 the law was extended to all Italy.

¹⁷ Or Zamagni’s later revision of Vitali (Zamagni 1987), which however does not affect the utilities sector.

and fountain-drillers as working in the water industry¹⁸ and by setting workers in the electricity sub-sector equal to zero. For 1901 he assigned all fountain-builders to the water industry. Notwithstanding Vitali's adjustments, the number of workers in the utilities industry, however, remains underestimated in 1881 and 1901, due to the mentioned coverage problem. In order to tackle this, we considered the three sub-sectors (water; gas; electricity) separately. *A)* We used Vitali's data for gas from 1881 onwards and PC data for gas in 1871. *B)* Given that electricity production only began around 1883 (see Fenoaltea 1982, p. 612), we set workers in this industry equal to zero in both 1871 and 1881. *C)* To estimate the actual number of workers in the water industry we replaced Vitali's estimate for 1881 with an estimate obtained by assuming the same annual average growth rate in the decade 1901-1911 as the one for the years 1881-1901. We made the same assumption for the decade 1871-1881 to obtain the estimate for 1871. Finally, by summing up the number of workers in the three sub-sectors, we obtained the total number of workers in the utilities sectors in 1871 and 1881 (the latter figure hence revised relative to Vitali 1970).

- b)* After the choice of the economic classification, the next decision to take was how to handle the *issue of military recruits* in the PC data. Until the 1936 PC, in fact, military recruits were counted as workers in government services, a sector which was therefore over-estimated. To tackle this problem, we first found data from a different source on the number of recruits and of "permanent" soldiers in 1871 (from Direzione generale della statistica, *Annuario statistico italiano*). Next, following Vitali (1970), we assumed that "permanent" soldiers had no reason to deny being part of the army when filling in the census form; the problem was, rather, that of temporary recruits declaring their main occupation was in PA. Hence, by subtracting the "permanent" soldiers from the census figure, we obtained the number of military recruits who declared their profession was in the army when potentially they steadily worked elsewhere before their recruitment; these persons thus had to be redistributed across their actual sectors of origin. We therefore implemented the redistribution, according to the weight each sector had relative to the total active population of the sectors in which the recruits could have worked, as in Vitali (1970, p. 270). To maintain comparability with Vitali, in fact, we assumed that no recruits were active in the utilities, credit and insurance, personal and government services sectors.¹⁹
- c)* The next step concerned addressing the problem of the *inclusion of working children aged less than ten* in the PCs until 1901, whereas from thereon only workers aged ten upwards were counted. In 1881 and 1901 only children of nine years of age were

¹⁸ The remaining 50 per cent were attributed to the construction sector.

¹⁹ Vitali (1970, p. 270) justifies this assumption by stating "Such an assumption may appear at a first glance quite rigid, however it finds a consistent justification when considering the periods considered in this reconstruction". We can add some more precise explanations. A law of 1854 (20 March 1854, No. 1676), for example, forbid clerics from being called up to the army. The same exemption was made for "justice executors" (*esecutori della giustizia*). Both of these classes of workers fell into the private services sector. Another assumption is that other sectors, such as government services and credit, on average employed older people compared to the labourers working in agriculture and industry. As 20 year olds were recruited, there was a higher probability of them previously working in the primary and secondary sector, rather than the tertiary one. This assumption can only – partially – be verified for the 1861 census data, in which the population was classified simultaneously by profession and by age group (0-15; 15-30; 30-60; over 60), but not for the 1871 census where figures concerning the 0-15 cohort are provided, but not any others.

censused, whilst in 1871 (and 1861) children of all ages were included. We assumed the lower bound of working children was of eight years in order to implement our further revisions of the data.²⁰ We furthermore assumed, similarly to Vitali (1970, p. 209), that, in each sector, in 1871, the following equation held:

$$(1) \text{ (Number of TOTAL 8 and 9 year olds) / (Number of TOTAL 8-15 year olds)} \\ = \text{ (Number of ACTIVE 8 and 9 year olds) / (Number of ACTIVE 8-15 year olds).}^{21}$$

The numerator of the second ratio can be easily derived since the other elements of the equation can be inferred from data in the 1871 census. We hence found that, according to this assumption, around 30 per cent of children under fifteen in each sector were actually under ten years of age and therefore had to be eliminated from the 1871 census data. The resulting number of working eight and nine year olds was thus netted out proportionally from all sectors. Exceptions were the extractive and utilities industry and credit and insurance sectors, in which no child of less than ten years of age was assumed to work.²²

- d) A specific issue arises for the *manufacturing sector* in the early PCs. Zamagni (1987), in fact, pointed out how the number of workers in the textile industries in 1881, 1901 and 1911 were over-estimated due to the inclusion of domestic production of textiles (weaving and spinning) by women, when the latter was actually directed to self-consumption, rather than to the market. This problem also concerned the first two PCs: in the 1971 one, for example, a *caveat* appears concerning the women employed in the textile industry, who “may be on the whole overestimated” (Ministero di Agricoltura, Industria e Commercio 1871: IV). In order to tackle this overestimation issue, Zamagni (1987, p. 38) produced an estimate of the industrial labour-force in textiles by replacing the PC figure for 1881 with 110 per cent of the corresponding figure in Ellena (1880) found for 1876.²³ Zamagni’s choice of using 110 per cent of the closest industrial census figure allows “for some ‘physiological’ discrepancy”; no further justification was given. For the 1871 census, Ellena’s data are again the closest in time. For 1871, we thus use 90 per cent of the 1876 figure, reclassified according to the 1961 scheme, in order to allow for a symmetrical “physiological discrepancy” – and mainly to retain comparability with Zamagni (1987)’s revisions – in the textile industry, in this way replacing the figure derived from the 1871 PC.²⁴

²⁰ Vitali (1970, p. 216) suggested this as a possible assumption if wanting to use the 1871 census for comparative purposes.

²¹ Vitali (1970) adopted this assumption for 1881 with respect to nine year olds only, as eight year olds were not included in the census.

²² Vitali (1970, p. 213) made this assumption for the latter two sectors. We also added the extractive industry, since a law of 1859 forbid children under 10 years of age from working in mines.

²³ Ellena (1880) provides a survey conducted on a limited number of industrial sectors, excluding the metallurgy, mechanics, glass, ceramics, chemical and mining industries. It only included employed workers at the time of the survey and did not consider domestic production.

²⁴ To give the reader an idea of the significance of this revision, the figure calculated on Ellena’s (1880) data for 1876 was of 306,023 workers in the textile industry; the one derived from the 1871 PC was of 974,881. The difference between the two estimates was over one quarter of the total manufacturing labour-force (28 per cent); this information we then used for the revision of the 1861 census data, as we shall later see.

e) Finally, PC data had to be adjusted for *boundary changes*. Roughly speaking, in 1871 Italy was missing the current Trentino Alto Adige and Friuli Venezia Giulia regions. Elaborating on Vitali's (1970) data, we derived his estimates of active population in the two regions per sector in 1881; we assumed that the ratio of active population in the two regions per sector to total active population per sector in Italy (excluding the two regions) was constant in 1871 and 1881, and we hence derived the active population in the two regions per sector in 1871. We finally added the resulting figures to the PC data to obtain estimates at current boundaries.

The application of the same step-by-step methodology was tentatively applied to the 1861 census data, which however contains scarce information and a very low level of disaggregation.²⁵ We here only list the additional or different assumptions used.

a) The *economic classification of sectors* adopted is again that of 1961. A footnote in the 1861 census mentions that forest rangers on the one hand and millers, cheese-makers and olive-oil producers (*frantori*) on the other were counted in the agriculture sector (Direzione della Statistica Generale del Regno 1867, p. 81). We hence estimated the numbers of these workers by assuming their share on total active population to be constant in 1861 and 1871 (respectively 0.1 per cent and 0.6 per cent). The former were then attributed to private services; the latter to the manufacturing industry, in order to maintain comparability with the later PCs. No data or information concerning the utilities and credit and insurance sectors are provided by the 1861 PC; hence we assumed the growth rate of the labour-force in this sector in the decade 1861-1871 to be equal to that of the following decade 1871-1881 in order to obtain an estimate for 1861, which we then subtracted respectively from the manufacturing industry and the private services sector. Furthermore, since in the 1871 census many workers in trade were included amongst manufacturing workers, we suspected the same bias was present in 1861 data. We thus calculated the ratio of workers in trade over total active population in 1871 which had been originally classified in the industrial sector (approximately 2 per cent), assumed it to be the same in 1861 and therefore estimated the number of trade workers to be reclassified in trade for 1861. Diggers and navvies (*marraiuoli e terraiuoli*) were also included in the manufacturing sector by the 1861 PC (Ministero di Agricoltura, Industria e Commercio 1875, p. XIV); by assuming fixed shares in 1861 and 1871 (0.1 per cent), we hence estimated the number of diggers and navvies in 1861, subtracted them from the manufacturing industry and added them to the construction sector.

Again we used the source *Annuario Statistico dell'Istruzione* (Istat 1956) to calculate the number of teachers to be included in government services (only 40 per cent in 1861

²⁵ For instance, the total number of workers in the manufacturing sector is given as an aggregate sum, with no further breakdown, if not for some fleeting observations and figures concerning a limited number of sub-sectors. Similarly, the 1861 PC provides the total number of workers in the "liberal professions" sector (*professioni liberali*) with no further specification if not for workers in the health services sector (doctors, surgeons etc.). No breakdown at all is given for the figures concerning Italy including the freshly annexed provinces of Mantua and Veneto. We applied the (scanty) breakdown available for Italy before the addition of these new territories to the whole of the Italian Kingdom, via a change of scale given by the ratio between the two corresponding aggregate sector figures. In formula: $SUBSECTOR_{IT+} = SUBSECTOR_{IT} * (SECTOR_{IT+}/SECTOR_{IT})$, where the subscript IT+ refers to the whole of Italy including Mantua and Veneto.

vs. 65 per cent in 1871 and 85 per cent in 1881). Scholars and pensioners were included amongst “liberal professions” in 1861 and had to be subtracted. The 1871 census declared scholars to be around 300,000 in 1861, that is 60 per cent of the total workers in “other liberal professions”, *i.e.* liberal professions which did not include health services (Ministero di Agricoltura, Industria e Commercio 1875, p. XIII). No figure was instead given for pensioners: assuming their share over total active population was lower in 1861 than in 1871, since the population of over 40 year olds per 100,000 inhabitants was higher in 1871 (Ministero di Agricoltura, Industria e Commercio 1875, p. 32), we estimated that pensioners counted for 8 per cent of “other liberal professions” workers (vs. 10 per cent in 1871). Finally, the 1871 census suggested that porters and packers in 1861 had been classified amongst “trade” (Ministero di Agricoltura, Industria e Commercio 1875, p. VII); we reclassified them in transport, again assuming constant proportions (0.5 per cent). Few other reclassifications were possible, following Vitali (1970), since the breakdown of figures in 1861 PC data is so scarce. We again refer to Table 1 for all the details.

- b) The *number of military recruits* in 1861 was derived from Ufficio dell’Italia Militare (1864, p. 303). It is interesting to note that even for 1861 the census figure concerning total armed forces (255,200; Direzione della Statistica Generale del Regno 1867, p. 61) and the figure from this alternative comparable source for 1864 (379,722) are different. The redistribution was conducted in the same way and in the same sectors as for 1871.
- c) The elimination of *children under ten* from the census data in 1861 was more challenging than for 1871, due to lack of information concerning the total population by age. In fact, when considering Italy as a whole (*i.e.* including Mantua and Veneto), the only available data were for the cohort aged 6-24. Data on population per year of age are however available for Italy excluding Mantua and Veneto. By assuming fixed proportions, we were able to estimate the number of eight and nine year olds in the whole of Italy, as well as the number of eight to 15 year olds, needed to implement equation (1).²⁶
- d) In order to correct the data on manufacturing to eliminate *domestic production of textiles* for self-consumption, as in Zamagni (1987), and having no (partial) IC in nearby years to draw upon, we assumed the downward correction to be made for 1861 to be of the same magnitude of the one made for 1871 (*i.e.* 28 per cent).
- e) Finally, to obtain estimates at *today’s boundaries*, we assumed the weight of active population in Trentino and Friuli to total active population in 1861 was the same as that of 1871. The same assumption was made for Rome, annexed in 1871 (and hence included in the 1871 PC): the share was derived from 1871 PC data and distributed proportionally across sectors in 1861.

To briefly conclude, whereas the estimates of active labour-force per sector produced for 1871 seem to be plausible, the 1861 estimates are clearly less reliable. As previously explained, in fact, the figures concerning the utilities and credit and insurance sector are statistically constructed. Original census data on transport and trade, but also on manufacturing, are probably over-estimated, due to the lack of information and

²⁶ Again, as in 1871, there was no lower bound to the census data; we therefore assumed it was eight years old in order to compute equation (1).

disaggregation provided by the underlying 1861 PC.²⁷ Data on government services are also over-estimated due to an inflated number of “permanent” soldiers therein included (138,193 in 1861 vs. 36,797 in 1881). Hence, we used our revised 1861 census data estimates for the agriculture, extractive, manufacturing, construction and private services sectors, as they seemed credible in the light of later PCs, but preferred to infer the 1861 estimates for the remaining five sectors statistically.²⁸

2.1.2 Inter-census years (1861-1951)

Our next hurdle was to estimate the number of workers in Italy in the inter-census years. To do this, one or more indicators of employment available from different sources were used to interpolate the sectoral data relative to the benchmark census years. This methodology was adopted in Rossi, Sorgato and Toniolo (1993),²⁹ we however used different, and a larger set of indicators. Furthermore, well aware of the dangers behind extrapolating the cycle from elementary series and then extending it to the corresponding aggregate sectors,³⁰ we were careful in choosing indicators referring to “significant” sub-sectors, which reasonably could represent the dynamics of the aggregate ones. For example, the mining and quarrying series accounted for 97-100 per cent of the overall extractive industry; the State workers for similar percentages of the overall government services sector. The three elementary series used for transport and communication accounted for around 65-70 per cent of the sector. The coverage of the manufacturing sector was unfortunately lower (30-40 per cent), but still higher than that in Rossi, Sorgato and Toniolo (1993). Moreover, the sub-sectors considered (metallurgy, mechanics, chemical industry) presumably had a more stable cycle compared to other, more volatile, sub-sectors. In the periods in which no indicators were found, linear interpolation was used.

For the industrial sector, the following indicators were employed (if otherwise not specified, the indicators were taken from Direzione generale della statistica, *Annuario statistico italiano*, various years):

- Extractive. Miners, for the years 1870-1902 and 1906-1938; quarry-workers, for the years 1890-1897, 1901-1902 and 1906-1938.³¹
- Manufacturing. Total metalworkers, for the years 1909-1938; workers in the iron and steel industry for 1881-1884 and 1887-1902; in the pig-iron, copper, lead, silver, gold,

²⁷ For instance, the aggregate figure given for manufacturing by the 1861 PC of 3,225,057 labourers is hard to buy when the – already overestimated – 1871 PC reports 3,287,188 workers, with an increase of active population of around 5 million labourers. Seen from another perspective, 15 out of 100 inhabitants in 1861 were manufacturers against only 12 in 1871, when comparing the unrevised PC data.

²⁸ That is to say, the estimates for utilities, credit and insurance, transport and communications, trade and government services in 1861 are obtained by assuming a constant growth rate of the labour-force in those sectors for the decades 1861-1871 and 1871-1881.

²⁹ We will come back to Rossi, Sorgato and Toniolo (1993) in more detail in Section 2.2.

³⁰ See, for example, Fenoaltea (2006, p. 67).

³¹ It is known that rich data concerning mining were published in Italy from the early years since the sub-soil belonged to the Crown. Surveys were soon extended to related industries, such as quarrying, metal-making, chemicals and non-metallic mineral processing, which we hence have been able to exploit.

antimony and fossil fuel industries for the period 1887-1902; in metal-making for the period 1920-1938; in the mercury and sulphur industries for the years 1895-1902; in the asphalt, bitumen and oil industries for the period 1890-1902; in the chemical industry for the years 1893-1902 and 1906-1914, and then from 1927 to 1938; in the tobacco industry for the period 1906-1914; in the wood industry for the period 1927-1938; in the paper industry for the period 1920-1938; in the clothing and leather industry for the period 1920-1938; in the textile industry for the period 1920-1938 (data for the last five branches are taken from Assonime, various years, Banca d'Italia (1938) and Ministero delle Corporazioni, various years); workers subject to legislation on child and female labour and industrial accidents for the years 1906-1916.

- Construction. Workers in the construction industry for the years 1922-1938 (Assonime, various years, Banca d'Italia (1938) and Ministero delle Corporazioni, various years).
- Utilities. Workers in the gas and water industry for the years 1929-1938 (Assonime, various years, Banca d'Italia (1938) and Ministero delle Corporazioni, various years).

For the services sector, the following indicators were used:

- Transport and communication. Men employed in the merchant marine for the years 1865-1916 and 1921-1925; telegraph employees from 1861 to 1881; telegraph, post and telephone employees for the period 1910-1921; employees of the national railroads company (*Ferrovie dello Stato*) for the years 1880-1884, 1888-1890, 1893-1940.
- Credit and insurance. Bank of Italy employees from 1894 to 1935 (Contessa and De Mattia 1993).³²
- Employees of State public administrations from 1926 to 1951 (Istat 1976, p. 147).
- Trade, as well as personal services, were linearly interpolated. Finally, the series on agriculture, forestry and fishing was obtained by linearly interpolating the PC data.³³

³² The employees of the central bank were included in the credit and insurance sector, according to the 1961 economic classification. In particular, from its institution in 1893 until 1926, the Bank of Italy was one of three banks of issue in Italy, which could offer services to private agents, in competition with the other commercial banks. From 1926 and 1936 it was the sole issuing bank but only with the 1936 Bank Act did it become an actual central bank in the modern sense of the term, when it also had to give up its lending activity to private borrowers. Until 1936 the Bank of Italy may be considered a credit institution, although it was subjected to legislative constraints by the 1893 Issuing Bank Act, at a competitive disadvantage with respect to the other banks (commercial banks were, in fact, regulated for the first time only in 1926). Thus said, the changes in the number of the Bank of Italy's employees may be a significant indicator of employment of the credit sector as a whole.

³³ Figures concerning the number of fishermen for the years 1890-1914 were found in Direzione generale della statistica, *Annuario statistico italiano*. However, this sub-sector was not deemed representative of the sector as a whole; we therefore decided to disregard the available series as a possible indicator, for the reasons stated above. Linear interpolation in this sector was also necessarily used by Rossi, Sorgato and Toniolo (1993) and by Federico and Malanima (2004), given the lack of data sources.

2.1.3 Recent years (1951-2013)

Having constructed the series of Italy's workers in ten sectors from 1861 to 1951, we then proceeded to link the series up to other sources for the period 1951-2013. Given that we wanted our historical series to coincide, for the most recent years, with Italy's National Bureau of Statistics' (Istat) official national account series³⁴, for the period 1995-2013 we took Istat (2014b) at face value. The figures for 1995 were then retropolated until 1992 by using the dynamics of the Istat (2014a) national accounts series; similarly, the estimates for 1992 were then retropolated until 1970 by employing Istat (2011a). The sectoral figures were in turn adjusted so that the total economy number of workers was equal to the total economy figure in Istat (2011a) for 1970-1991.³⁵ From 1951 to 1970 Istat (1973) was used to derive the dynamics of employment for that period, with the sectoral 1951 PC and the retropolated Istat data-point for 1970 as constraints.

A brief remark on the economic classification adopted for the overall period 1951-2013. We are clearly aware that the new classification of economic activities adopted by Istat (Ateco 2007), as well as the new ESA 2010, presents marked differences relative to the 1961 framework used by us for the period 1861-1951. We however attempted to attenuate these differences by appropriately reclassifying Istat (2011a; 2014a; 2014b) as much as possible. The greatest effort was made to separate the public from the private sector. Thus, the breakdown between private personal and government services from the official Istat data was obtained by applying the annual share of market vs. non-market sector employees from Golinelli (1998) to the health, education, insurance and other mixed services data for the period 1970-1997. The shares in 1998 were assumed to be equal to those in 1997, given no other data source available for that year. For the years 1999-2013, data from Ragioneria Generale dello Stato (various years) on government services workers were used to achieve the breakdown.³⁶

Our final result was therefore a set of continuous series of the HC number of workers from 1861 through 2013 at a ten-sector level of disaggregation, which we present in Table A1 in Appendix 2.

2.2 *The number of full-time equivalent workers per sector*

To our knowledge, Rossi, Sorgato and Toniolo (1993) is the only existing attempt to construct historical long-run series of full-time equivalent employment, in particular for the period 1911-1951, disaggregated by sector (agriculture; industry; services; government services), then linked up to the 1951-1990 series of "standard units of labour" published in Golinelli and Monterastelli (1990). Following a similar methodology, we constructed *ex novo* series of FTE workers in ten sectors (agriculture, mining, manufacturing, public

³⁴ This constraint is also set in Baffigi (2011; 2015) for Italy's value added and GDP series.

³⁵ In fact, for the overlapping years in Istat (2011a) and Istat (2014a), *i.e.* 1991-2010, the total number of workers coincided. Differences concerned only the sectoral distribution of the labourers within the economy, given by the adoption of the new Ateco 2007 framework since the data release of Istat (2012).

³⁶ No structural break appears in the market vs. non-market shares series, which seems to imply that Golinelli (1998) and Ragioneria Generale dello Stato (various years) are reassuringly consistent sources.

utilities, construction, trade, transport and communication, credit and insurance, private services, government services) for the overall period 1861-2013.

2.2.1 Agriculture (1861-1951)

Estimating FTE employment series in agriculture is a particularly important issue. For economies with less refined divisions of labour, such as Italy for at least one hundred years after its unification, estimates based on the size of the work-force recorded in PCs as employed in agriculture, in fact, are likely to be overstated, since the criterion used was to classify individuals according to their main occupation. Moreover, massive underemployment of men, women and children was a predominant feature in this sector. Historical evidence has furthermore shown that involuntary unemployment was higher amongst landless day labourers (*braccianti*), relative to labourers who instead owned or rented the land they cultivated (Serpieri 1910; INEA 1933; Medici and Orlando 1951). The present issue has been tackled by O'Brien and Toniolo (1991). Following their methodology, we have here transformed labour-force figures at PC dates (which, we recall once again, were 1861, 1871, 1881, 1901, 1911, 1921, 1931, 1936 and 1951) into fully employed male equivalents, as reported in Table 2. In particular, the following assumptions were made (col. 1, Table 2): *a*) male farmers aged 15-65 (*i.e.* owner-occupiers, tenants, share-croppers) worked for 265 days a year; *b*) landless male labourers aged 15-65 worked 220 days a year; *c*) females, children and elderly adults aged over 65 worked 120 days a year, regardless of their status, since they diverted more of their potential working time to household tasks or leisure.³⁷ Furthermore, as well as a different number of days worked per year, conversion coefficients were also applied, assuming that the intensity of male labourers' work was greater than that of children, women, and the elderly (col. 2, Table 2).³⁸ Given the lack of other quantitative information on the agriculture sector, converted PC figures were then linearly interpolated.

³⁷ The number of estimated days worked by each category of agricultural labourers are the same as those in O'Brien and Toniolo (1991), yet are higher than those used in Rossi and Toniolo (1992) and Rossi, Sorgato and Toniolo (1993). Although O'Brien and Toniolo (1991, p. 398) state that "The figures for days worked during the year (...) are definitely too high", we instead find them more plausible than the lower ones published in other studies. Direct evidence in Federico (1987), taken up by Daniele and Malanima (2011), point in fact to 3,500-4,000 working hours for men, women and children, from the 1880s until 1938. By assuming a 12-hour working day, our estimates for male farmers just about exceed the yearly 3,000 hours. We are hence maybe still underestimating FTE employment in agriculture. Female labourers aged over 65 were eliminated from the sample by the previous papers; we instead included them, as we found no reason to the contrary, weighting them accordingly with a productivity coefficient. However, if this category only accounted for 1-2% of the total active labour-force in the PC years, it dropped even further to approximately 0.5% of full-time male equivalent estimates: the effect of such an inclusion is thus minimal. Finally, a second difference with respect to O'Brien and Toniolo, was the source used for our computations. Whereas O'Brien and Toniolo relied on data from Vitali's first study on agriculture (Vitali 1968) for their 1911 benchmark, we built on Vitali's revised agriculture estimates (Vitali 1970).

³⁸ As pointed out by our referee, this correction for labour intensity may have two adverse implications. On the one hand, it may bias the computation of labour productivity, since changes in productivity would be masked by changes in FTE workers. The user of our FTE data for agriculture in the pre-1951 period should therefore be aware of this. On the other hand, this methodology adopted for the pre-1951 period may imply a break in the series once the official Istat FTE series are employed for the more recent period. As seen however also in Figure 4, there is no evidence of a break in 1951 and our estimates for FTE in agriculture in 1951 adopting our

2.2.2 *Industry and services (1861-1951)*

For industry and services, we instead used the information contained in the industrial censuses, as in Rossi, Sorgato and Toniolo (1993). As referred to in Section 2.1.1, in fact, IC figures did not include seasonal workers, the temporarily unemployed, domestic workers, etc., and can therefore be deemed conceptually similar to the number of full-time workers.³⁹

We thus interpolated, by means of the indicators described in Section 2.1.2, the employment figures found in the ICs (instead of PCs as used for the headcount measure), after having aptly reclassified them, and adjusted them to current boundaries.

In particular, in the four industrial sectors, employment figures at industrial census dates for 1911, 1927, 1938 and 1951 – reclassified according to the 1961 classification and made comparable by Federico (2003), and here converted into series at current boundaries – were used as benchmark years.⁴⁰ For the period 1861-1910 for which no ICs were taken, the 1911 sectoral data were retroplated by means of our employment indicators described in Section 2.1.2 or, if the latter were unavailable, by our sectoral HC series, rescaled by the $IC_{i,1911}/PC_{i,1911}$ ratio, where i is one of our four industrial sectors.

We proceeded in the same manner also for four service sectors, with the only difference that the services censuses were only taken in 1927 and 1951. For PA, not included in the ICs, we instead used the historical series from Istat (1976).

2.2.3 *Recent years (1951-2013)*

The methodology adopted to construct the FTE series for 1951-2013 is identical to the one described in Section 2.1.3 for the HC number of workers, to which we refer. The sources used were: “standard units of labour” taken from Golinelli and Monterastelli (1990), for the period 1951-1970, and spliced full-time equivalent series from Istat official national accounts (Istat 2011a; 2014a; 2014b), for 1970-2013, after having reclassified them accordingly.

One difference however attains to the reconstruction of the number of FTE workers in government and personal services. For the period 1980-2009, Istat (2011b) in fact provides series of the FTE workers in government services; hence we obtained the FTE workers in personal services by subtracting the number of workers in government services (net of

correction to the PC figures are reassuringly similar to the data in Golinelli and Monterastelli (1990) we use thereafter.

³⁹ Clearly this methodology was not viable for agriculture, since industrial censuses do not contain any information on that sector. Hence the alternative methodology described in Section 2.2.1.

⁴⁰ Two issues are here worth discussing. As in Chiaventi (1987), Cainelli and Stampini (2002) and Federico (2003), we assumed the share of workers in one-man firms, which were excluded in the 1911 IC, were the same in 1911 as the one reported in 1927 (approximately 7.1 per cent of the total). Hence we revised the 1911 figures in this manner. The second issue concerns boundaries. Federico (2003, pp. 63-64) discusses the lack of data for the provinces of Trieste and Gorizia (to be added in 1911) and for Pola, Zara and Fiume (to be subtracted until 1937-1939 included); and hence leaves his estimates at boundaries of the time. Given that all our series needed to be at current boundaries, the effect of the change in boundaries in the period 1911-1951 was estimated by using information provided in Zamagni (1987). The areas added to Italy after WWI accounted in 1927 for 3.8 per cent of total employment and the areas subtracted after WWII accounted in 1951 for 1.7 per cent of total employment (Zamagni 1987, p. 43). These adjustments were thus made by us – proportionally – to all sectors.

military recruits) to the aggregate personal/public services figure from Istat (2011a). For the years 1970-1980 and 2010-2013, we used the shares derived respectively from Golinelli (1998) and Ragioneria Generale dello Stato (2012) on national account data, as for the HC reconstruction; we then corrected our estimates by the discrepancy registered in 1980 (for 1970-1980) and 2009 (for 2010-2013) between Istat (2011b) and our calculations on Istat (2011a) and Istat (2014b), respectively.⁴¹

The final figures of the number of FTE workers (1861-2013) for ten sectors are presented in Table A2 of Appendix 2. In order to better appraise our work, we can compare our labour dataset to previous sources. As we have already mentioned, the only existing work which provides long-run labour estimates for Italy is Rossi, Sorgato and Toniolo (1993), abbreviated to RST in this paragraph. However, the scholars only provide FTE data for agriculture, industry and services, and only for the period 1911-1990. Our comparison is therefore necessarily limited to this time-span and to the three aggregate sectors, as Figure 1 shows. *i)* Our estimates roughly coincide with those in RST for agriculture. This is due to the same reconstruction methodology followed, but to the slightly different assumptions made in converting our PC data into full-time equivalents.⁴² *ii)* Our figures for industry show different levels and dynamics, owing to the more numerous and different indicators used, as well as to the different benchmark figures adopted. In fact our benchmark figures for 1911, 1927 and 1938 are Federico's (2003) revisions of IC data, which are lower than those previously published by Chiaventi (1987) and which were used by RST. Our employment level for 1951 is instead lower since we continued to employ the IC figure for that year, whereas RST preferred to use the higher Golinelli and Monterastelli (1990) figure. In particular, the fall in industrial employment between 1929 (peak) and 1932 (trough) which our data register is larger than the one previously documented in RST (28 per cent *vs.* 16 per cent). Furthermore, as well as being more severe, our employment data point to a more protracted recession in the 1930s. We were then forced to linearly interpolate between 1941 and 1951, since, similarly to what RST figures show, no data sources were available for that decade. *iii)* Our series for services is smoother than the one published in RST, driven by our indicators in the transport and communication, credit and insurance and government services sub-sectors, but also by the fact we choose to use only two benchmark years, in 1927 and 1951, years for which census data for services exist.⁴³ Our numbers thus do not bring evidence to a brusque collapse of employment in the services sector in the 1940s, as previously seen in RST. *iv)* Finally, our estimates for the total economy sum up all the mentioned sectoral differences and display the greatest discrepancies relative to the previous source in the 1930s (the percentage difference between the two series peak is in fact nearly 18 per cent in 1934). This downward revision in (industrial) employment in the Great Depression years is reassuringly consistent – although unrelated from a methodological point of view – with a similar revision made to Italy's industrial value added in the same years (Giugliano 2012) and with other qualitative and quantitative evidence produced on the period in recent years. The remaining discrepancies between our total economy series and

⁴¹ The discrepancies are equal to 0.9 per cent in 1980 and 13.6 in 2009. This adjustment implies that for the years 1951-1994 the number of FTE workers in total services and total economy is slightly different from the figures reported in Istat national account data.

⁴² Recall our note 37.

⁴³ It is not clear what industrial census data for services Rossi, Sorgato and Toniolo (1993, pp. 10-11) use for 1911 and 1938.

RST's average at around 4 per cent and progressively vanish after 1970 when official data began to be used.⁴⁴

3. Capital stock estimates for Italy, 1861-2013

In this section we describe the methodology we adopted to construct our data concerning capital stock developments in Italy. This is a novel dataset under the following aspects: *i*) it covers the full time horizon since the country's unification; *ii*) it is fully coherent with the new estimates of sources and uses of national income to be published in Baffigi (2015); *iii*) it hinges upon a homogenous methodology both across the four different capital assets (namely means of transport; machinery and equipment; residential and non-residential construction) and over the full time horizon; *iv*) it takes into account the effects of war destruction, which prove to be biting until relatively recent periods for infrastructure.

3.1 Methodology and links to the empirical literature

Within the national accounts framework, the measurement of capital has been traditionally rooted on the net stock definition, namely the total value of assets surviving from past periods and corrected for depreciation. This concept, which is similar to the wealth definition entering a sector's balance sheet, has been proving less appealing for the purpose of growth analysis, for which measuring the productive stock is more appropriate in view of estimating the flow of productive services provided by capital assets.

In this paper we work with the traditional approach to capital as a net stock mainly because of two reasons: *i*) we plan to replicate the same methodology currently adopted by Istat in a historical perspective; *ii*) in this manner, we find it somewhat easier to account for the asset destruction occurred during warfare. A reassuring evidence is that the net stock of capital is equal to the productive stock under the conditions that the services' decay profile assumed in the measurement of the productive stock replicates the profile obtained by combining the consumption of capital and the retirement pattern assumed in the net stock approach (see OECD 2009).

From an empirical point of view, the net stock of capital may be either derived from the gross capital stock, taking depreciation into account, or be measured by adopting the perpetual inventory method, namely as the sum of past investments weighted by a combined age-price and retirement profile. In both cases, the starting point is to define a pattern of depreciation and a retirement probability distribution for a vintage of each capital asset since it has been first purchased by firms. In this paper we follow the application of the net capital approach to the Italian economy featured in Lupi and Mantegazza (1994); we assume a linear rule for the consumption of capital (depreciation) and, among the possible options received in the literature for the retirement pattern, we adopt a truncated normal density function, as it allows to fix the minimum and maximum service life. An additional key parameter in the measurement of the capital stock is the average service life of single assets,

⁴⁴ The minor discrepancies after 1970 at a sectoral level are due to recent revisions by Istat which we have taken into account, but which were not available at the time of writing of RST.

as it marks the highest marginal probability of retirement. Accordingly, the total capital depreciation in a given year is obtained by applying the vector of the depreciation parameters for the different capital assets to the vector of past investments, with each vintage adjusted for the probability of survival.

Due to data limitations (also present in the underlying investment series), we restricted our estimates of capital stock to the total economy and to four assets, namely means of transports, machinery and equipment, residential and non-residential construction. For each of them we defined the average service life by averaging across their sectoral values provided in Lupi and Mantegazza (1994); we centred the truncated normal distribution of the retirement at the average life so as to obtain an equal distance from it for both the minimum and the maximum in the service life. Accordingly, we assumed the following average lives: 60 years for construction, 17 for machinery and equipment, 12 for means of transports. The supports for the survival distribution run, respectively, from 36 to 84 years, from 10 to 24 and from 7 to 17.

As for the consumption of capital, we adopted a linear rule so that for every vintage of a given asset the initial value of investment vanishes at the maximum service life under the assumed retirement pattern. In particular, for each asset the depreciation rate is obtained by summing the probability of retirement at every year between the minimum and the maximum service life and then dividing this sum by the maximum service life.

It is worth mentioning that under a linear rule, the depreciation proceeds evenly over the productive life of a vintage of an asset conditional on the fact that the vintage remains in place. Accordingly, it does not necessarily imply that the depreciation rate of total capital is also constant over time due to two reasons: *i*) the composition effects coming from different patterns of depreciation and retirement across assets; *ii*) the changing intensity of accumulation over time, either for total investment or for single assets. For example, if a large capital formation in a number of years dramatically levels off in subsequent periods, the depreciation rate typically shows a declining trend; on the contrary, only if the accumulation proceeds in a stationary fashion, we could reasonably expect a constant depreciation rate over time. This possibility turns however less likely as the time span widens. For this reason we deviated from the assumption maintained in the seminal paper of Pagliano and Rossi (1992), who first obtained data for the capital stock in Italy since 1951 by adopting, until 1979, the same depreciation rate obtained by the ratio of total depreciation to capital stock in the year 1980, or the starting point of the official estimates of capital stock in Italy released by Istat.⁴⁵

In the received literature on the Italian economy in a historical perspective, estimates of the capital stock are provided also in Ercolani (1969) for the years 1881-1952, largely by following the same approach as in our work; the underlying data on gross fixed formation proved occasionally problematic in the academic debate. Rossi, Sorgato and Toniolo (1993) provided fresh estimates of capital stocks for the years 1890-1951 based on revised data for investments but by using the same depreciation rates as in Ercolani; for the years after 1951 they preserved the estimates of the mentioned Pagliano and Rossi (1992). Compared with the previous contributions, we adopt a uniform methodology over the full period between 1861 and 2013 in an effort to obtain consistent estimates of net capital stock over time.

⁴⁵ In particular, the depreciation rate was measured by the ratio of the level value of depreciation in 1981 to the level value of net capital stock in 1980.

3.2 Data sources

In addition to the definition of the age-price and depreciation patterns, a fully-fledged application of the perpetual inventory method to measure the capital stock requires reasonably long time series for investment spending. In this respect we benefited from the new estimates provided by Baffigi (2015) for the years since 1861. Since 1995 our series coincide with new data released by Istat (2015) according to the ESA2010; in this respect, we included intangible assets and weapons in the broad category of machinery and equipment. For periods prior to 1861, running back exactly at the year 1861- T_i , with T_i the maximum life of asset i , we started from the very long data on Italian GDP and population provided in Malanima (2003) and we retrieved the investment records by assuming that their ratio to either GDP or population remained constant as long as required at their average values evaluated in years 1861-1865. In particular we proceeded as follows:

- a) investments in residential construction from 1730 to 1861 were estimated so as to keep their ratio to residential population constant over all the period at the average value for years 1861-65;
- b) investments in non-residential construction from 1730 to 1861 were obtained in the same way as in a) with the only difference that from 1730 to 1860 its ratio to GDP (rather than to population) was fixed at the average value of the years 1861-1865;
- c) investments in machinery and equipment were again estimated in the same way as b), by assuming that between 1800 to 1861 its ratio of investments to GDP was equal to the average in the years 1861-1866;
- d) investments in means of transport were also estimated in the same way as b), with the only difference that the first year of estimation was 1820.

3.3 Accounting for war destruction

In order to account for the destructive impact of the war, with the sole reference to World War II due to data limitations, we started from the estimates, put forward in Ercolani (1969), that the destruction of net capital stock in Italy totalled 17.6 billions of 1938 liras between 1942 and 1945. We easily converted this amount into 14,280 millions of 2005 euros and we assumed that it was unevenly distributed over the wartime, with the highest impact concentrated in the years 1943-44. Moreover we imputed to each asset the same share of total destruction as of total capital, implying that a stock loss of about 7,328 millions of 2005 euros for non residential constructions, 4,994 for residential constructions, 1,660 for machinery and equipment and 298 for means of transport (see Table 3).

In a second step, we adjusted our methodology to estimate the net capital stock in order to take account of the long-lasting effects on the asset vintages that first went in place during the wartime. In this respect, we found it operatively easier to consider war destructions as a shock resulting in an abrupt fall in the gross stock of capital with respect to the values we would have otherwise obtained under the retirement patterns assumed for the full period since 1861. In addition, we revised the cumulated sum of the capital consumption, again with respect to the no-war profile, because some (parts of) vintages of assets were destroyed by the war and they could no longer depreciate. For this purpose, for each capital asset we calculated the ratio of cumulated investments that were not completely depreciated at the

beginning of the post-WWII period in year 1946 to the cumulated investments potentially still productive when the destruction occurred. For example, in the case of non-residential constructions, whose maximum service life was assumed at 84 years, we calculated the ratio $A/B=0.976$ with $A=\sum I(t)$ with $t=1862,\dots,1946$ and $B=\sum I(t)$ with $t=1858,\dots,1945$. We applied these ratios to the total destructions estimated for each asset in order to obtain the cumulated depreciation to be deducted from the capital consumption we would have expected in the case of no war occurring. Finally, for each asset we distributed with a linear rule the total savings in depreciation across every year in the remaining productive life after 1946. As a result, the effects of the war destructions on the estimated net capital stock proved long-lasting, by far more for constructions (still to vanish until 2030) than for machinery and equipment (evaporated by 1967) and means of transport (disappeared by 1962). However, in order to avoid large differences with respect to the official estimates of capital stock provided by Istat for the years starting in 1980, we preferred to complete our experimental adjustment for war destructions at 1985 by imputing proportionally larger saving in depreciation for both residential and non-residential constructions between 1946 and 1985.

Moreover, the magnitude of the effects of war destruction proves relatively large, as by the early 1950s we estimate that the total net capital stock was still about 900 millions of 2005 euro (or by almost 2 per cent) lower than the level we would have estimated by ruling out the effects of destruction. As expected, the impact was stronger for constructions (4,300 millions for non-residential units and 3,000 for the residential ones) than for the other assets, and it generally mitigated since the 1960s (see Figure 2). As a final step we updated the reference year from 2005 to 2010 in line with the latest vintage of national accounts released by Istat.

In Table A3 of Appendix 2 we therefore report our net capital stock estimates, disaggregated by asset type, at chained values with reference year 2010 since 1861. In comparison with the alternative estimates of net capital stock received in the previous literature, we find that our data show in general more pronounced changes for total assets. With reference to Rossi, Sorgato and Toniolo (1993) and Ercolani (1969), our estimates show by far a stronger accumulation in the Giolitti period, followed by a more dramatic downward correction over the next decade, in particular during WWI (see Figure 3). The effects of the Great Depression show somewhat later in our data, but the slump was even stronger as it started from more positive developments still in the mid-1930s. Finally, the Golden Age recorded a spurt in capital stock which was significantly stronger when referring to our estimates, before converging to almost the same picture as in Rossi, Sorgato and Toniolo since the late 1960s. The occasionally large discrepancies between the two sources partly reflect the differences in methodology, but we believe they are mostly due to the important revisions in the data for gross capital formation we inherited from Baffigi (2015).

4. The structure and evolution of Italy's employment and capital stock

An analysis of the evolution of Italy's capital and labour inputs to gain insight into the transformation of Italy's productive structure over 150 years goes beyond the scope of this technical paper. Yet we could not resist offering the reader a few charts and sketchy interpretations.

In Figure 4 we start off by comparing at a three-sector level our two alternative labour estimates (HC vs. FTE number of workers) which may be seen as two complementary pieces of information. Until 1951, on the one hand, PC data, on which the first collection of series was based, may be imagined as the upper bound, or the full potential, of Italy's labour input; on the other, IC data, on which the second set of series was built, may be seen as a lower bound. According to the different uses such series may be subjected to, one or the other may be more appropriate. Furthermore, the gap between the two sets of estimates may be interpreted as a proxy of underemployment which characterised Italy's first century of history. This feature was clearly evident (in absolute terms) in agriculture. But in percentage terms it was also significant in industry. In fact in both agriculture and industry approximately one third of workers was "underemployed" between 1861 and 1951. In services the gap between the two labour measures was around half the one registered in the other two sectors (16 per cent). After 1951, our methodology changed: official, or quasi-official, data on employment and FTE employment were used, hence the two datasets rapidly converge, but also due to the actual reduction in underemployment. The current differences reflect the existence of part-time jobs, workers applying to the redundancy fund (*cassa integrazione*), multiple jobs, etc. Since the outbreak of the most recent crisis in 2007 the gap between the two series has widened in industry and services.

In Figure 5 we plot the evolution of Italy's participation rates, computed as the ratio of the HC number of workers or of FTE workers to the resident population. By looking at the HC indicator, in 1861, nearly half of the country's total population was engaged in working activities. By 2012 this participation rate had dropped to around 41 per cent (approximately 43 per cent in 2007, in a local maximum point). As noted also by Daniele and Malanima (2011), the trend of the series is not however monotonically decreasing. A minimum of around 36 per cent was in fact attained in 1972 after which a weak recovery ensued, until current rates. Overall, one can say that the participation rate in Italy has registered a decline of approximately ten percentage points over the past 152 years.⁴⁶ However, when turning to the FTE indicator, after 1951 the latter instead rose from its initial 32 per cent to the current level (39 per cent), roughly comparable to that of the HC participation rate, thus indicating how the number of full-time workers has increased over time, pointing to a drop in underemployment, as seen under a different light in Figure 4.

Even more outstanding was the change in the occupational structure of the economy. Figure 6 uses the theoretically preferable measure of labour (FTE workers) to compute sectoral employment shares in Italy's 150 years of unified history, as in Broadberry, Giordano and Zollino (2013). In 1861 nearly two thirds of the total labour force worked in agriculture, whilst the remaining workers were similarly distributed between industry and services. Whereas until WWI the exodus from agriculture was limited, the 1930s, but mostly WWII, witnessed a significant shift of the labour force towards the non-farm sectors. By the early 1950s the sectoral labour shares had converged to the most balanced structure over the whole period; agriculture was still in the lead however, with about 40 per cent of the labour force devoted to it. By the end of the 1960s, the services sector was instead clearly dominant, having reached a similar share, and continued to increase its importance until current times,

⁴⁶ Daniele and Malanima (2011, p. 9) point to an even more dramatic decline, from 55 per cent to 38 per cent, when considering the present population as a denominator. Furthermore, they provide insightful data on the evolution of male and female participation rates, also disaggregated by age groups.

in which it engages over two thirds (70 per cent) of workers against less than a third (25 per cent) working in industry and with a tiny fraction engaged in agriculture (5 per cent) – a complete reversal of the picture relative to 1861.

This development pattern, noted by Clark (1957) and Kuznets (1974), with the economy dominated by agriculture at low levels of development, followed by a phase of industrial-led development and leading ultimately to a dominance of services, is common also to other, nowadays developed, countries, such as the United Kingdom, the United States, Germany and Japan, but applies only to a much lesser extent in the later developing countries, such as India. Briefly taking on an international perspective, Table 4 compares Italy's employment shares to those of the mentioned countries, taken from Broadberry, Giordano and Zollino (2013). What is clearly different is the timing of the release of labour from agriculture. Italy's structural transformation away from agriculture occurred in fact much later than in the United Kingdom, where the share of employment in agriculture in 1871 was just 22 per cent; Italy took almost another century to reach this level of development. Italy's development pattern was more similar to that of the United States and Germany, where agriculture continued to account for around half of all employment in 1870-71. The similarity becomes even closer when Italy's growth trajectory is compared to that of Japan, where agriculture continued to account for around half of employment until after WWII. Finally, Italy's pattern of structural change clearly looks much more developed than that of India, where agriculture continued to account for nearly two-thirds of employment at the end of the second millennium.

Owing to the detailed level of disaggregation of our newly constructed dataset, we can also compute labour shares within industry and services, as in Figures 7 and 8. Industrial labour was nearly all employed in manufacturing in 1861. The construction industry was the second largest industrial sector, moving progressively, although not continuously, to 30 per cent circa in 2013. In particular, one may note the fall between 1881 and 1901 due to the burst of a real estate bubble, which in turn seriously affected the banking sector.⁴⁷ The extractive and utilities industry were and remain tiny, only accounting for three and five percentage points respectively at their peak (until 1951 and in 2013, respectively). Employment within the services sector was instead more diffused. Trade and personal services were the largest sectors from the onset, roughly accounting for a total 60-80 per cent of the aggregate services sector over the whole period. Transport and communications were also quite stable within a range of 10-20 per cent. Labour engaged in the credit and insurance sector grew from approximately zero to the current four per cent. Finally, government services peaked at 30 per cent in 1971 and currently employ around 20 per cent of workers engaged in the overall services sector. Figure 9 shows the varying labour shares relative to the total economy of all ten sub-sectors, agriculture included, over time.

In Figures 10 and 11, we attempt a comparison between the 1930s Great Depression and the recent recent recession since 2008.⁴⁸ We focus on the industrial sector, which was the hardest hit in both episodes, and provide comparisons based both on our HC measure (see Figure 10) and our FTE measure (see Figure 11) of employment. We set the series used equal to zero in 1929 and 2007 respectively. The first difference between today and the

⁴⁷ The banking sector's share is too small in those years to see any significant decline (see Figure 8).

⁴⁸ For a full-blown comparison of Italy's Great Depression and "Great Recession", based also on the data in this paper, see Baffigi *et al.* (2012).

1930s is that, in the run-up to the crisis, this time round there was no significant boom in employment, which instead rose only after gently since 2000. The main result is that the current recession is less severe, in total and FTE employment terms, relative to the 1930s slump, yet it appears to be more protracted, declining for six consecutive years. As mentioned previously, modern FTE statistics exclude the workers applying to the redundancy fund, counted instead in the HC measure, and would therefore be the preferable measure in this context.

Moving on to our capital stock estimates, Figure 12 depicts the varying composition of net capital stock in Italy. We find that Italy experienced important changes in capital composition as economic development progressed. In the early stage, asset substitution took place mostly from construction, in particular non-residential structures, to machinery and equipment, and to a lesser extent, to means of transport. Since the first decade of the XX century a housing upsurge began, against a temporary recovery and then a steady drop of the share of non-residential construction in total capital and a roughly stable profile of the other assets. This pattern changed in the late 1960s, since machinery, equipment and, to a lower extent, means of transport resumed a positive trend, which was offset by a declining share of housing as the downward correction of non-residential structures came to a halt.

Nicholas Kaldor, in two seminal papers (Kaldor 1957; 1963), listed a number of stylised facts which characterise economic development. Given our new input dataset, we were able to test some of these facts for Italy. In Figure 13 we plot the capital-labour ratio and the capital-output ratio from 1861 through 2013. The first line is interestingly similar to the one obtained by plotting Italy's GDP per head over the same period (here not shown). In particular, the capital to labour ratio soared after World War II when Italy embarked on a catching-up trajectory relative to the leader countries, propelled by industry (and, in particular, by manufacturing; Broadberry, Giordano and Zollino 2013). The capital to output ratio also showed a clear positive trend, gently rising over the 150 years considered, yet with an acceleration after the 1950s.

In Figure 14 we depict profit shares in Italy, computed as the complementary to one of the wage shares, obtained as the total economy current wage bill divided by total value added at current prices.⁴⁹ Whereas the denominator of the wage share is taken from Baffigi (2011) and updated with recent Istat (2014b) data, the numerator is obtained by using unit wage data for four sectors (agriculture; industry; private services and PA), together with our headcount labour dataset. We refer to Appendix 1 for a discussion of the sources and methodology of our experimental reconstruction of sectoral unit wage data. Figure 14 thus gives us an idea of how much income accrued to entrepreneurs/proprietors as opposed to workers over time. On average profit shares in Italy were 0.34, and, by and large, in the 152 years considered they were quite stable around this average.⁵⁰ The two world wars were remarkably destabilizing events in terms of income distribution, but were also the periods in which data present the most problems. For interwar years (1919-1939), we were able to compare our profit shares with the ROE series of listed Italian companies published in

⁴⁹ This computation implies that our profit shares also include land rents, for which, at this stage, we did not have the data. Our wage shares include incomes of both employed and self-employed workers. We in fact attributed to self-employed workers a labour income per head equal to per worker compensation of employees, as is standard in the literature (e.g. Clark 1957, Kuznets 1966).

⁵⁰ This result is quite reassuring since often in international historical TFP comparisons, wage shares are set constant at 0.65 and profit shares at 0.35 (see, e.g., Broadberry, Giordano and Zollino 2011; 2013).

Zamagni (2002, pp. 253-254): year-to-year variations of the two indicators were very similar, although our profit shares registered greater fluctuations. Going back to our Figure 14, until the 1970s profit shares remained more or less stable below the average; thereafter they displayed an upward trend, compatible with declining wage shares, until the outbreak of the recent global financial crisis. The decline in wage shares recorded in the past decades, common to all advanced economies, has been attributed in the literature to many factors, such as increasing globalization, the privatization of firms and the subsequent fall in the bargaining power of workers, the drop in investment good prices as a result of the ICT revolution which led to a substitution from labour to capital, as also seen in the capital-labour and capital-output ratios computed in Figure 13.⁵¹

On the whole, our data finally allow the economic historian to time and quantify the structural transformation of a country which: *i*) in its infancy and for nearly a century, was a rural, labour-intensive economy, affected by massive underemployment in both agriculture and industry; *ii*) especially after WWII, underwent a spectacular industrialization process, which benefited from the release of workers from the farm sector, that pushed both industrial (full-time) labour employment and capital-to-labour ratios up, and which was accompanied by the growth of those services sectors (trade; transport and communications; credit and insurance) which were key to the structural change occurring; and *iii*) is currently in its mature phase of a tertiary economy, in which the services sector engage over two thirds of the Italian labour-force, of which one fifth is currently employed in PA. What has been outlined is therefore a traditional economic development process, whose timing, in terms of its stages, however, was different to the one registered by other selected OECD countries, as briefly seen in Table 3. Finally, indicators such as Italy's participation rate, and Italy's wage or profit shares, can now be computed for the over 150 years of the country's unified history, owing to our dataset; the next step would to be to set the latter in an international perspective to draw insightful comparisons and interpretations.

5. Concluding remarks

The present paper has narrated all the details of the methodology underling the construction of new historical estimates of labour and capital stock from Italy's political unification in 1861 to present days. Naturally, the dataset presented is strongly conditioned by the manifold assumptions one has to make when attempting such an endeavour, given the scattered and sparse data sources available. Yet in this attempt we believe to have filled in a gap in the existing historical statistics literature. We are confident our series can be improved upon and must be regularly updated to absorb any new releases of data, but we believe this work to be a building block, which rests upon many previous building blocks, owing to which one step further – or higher, if one wishes to remain in the metaphor – has been made in the reconstruction of Italy's historical national accounts.

Future research required in the area can be summarized along four lines. A complete dataset of labour input needs to be complemented by the reconstruction of *sectoral series of*

⁵¹ See, amongst others, Blanchard and Giavazzi (2003); Torrini (2005; 2010); Azmat, Manning and Van Reenen (2012); Karabarbounis and Neiman (2014); Giordano and Zollino (2016).

hours worked for the over 150 years considered. Only fragmented and scanty evidence exists for the period prior to 1951. Future research hence needs to invest in the search for more primary historical sources, and then to link them to the most recent official ones. These historical series would in fact be able to shed light, for example, on the change in actual working time over 150 years, which a participation rate, as computed by us in Section 4, cannot capture. It could also set the stage for the calculation of a measurement of labour quality, such as the income-based approach proposed by Jorgenson (1990), attained by cross-classifying the estimated labour-force by different attributes that imply different marginal productivities (age, sector of activity, hours worked) and by weighting each category of workers by its average income.⁵² This in turn would allow, for example, to compute TFP in Italy as a residual in a standard growth accounting framework with a smaller probability of mistaking improvements in the quality of the labour input as technological progress or efficiency gains.⁵³

An interesting twist to the labour dataset would be to break it down by *gender*. The issue of female employment is in fact extremely relevant in Italy in modern times, when, notwithstanding its increase since the 1970s, especially in the services sector, female employment is well under the European average. Data disaggregated by gender are available in the PCs;⁵⁴ the challenge would be to reconstruct the figures in inter-census years.

Thirdly, constructing *sectoral capital stock estimates* is another important goal which should be attained. Currently, long sectoral investment series are not available, so the starting point would be a construction of the latter starting from the new series presented in Baffigi (2015). This type of sectoral reconstruction of capital stock would finally open up the possibility, for example, of computing sectoral mark-ups or total factor productivity growth in the long-run which has thus far been lacking for Italy (see Giordano and Zollino 2016 on this). Furthermore, distinguishing between private and public capital would also be insightful.

Finally, in a long-run analysis of a country's economic development, capital and labour are only two of the relevant factors of production to be considered. Given that until WWII Italy was a prevalently agricultural economy, at least in employment terms, *land* deserves special attention, intended both as arable area and as incorporated capital (land reclamation, trees, etc.). Since both land area and land capital have grown less than labour and capital over time, this may suggest an overestimation of the capital growth rate, and hence an underestimation of the TFP residual, computed in Broadberry, Giordano and Zollino (2011; 2013). Furthermore *energy* is another crucial input, which in the Italian case led to significant, and costly, energy imports, given its lack of natural resources. Rossi, Sorgato and Toniolo (1993) provide a reconstruction of energy imports for a century of Italian history, but the latter would now need to be revised in order to take into account the new national accounts framework (Baffigi 2015) and be extended to cover the over 150-year period.

⁵² In this case, a more carefully built and more finely disaggregated sectoral wage dataset than the one outlined in Appendix 1 would also need to be built.

⁵³ In Broadberry, Giordano and Zollino (2011; 2013), only the quality of capital was taken into account when computing TFP as a residual.

⁵⁴ We have already taken a step in this direction when we constructed our FTE estimates for agriculture, in which we disaggregated by gender and by age. See also Daniele and Malanima (2011) on the topic.

Tables and figures

TABLE 1. Table of conversion for the 1871 and 1861 population censuses

Sectors	1961 census classification	1871 census classification	1861 census classification
Agriculture, forestry, & fishing	1.00	I (EXCEPT Ie1-Ie2-Ig); XVI2	Ia; Ib; Ic (41%)
Extractive	2.00	Ig; XVII11; IIp5 (1%) -VII (2%)	Ila
Manufacturing	3.00	from Ila1 to Ila3; from Ila5 to Ila9; from Ila11 to Ila16; from Ila18 to Ila31; I Ib2; from IIc1 to IIc5; from IIc7 to IIc14; I Ie2-I Ie3; from I Ie4 to I Ie6 (5%); I Ie10-I Ie11; I Ie8 + I Ie13 + I Ie14 (11%); I Ie20; from I Ie22 to I Ie26; I Ie30; I Ie33; from I If3 to I If6; I If12-I If13; I If15; I Ig; I Ih; I Ii; I Ij; I Ik; I Il; I Im (EXCEPT I Im4); I In (EXCEPT I In6); from I Io2 to I Io4; I Io6-I Io7; I Ip1 to I Ip3; I Iq; I Ir (EXCEPT I Ir11); from I Is1 to I Is4; X IIIa4; X IVa2 (50%); I Ip5 (30%) -VII (63%); X VI10 (60%)	Ic (50%); I Ib; I IIIa-IIIb-IIIc-IIIe-IIIg-IIIh; I Ii (5%); I Ij (86%); Vh
Construction	4.00	I If1-I If2; I If8 + X VI6 (50%); I If9 (50%); I If10-I If11; I If14; X VI3	IIIc; IIIj (0.4%)
Utilities	5.00	I If9 (50%); I Is5; I Ip5 (0.1%) -VII (0.2%)	IIIj (0.02%)
Trade	6.00	I Ia4-I Ia10-I Ia17; I Ib1; I Ic6; I Ie1-I Ie7-I Ie9-I Ie12; from I Ie4 to I Ie6 (95%) ; I Ie8 + I Ie13 + I Ie14 (89%); from I Ie15 to I Ie19; I Ie21; I Ie27 (65%); I Ie28-I Ie29-I Ie31-I Ie32-I Ie34-I Ie35; I If7; I Im4; I Io1-I Io5-I Io8-I Io9; I Ir11; I III4; I III6 (70%); I III7-I III8; I III9 (70%); I III11-I III12 (90%); from I III13 to I III18; I IVa6; I IVc; from V I3 to V I5; X I9-X I10; X IIIa9; X V3-X V4; X VII1-X VII4-X VII7-X VII8	IIIi (95%); IIIj (13%); I va; I vb (84%)
Transport & Communications	7.00	I III6 (30%); I III9 (30%); I III19; I va (EXCEPT I va6); I vb; V I2; X VI10 (40%)	I vb (16%); I vc
Credit and Insurance	8.00	from I III1 to I III3 I III10 V I1 (15%)	V i (1%)
Private services	9.00	I e1-I e2; I Ic15-I Ic16; I Id1-I Id2; I Ie27 (35%); I If8 + X VI6 (50%); I If16; I In6; I Ip4; I Ip5 (70%); I Is6; I III5; I III11-I III12 (10%); V I1 (20%); from V I6 to V I8; V III4-V III15; I X; X; X I1 (80%); from X I2 to X I4; X I5 (60%); X I6; X I7 (95%); X I8 (22%); X II (15%); X IIIa (EXCEPT X IIIa4-X IIIa9); X IIIb; X IVa1 X IVa2 (50%); X IVa3 X IVb; X V1-X V2; X VI5-X VI9	Ic (9%); Va-Vb (80%); Vc (60%); Vg (22%); Vd-Ve-Vf; Vi (22%); VI; X
PA	10.00	V II; V III (EXCEPT V III4-V III15); X I1 (20%); X I5 (40%); X I7 (5%); X I8 (78%) X II (85%)	Va-Vb (20%); Vc (40%); Vg (78%); Vi (9%); VII-VIII

Source: see text.

TABLE 2. The conversion of labour force into full-time equivalent labour inputs

Categories of farm labour	Estimated days of labour	Conversion coefficients
Male labourers aged 15-65	265	1.00
Landless day labourers aged 15-65	220	1.00
Children aged 10-15	120	0.5
Males over 65	120	0.6
Females aged 15-65	120	0.6
Females over 65	120	0.5

Source: O'Brien and Toniolo (1991).

TABLE 3. War destruction of capital assets in Italy, 1942-1945
(millions of euro; chained values, reference year 2005)

Year	Non residential construction	Residential construction	Machinery and equipment	Means of transport
1942	1221.422	832.342	276.626	49.718
1943	2442.844	1664.684	553.253	99.436
1944	2442.844	1664.684	553.253	99.436
1945	1221.422	832.342	276.626	49.718

Source: see text.

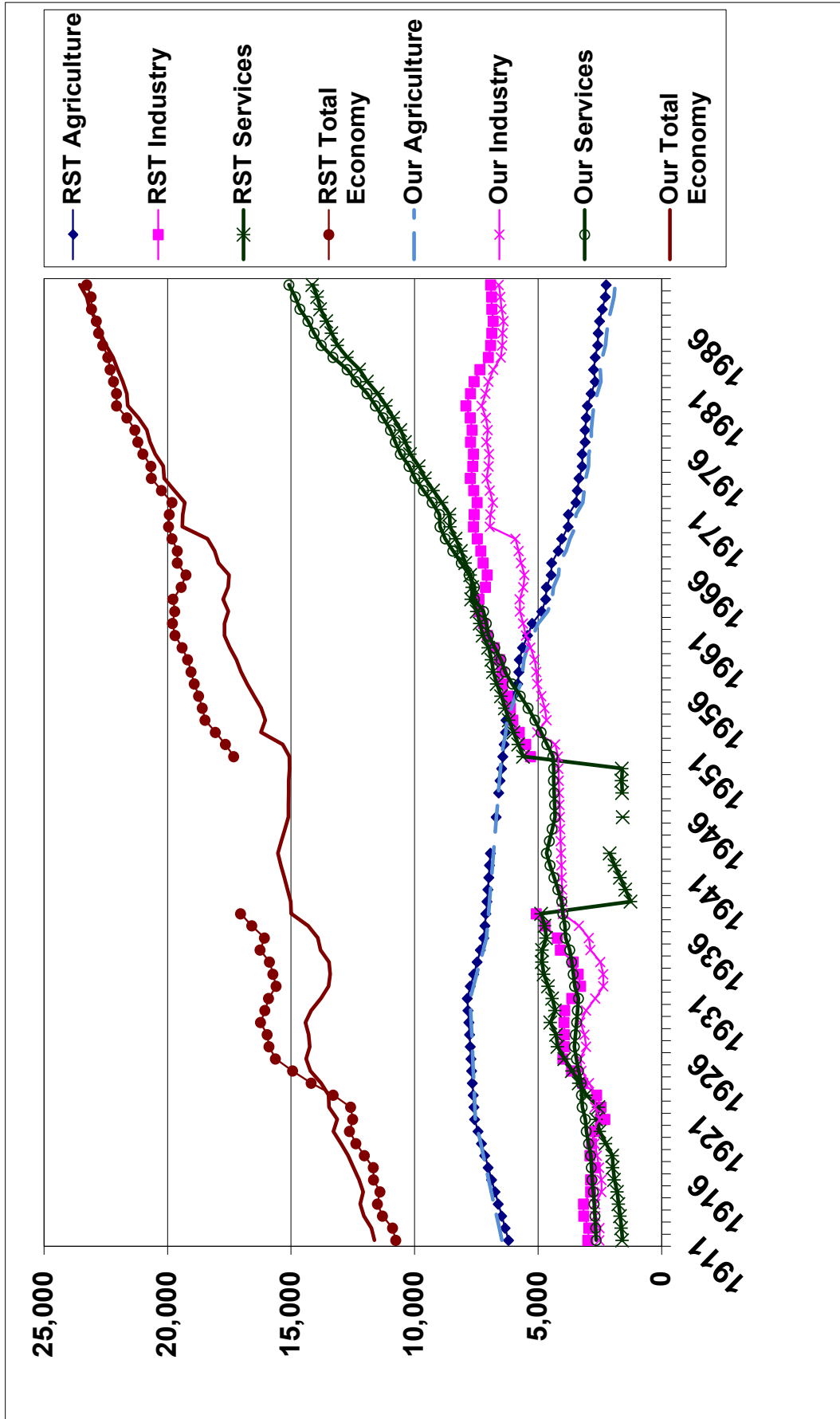
TABLE 4. Sectoral shares of employment (headcount) in a sample of countries, 1870-2007
(percentage shares)

A. Italy	Agriculture	Industry	Services		B. United Kingdom	Agriculture	Industry	Services
1871	68.1	15.8	16.2		1871	22.2	42.4	35.4
1911	59.1	23.5	17.4		1911	11.8	44.1	44.1
1921	59.1	22.5	18.4		1924	8.6	46.5	44.9
1931	53.8	25.4	20.8		1930	7.6	43.7	48.7
1936	52.0	25.6	22.5		1937	6.2	44.5	49.3
1951	44.3	31.0	24.8		1950	5.1	46.5	48.4
1973	17.4	36.9	45.7		1973	2.9	41.8	55.3
1993	6.3	29.4	64.3		1990	2.0	28.5	69.5
2007	3.9	27.1	69.0		2005	1.4	18.4	80.2
C. United States	Agriculture	Industry	Services		D. Germany	Agriculture	Industry	Services
1870	50.0	24.8	25.2		1871	49.5	29.1	21.4
1910	32.0	31.8	36.2		1913	34.5	37.9	27.6
1920	26.2	33.2	40.6		1925	31.5	40.1	28.4
1930	20.9	30.2	48.9		1930	30.5	37.4	32.1
1940	17.9	31.6	50.5		1935	29.9	38.2	31.9
1950	11.0	32.9	56.1		1950	24.3	42.1	33.6
1973	3.7	28.9	67.4		1973	7.2	47.3	45.5
1990	2.5	21.8	75.7		1990	3.4	39.7	56.9
2005	1.5	16.7	81.8		2005	2.1	25.5	72.4
E. India	Agriculture	Industry	Services		F. Japan	Agriculture	Mining/ Manufacturing	Construction
1875	73.4	14.5	12.1		1891	75.8	9.0	1.4
1910/1911	75.5	10.3	14.2		1920	55.4	16.2	2.8
1929/30	76.1	9.1	14.8		1950	48.3	17.6	4.3
1950/51	73.6	10.2	16.2		1973	16.0	27.3	9.3
1970/1971	73.8	11.1	15.1		1990	9.2	23.5	9.2
1999/0	64.2	13.9	21.9		2007	5.1	17.4	8.4
					F. Japan	Facilitating Industry	Services	
					1891	1.0	12.8	
					1920	3.6	22.0	
					1950	5.1	24.7	
					1973	6.3	41.1	
					1990	6.2	51.9	
					2007	6.4	62.7	

Sources: Our updated estimates for Italy; Broadberry, Giordano and Zollino (2013) for the other countries.

FIGURE 1

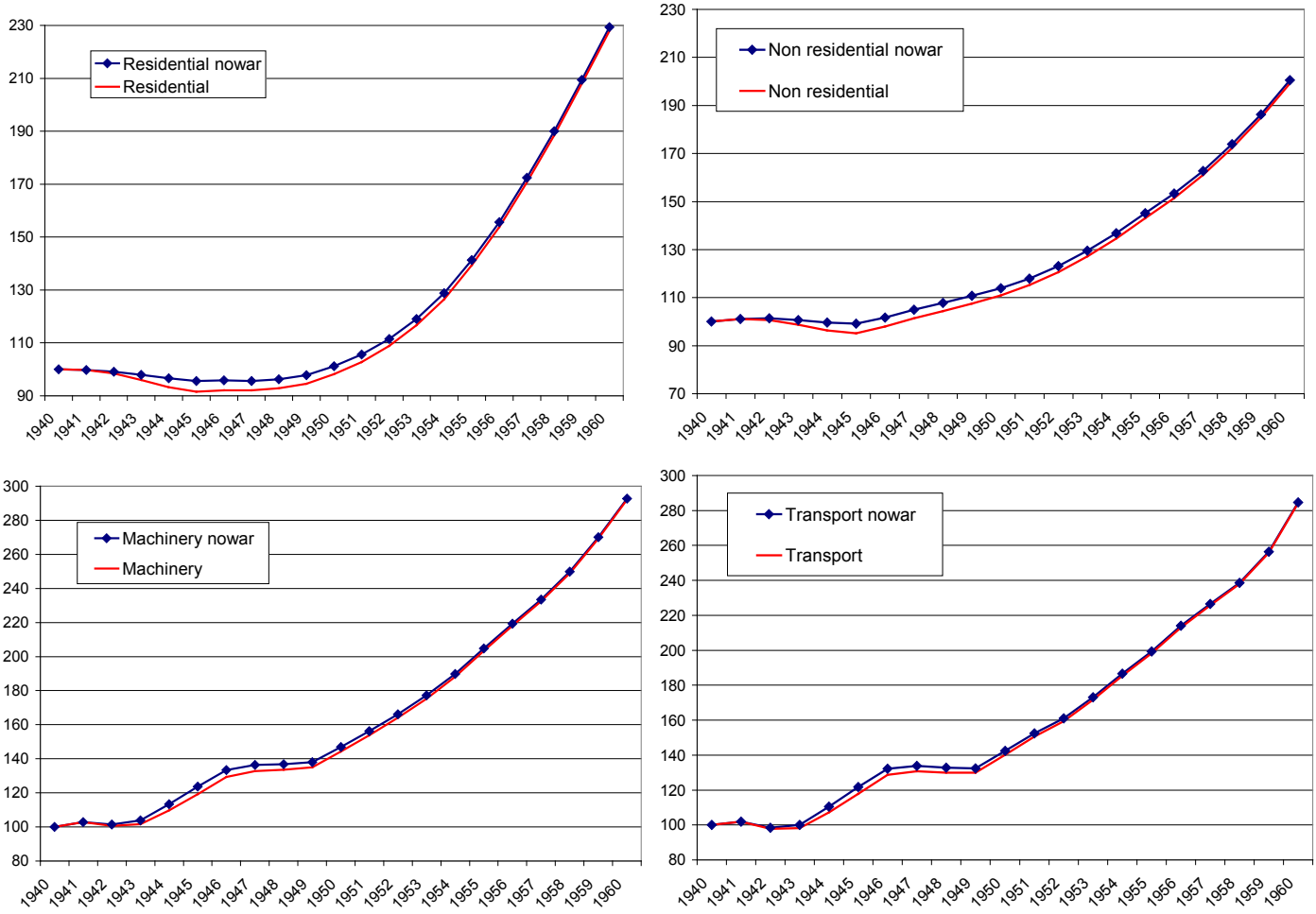
A comparison between our new aggregate FTE labour estimates and Rossi, Sorgato and Toniolo (1993)



Sources: Table A2 and Rossi, Sorgato and Toniolo (1993).
 Note: The time-span considered is limited to that of Rossi, Sorgato and Toniolo (1993).

FIGURE 2

The effects of WWII destructions on the estimated net capital stock.
(chained values; indices 1940=100)



Source: Elaborations on Table A3.

FIGURE 3

**Total net capital stock in Italy:
a comparison with previous estimates**

Figure A: levels (chained values; millions of euros)

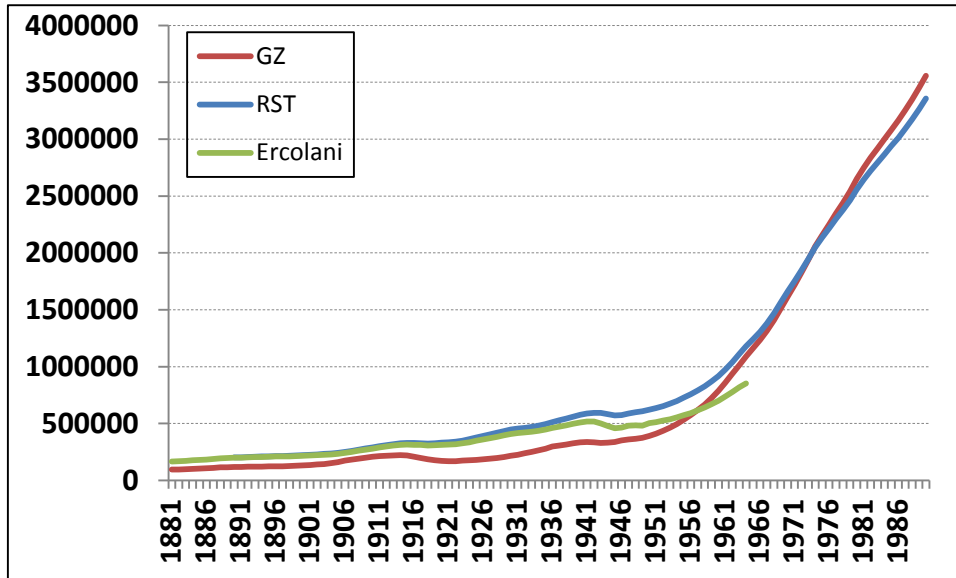
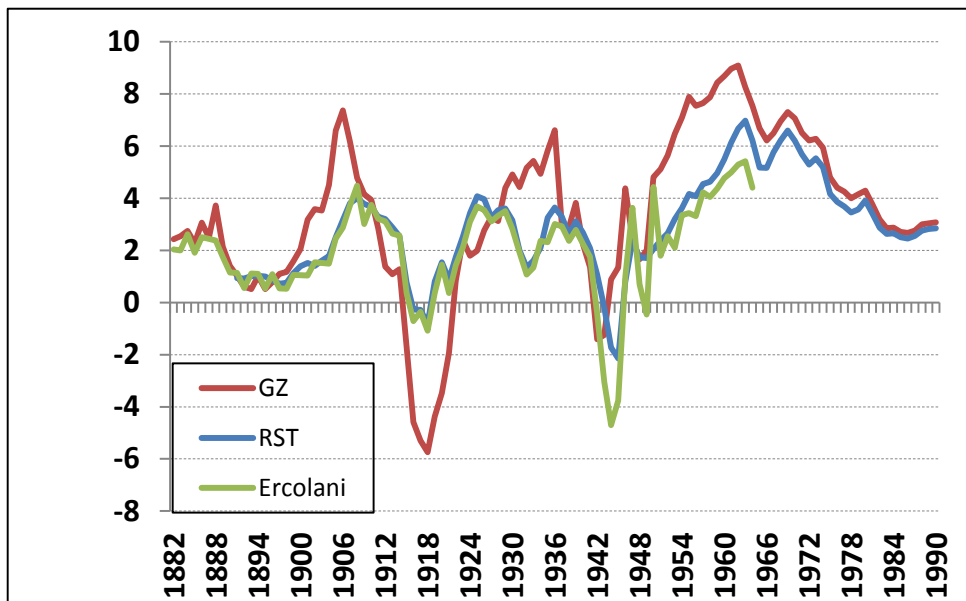


Figure B: percentage changes (chained values)

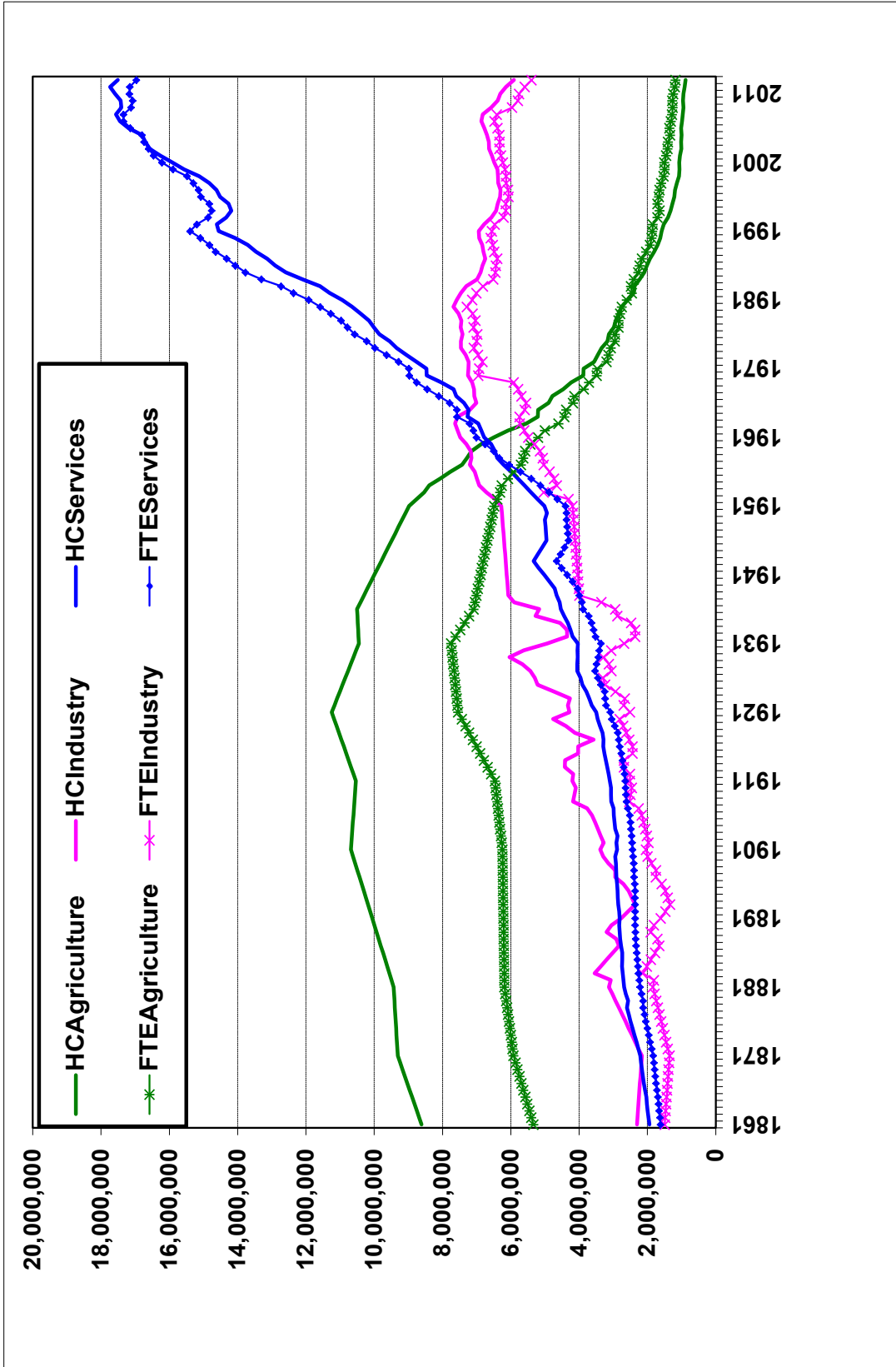


Sources: Table A3, Rossi, Sorgato and Toniolo (1993) and Ercolani (1969).

Note: The time-span considered is limited to that of Rossi, Sorgato and Toniolo (1993) and Ercolani (1969).

FIGURE 4

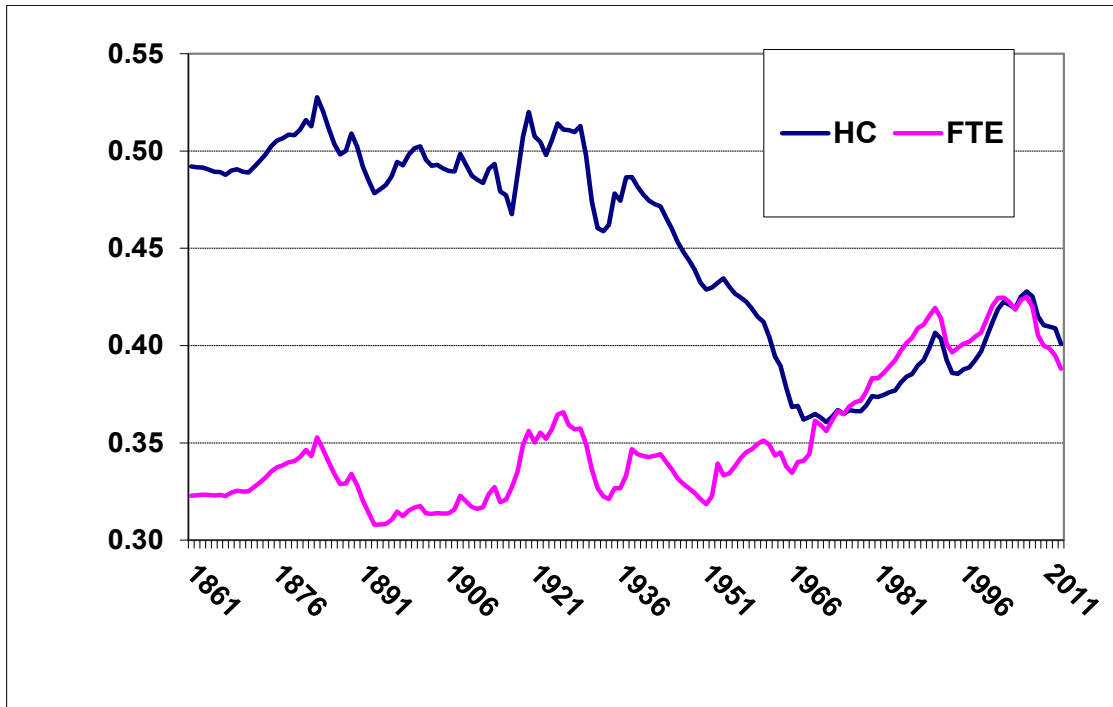
Aggregate headcount (HC) and full-time equivalent (FTE) labour estimates in Italy, 1861-2013



Sources: Tables A1 and A2.

FIGURE 5

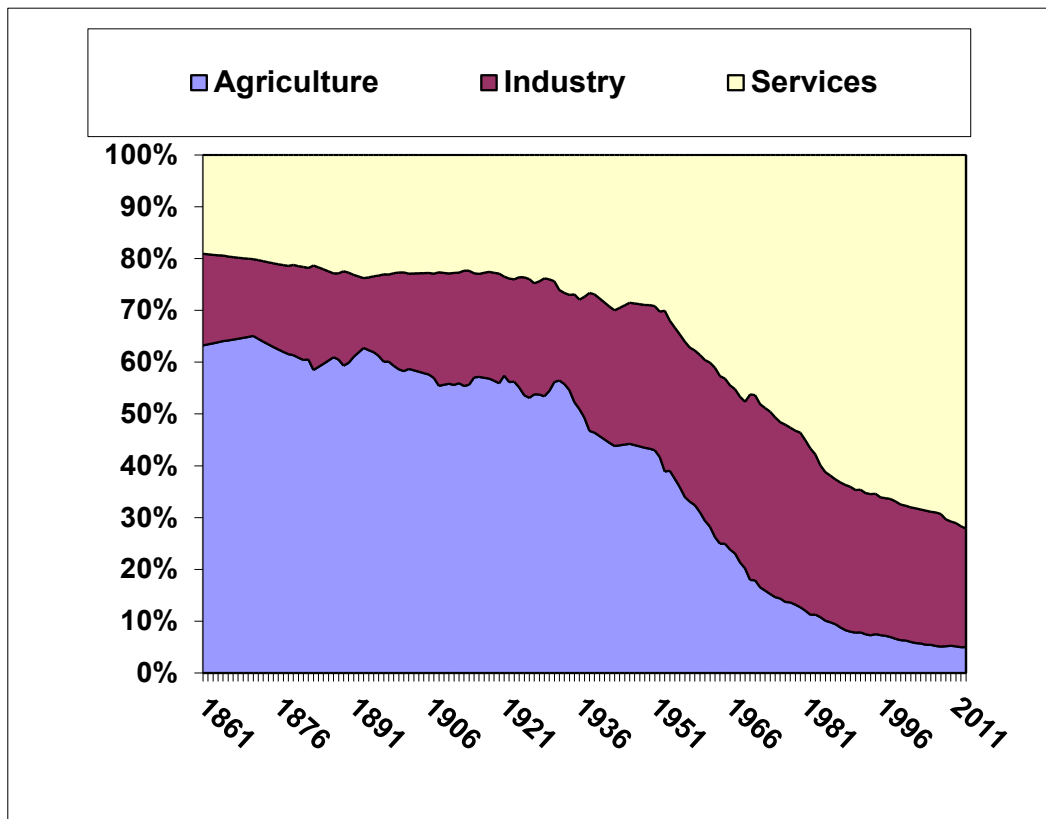
The participation rate in Italy, 1861-2012



Sources: Tables A1 and A2 for labour and Baffigi (2014) for population at current borders.

FIGURE 6

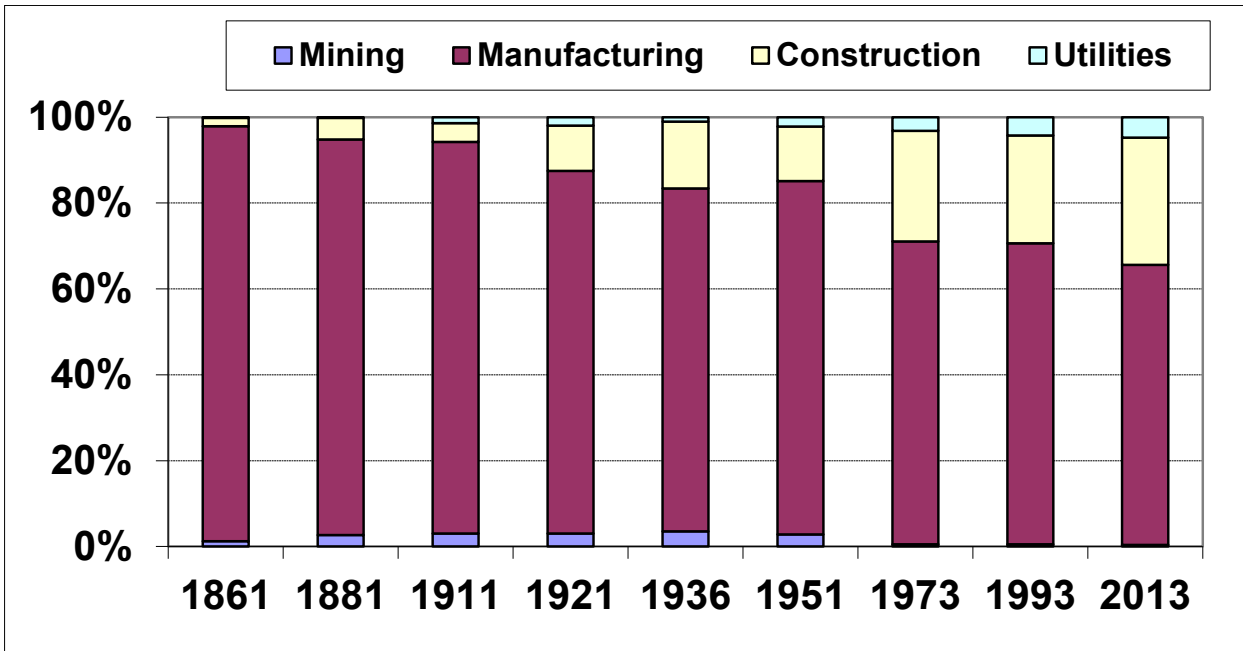
Full-time equivalent (FTE) employment shares in Italy, 1861-2013



Source: Table A2.

FIGURE 7

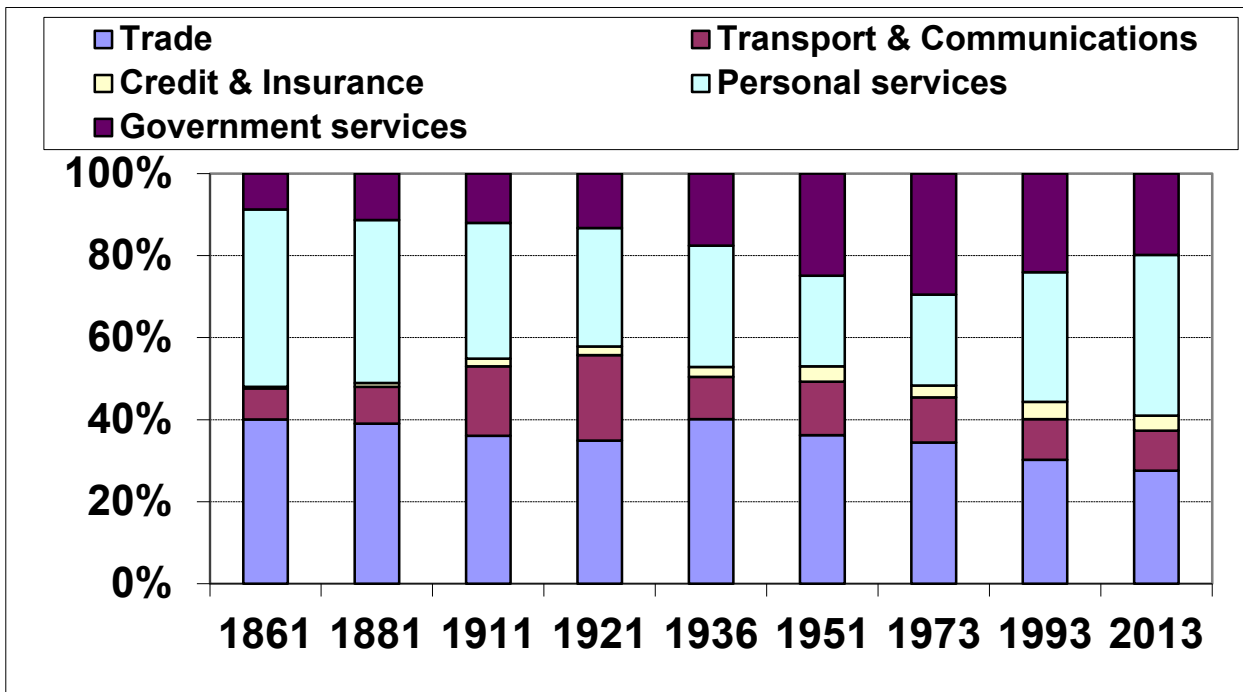
FTE employment shares in industry in Italy in selected years



Source: Table A2.

FIGURE 8

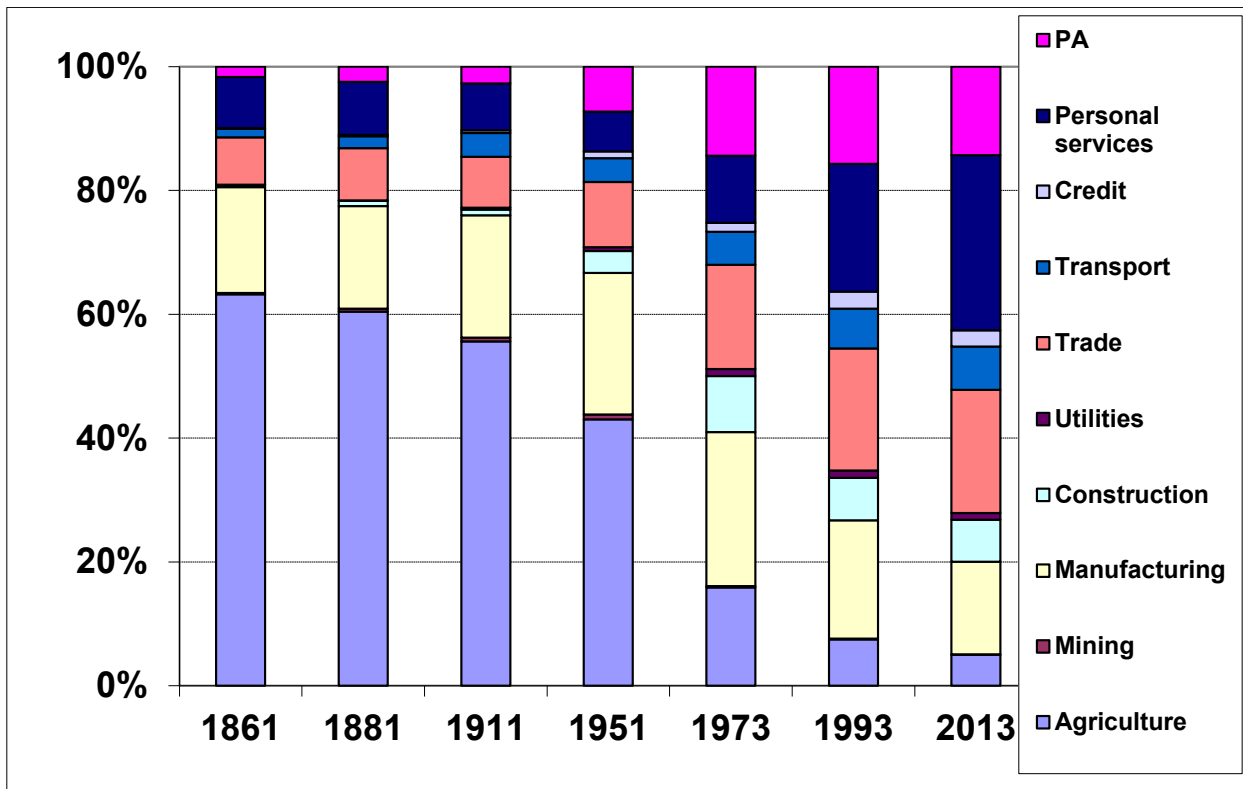
FTE employment shares in services in Italy in selected years



Source: Table A2.

FIGURE 9

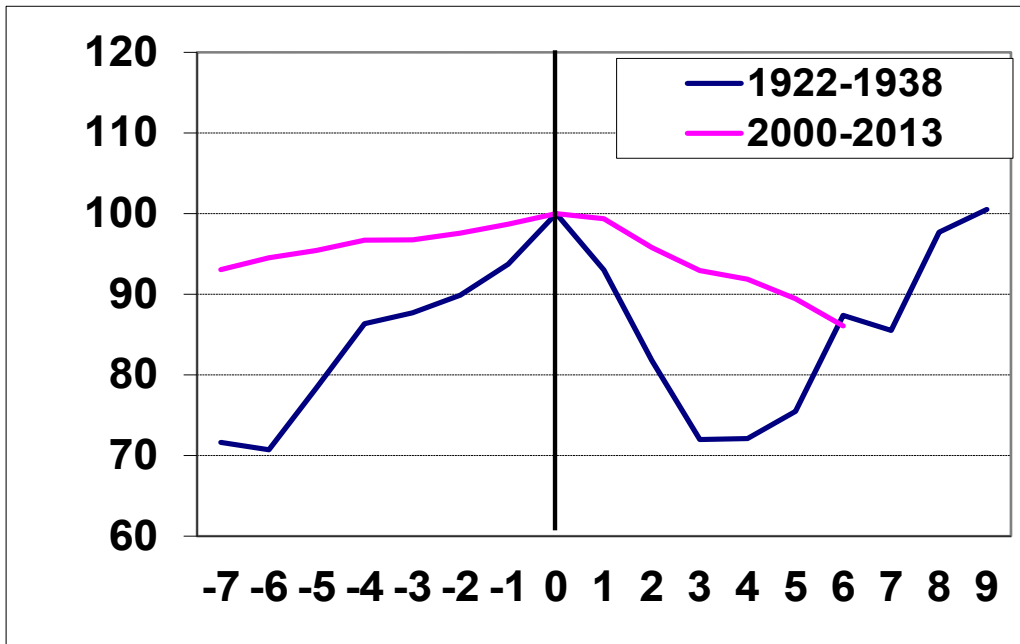
FTE employment shares in total economy in Italy in selected years



Source: Table A2.

FIGURE 10

Industrial employment trends in Italy in the Great Depression and in the Great Recession
(indices)

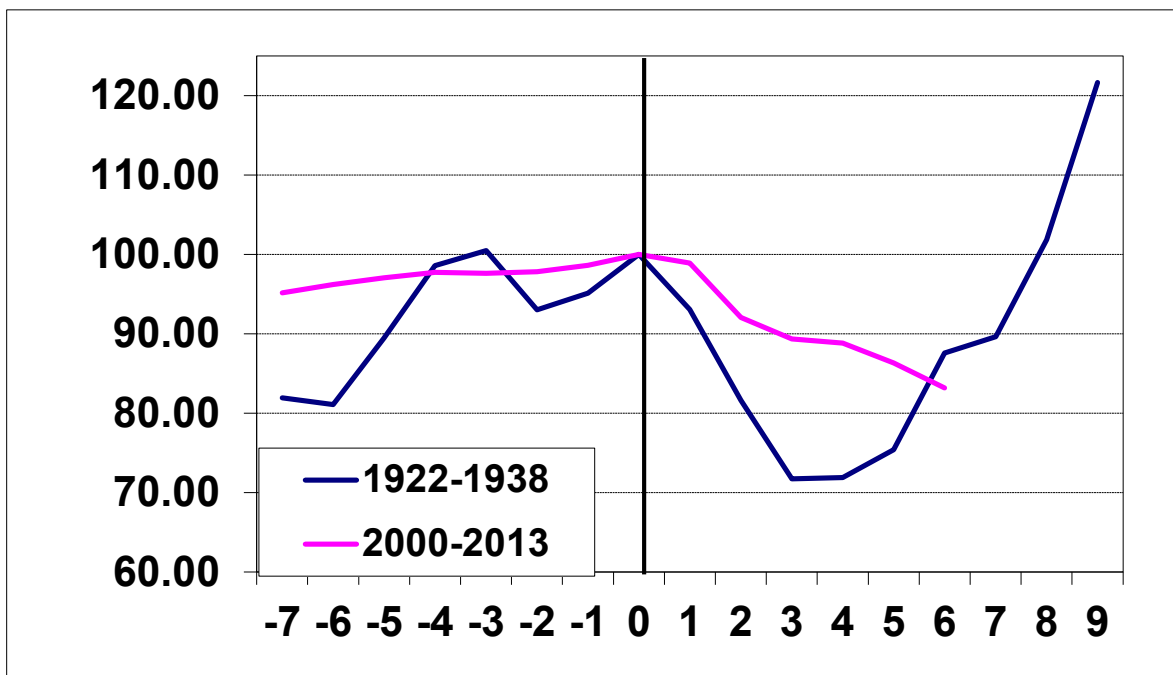


Source: Table A1.

Note: The series are set equal to 100 in 1929 and 2007, respectively.

FIGURE 11

Full-time equivalent industrial employment trends in Italy in the Great Depression and in the Great Recession
(indices)

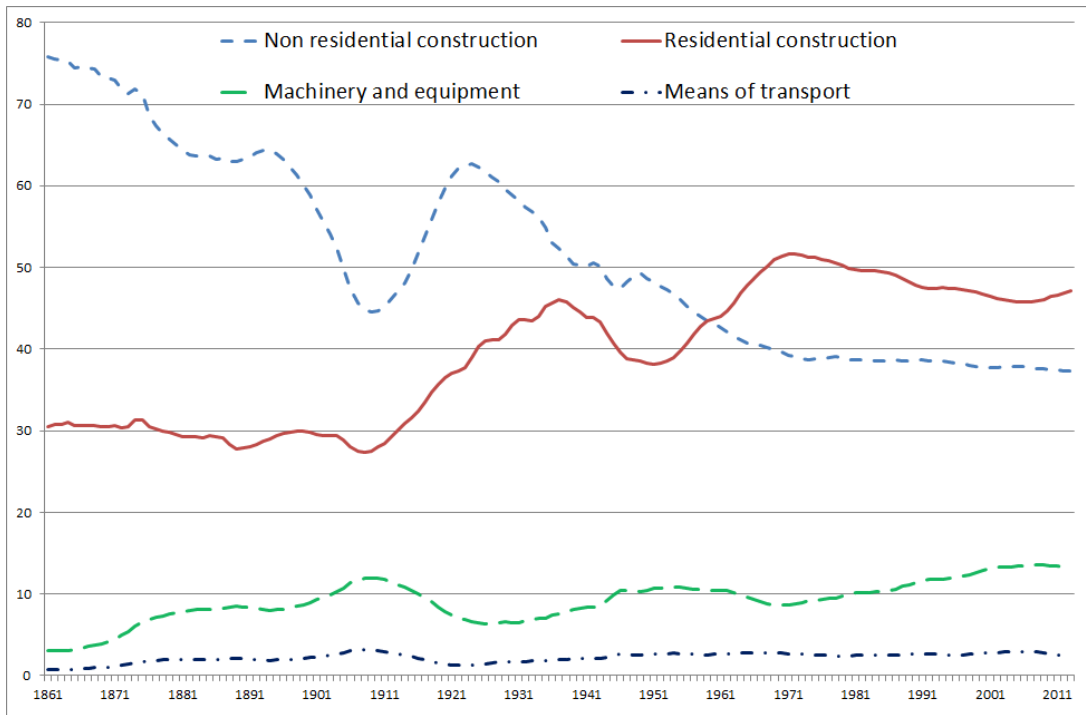


Source: Table A2.

Note: The series are set equal to 100 in 1929 and 2007, respectively.

FIGURE 12

Composition of net stock of capital in Italy, 1861-2013
(chained values, reference year 2010; percentages of total stock)

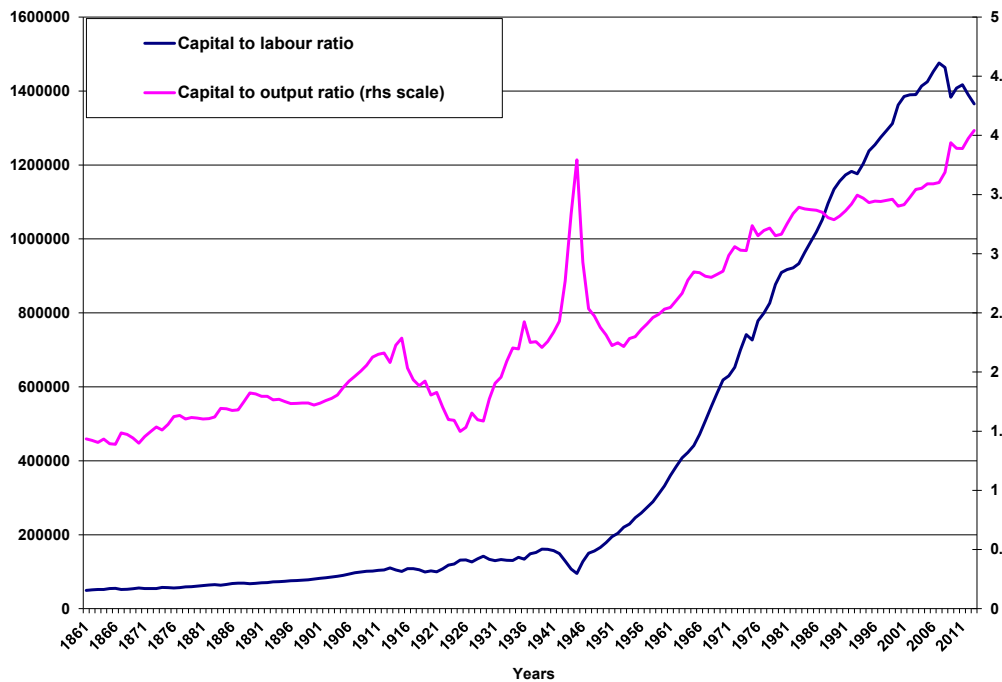


Source: Table A3.

Note: Sum of shares may differ from 100 due to the non-additivity issue concerning chain value sub-totals.

FIGURE 13

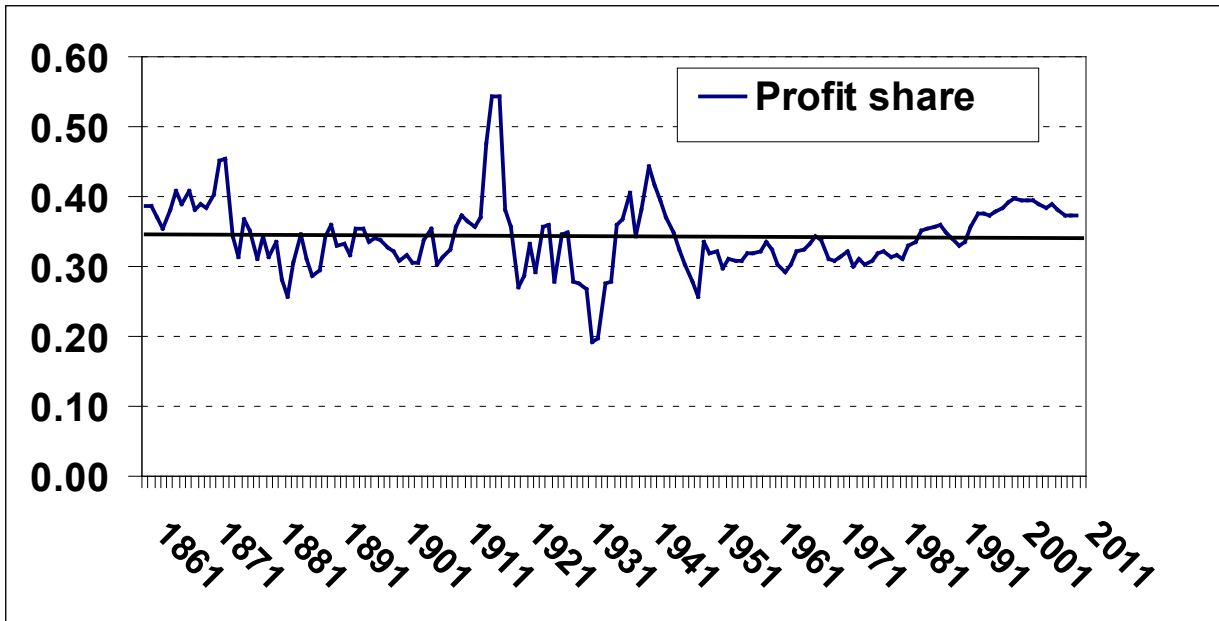
Italy's capital to labour and capital to output ratios, 1861-2013



Source: Tables A2 and A3 for labour and capital, Baffigi (2015) and Istat (2014b) for total economy value added.

FIGURE 14

Italy's profit shares, 1861-2013
(percentage shares)



Sources: Tables A1 for labour, our wage data as described in Appendix 1, Baffigi (2015) and Istat (2014b) for total economy value added at current prices.

Appendix 1. Italy's wage data, 1861-2013

In order to construct wage shares in Italy for the overall period 1861-2013, we pieced together wage data from various sources, which for modern years roughly coincided with Istat's official national accounts, but which for the pre-1951 period were heterogeneous and fragmentary.

In detail, starting from the most recent years, we computed unit wage shares for four sectors (agriculture, industry, private services and PA) for the period 1992-2013 by dividing the total annual wage bill of employees by the number of employees (*occupati dipendenti*), derived from Istat (2013). We then retropolated the sectoral unit wages for 1992 back until 1970 by using similarly constructed unit wage series from Istat (2011a). These series were already in euros. We next retropolated the 1970 sectoral figures back to 1951 by using similarly constructed unit wage series derived from Istat (1973) and converted into euros (by applying the fixed exchange rate of 1,936.27).

For the period 1861-1951 we had to make do with the very few sectoral data we were able to find. For agriculture and industry in the period 1861-1913, we relied heavily on Fenoaltea (2002), who, amongst various series, also reports average daily wages for unskilled workers in industry and agriculture. First, Stefano Fenoaltea presents an index of wages in manufacturing and mining industries¹ and an index of unskilled workers' wages in construction.² Secondly, by computing a three-year moving average of the average between the two previously constructed indices, Stefano Fenoaltea obtains a daily nominal wage series of unskilled industrial workers. The wage series of unskilled agricultural workers is instead built up from wage series referring to Lombardy (Albertario 1931) and national wage series in Arcari (1936), and completed on the basis of the previously mentioned industrial index. We therefore took the two daily wage series for agriculture and industry, but converted them into annual wage series by assuming 220 days of work for the former sector (assumption used by O'Brien and Toniolo 1991 for day labourers) and 294 for the latter sector (assumption made by Zamagni 1995 for the period 1911-1938).

For the following period, we continued to use Arcari (1936) indirectly for nominal wages in agriculture. She in fact collected data on hourly and daily wages for the period 1905-1933 for men, women and children day labourers and was a much used source (e.g. the mentioned Fenoaltea 2002, Rossi, Sorgato and Toniolo 1993, Hatton and Williamson 1998). However, Zamagni (1981a) criticised Arcari's aggregation methodology: to obtain a provincial estimate of wages, Arcari in fact computed a simple average over all the wages collected in each province; a simple average of provincial estimates then led to her regional estimates, and finally a simple average of regional estimates produced her national ones. Zamagni (1981a) instead used employment census data to compute regional and national weighted averages and thus produced a revised series for (national and regional) male daily and hourly wages, beginning in 1913. She also extended Arcari's series until 1938 with consistent sources.³ We thus used Zamagni's elaborations on Arcari (1936). Finally, we extended the series of day labourers' hourly wages until 1951 by computing national averages from *Annuario Statistico dell'Agricoltura Italiana*, various years, the source also used by Zamagni (1981a). Once again, daily wages were converted by us into annual wages by assuming 200 working days.

¹ This series are derived from wage data in an 1888 volume of *Annali di Statistica*, in various volumes of Direzione generale di statistica, *Annuario statistico italiano* and in *Bollettino dell'Ufficio del Lavoro*.

² The construction series are taken from official publications by Direzione generale della statistica (1888) and Ufficio del lavoro (1907), as well as from scholars' publications on wages in four major Italian cities. See Fenoaltea (2002, p. 298) for the details. The wages include both basic rates and piece-work earnings.

³ These sources were: *Bollettino di statistica agraria e forestale* for 1934-35 and *Annuario Statistico dell'Agricoltura Italiana* for 1936-38.

For the industrial sector, an official wage series was that of workers insured by the Istituto Nazionale per l'Assicurazione Contro gli Infortuni sul Lavoro (INAIL – National Institute of Insurance Against Industrial Accidents), which had the advantage of being a continuous series from 1898 onwards. This was used by many scholars, such as Vannutelli (1961), Ercolani (1969) and Fuà (1972), in order to gauge long-run trends in the Italian economy.⁴ However, Zamagni's (1976) critique of the series is reason enough to search for an alternative industrial annual wage series, which fortunately exists.⁵ From 1928 onwards, in fact, a yearly measurement of industrial wages was systematically undertaken by Confindustria and regularly published in *Bollettino delle notizie economiche*.⁶ Zamagni (1976) therefore constructed daily wage series for industrial workers in medium and large-sized firms for the period 1911-1946, by pushing back this Confindustria series, using the few other official scattered sources available for those years.⁷ Zamagni (1991) then revised Zamagni (1976) estimates for the period 1913-1922. The selection and combination in a weighted average of the extant fragmentary sources was, in this revision, based on: *a*) two solid, previously reconstructed, benchmark years (1911 and 1928), indicative of the average industrial wage; *b*) the reconstruction of yearly series of wage rates for strategic sectors; *c*) the selection of appropriate weights according to the economic events of the time (Zamagni 1991, p.138). By combining Zamagni (1976; 1991), a continuous industrial nominal wage series can be obtained from 1913 to 1946.⁸ To extend the series until 1951 we used industrial data from Direzione generale della statistica, *Annuario statistico italiano*, which, as Battilani, Felice and Zamagni (2014) confirm, in the final part appear to be quite similar to Zamagni's data.

For the government services sector, Ercolani (1969) contains an index of the annual gross salary of a civil servant of intermediate rank (*Applicato*) from 1861 to 1966, derived from Istat (1968). By using these two sources together, we derived a continuous series of the gross annual salary in current lire of the representative State employee from 1861 to 1951, the period of interest for us. Finally, for private services, in Battilani, Felice and Zamagni (2014), we found two series of annual staff expenditure for railways and for post and telegraphs from 1861 to 1951, indicators which represent the transport and communication sector, in turn elaborations on Direzione generale della statistica, *Annuario statistico italiano* data. Not surprisingly, these are the same sectors for which employment series exist (and which we used to estimate our labour series; see Section 2.1.2). In absence of other sources, we thus used these series as indicators of wage dynamics in the overall private services sector until 1951.

In conclusion, we retropolated our sectoral data for 1951 by using the wage series described in the last five paragraphs. In this manner, we obtained continuous yearly average unit wage series for four sectors for the overall period 1861-2012, in turn used to build the wage shares and profit shares, as described in Section 4.

⁴ In particular, Vannutelli (1961) was a study of employment and wages from 1861, published for the one hundredth anniversary of Italy's unification. Ercolani (1969)'s industrial wage series was instead built on the Geisser and Magrini (1904) index for the period 1862-1900, and INAIL data for the period 1901-1906.

⁵ The shortcomings of this series, highlighted by Zamagni (1976, pp. 354-356) are the following: the sectoral weights used did not reflect the composition of industrial employment; there were delays in communicating wage changes to INAIL; the sample of insured firms changed continually; the salaries declared were often lower than the actual ones so as to pay lower insurance premia; compensation for overtime was not included.

⁶ Partial surveys exist also for 1923 and 1925. These data were based on a sample of large firms belonging to Confindustria; hence, wages were presumably higher than the population's average, but all surveys conducted until then were similarly biased.

⁷ In truth, Zamagni retropolated the Confindustria series as it resulted from a previous Istat revision (Barberi 1938). See Appendix B in Zamagni (1976) for further details on the sources and the methodology used.

⁸ The continuous series may be found directly in Zamagni (1995), however with no methodological notes.

Appendix 2. Our labour and capital stock datasets
TABLE A1. Total number of workers in Italy (headcount), 1861-2013

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1861	8,615,517	25,189	2,080,548	199,769	2,237	2,307,743	672,819	238,015	6,631	864,378	162,144	1,943,986	12,867,246
1862	8,684,944	27,080	2,056,114	207,587	2,299	2,293,080	683,342	239,115	7,152	868,761	167,582	1,965,952	12,943,976
1863	8,754,371	28,972	2,031,680	215,405	2,360	2,278,418	693,866	246,215	7,673	873,143	173,020	1,993,918	13,026,707
1864	8,823,798	30,864	2,007,246	223,223	2,422	2,263,756	704,390	246,315	8,195	877,526	178,458	2,014,883	13,102,437
1865	8,893,226	32,756	1,982,812	231,041	2,484	2,249,093	714,913	239,350	8,716	881,908	183,896	2,028,783	13,171,102
1866	8,962,653	34,648	1,958,378	238,860	2,546	2,234,431	725,437	264,442	9,237	886,291	189,334	2,074,741	13,271,825
1867	9,032,080	36,540	1,933,944	246,678	2,607	2,219,769	735,960	272,942	9,758	890,673	194,772	2,104,106	13,355,955
1868	9,101,507	38,432	1,909,510	254,496	2,669	2,205,107	746,484	283,187	10,280	895,056	200,210	2,135,216	13,441,829
1869	9,170,934	40,324	1,885,076	262,314	2,731	2,190,444	757,007	288,146	10,801	899,438	205,648	2,161,041	13,522,420
1870	9,240,362	42,215	1,860,642	270,132	2,792	2,175,782	767,531	293,922	11,322	903,821	211,086	2,187,682	13,603,825
1871	9,309,789	44,063	1,836,208	277,950	2,854	2,158,076	778,054	294,518	11,843	908,203	216,524	2,209,144	13,677,008
1872	9,322,070	49,869	1,896,934	311,481	2,933	2,261,217	790,224	310,368	12,919	926,214	223,786	2,263,511	13,846,798
1873	9,334,350	54,338	1,957,660	345,012	3,011	2,360,021	802,393	330,281	13,995	944,224	231,048	2,321,941	14,016,313
1874	9,346,631	51,294	2,018,387	378,542	3,090	2,451,313	814,563	350,614	15,070	962,234	238,310	2,380,791	14,178,735
1875	9,358,912	55,474	2,079,113	412,073	3,168	2,549,828	826,732	369,880	16,146	980,244	245,572	2,438,574	14,347,314
1876	9,371,193	54,749	2,139,839	445,604	3,247	2,643,439	838,902	388,657	17,221	998,255	252,834	2,495,868	14,510,500
1877	9,383,474	57,423	2,200,565	479,134	3,326	2,740,448	851,071	400,246	18,297	1,016,265	260,096	2,545,974	14,669,896
1878	9,395,755	57,156	2,261,291	512,665	3,404	2,834,516	863,241	413,610	19,372	1,034,275	267,358	2,597,856	14,828,127
1879	9,408,035	63,543	2,322,018	546,196	3,483	2,935,239	875,410	339,727	20,448	1,052,285	274,620	2,562,491	14,905,766
1880	9,420,316	61,988	2,382,744	579,726	3,561	3,028,020	887,580	373,843	21,523	1,070,296	281,882	2,635,124	15,083,460
1881	9,432,597	66,566	2,443,470	613,257	3,640	3,126,933	899,749	383,161	22,599	1,088,306	289,144	2,682,959	15,242,489
1882	9,495,010	76,818	2,385,964	609,695	4,710	3,077,188	906,420	395,312	22,805	1,087,040	291,349	2,702,926	15,275,124
1883	9,557,424	77,069	2,859,709	606,134	5,780	3,548,692	913,091	410,369	23,011	1,085,774	293,553	2,725,798	15,831,914
1884	9,619,837	77,336	2,684,952	602,572	6,850	3,371,710	919,762	419,577	23,217	1,084,508	295,758	2,742,823	15,734,369

TABLE A1. cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1885	9,682,250	76,421	2,510,251	599,010	7,920	3,193,603	926,433	406,545	23,424	1,083,242	297,963	2,737,606	15,613,459
1886	9,744,664	72,776	2,335,551	595,449	8,990	3,012,765	933,104	399,388	23,630	1,081,976	300,167	2,738,265	15,495,693
1887	9,807,077	69,680	2,160,850	591,887	10,060	2,832,477	939,775	425,608	23,836	1,080,710	302,372	2,772,301	15,411,855
1888	9,869,490	72,835	2,241,696	588,325	11,130	2,913,986	946,446	446,144	24,042	1,079,444	304,577	2,800,652	15,584,129
1889	9,931,903	72,764	2,529,478	584,763	12,200	3,199,207	953,117	448,701	24,248	1,078,178	306,781	2,811,025	15,942,135
1890	9,994,317	78,860	2,381,454	581,202	13,270	3,054,786	959,788	455,488	24,454	1,076,912	308,986	2,825,628	15,874,731
1891	10,056,730	84,290	2,089,698	577,640	14,341	2,765,969	966,459	437,646	24,660	1,075,646	311,191	2,815,602	15,638,301
1892	10,119,143	85,735	1,888,696	574,078	15,411	2,563,920	973,130	440,338	24,867	1,074,380	313,395	2,826,109	15,509,172
1893	10,181,557	83,093	1,690,473	570,517	16,481	2,360,563	979,801	461,406	25,073	1,073,114	315,600	2,854,994	15,397,113
1894	10,243,970	77,104	1,795,187	566,935	17,551	2,456,796	986,472	466,538	25,279	1,071,848	317,804	2,867,941	15,568,707
1895	10,306,383	67,705	1,904,661	563,393	18,621	2,554,380	993,143	464,599	25,213	1,070,582	320,009	2,873,545	15,734,309
1896	10,368,797	71,494	2,050,925	559,832	19,691	2,701,941	999,814	472,379	25,857	1,069,316	322,214	2,889,580	15,960,317
1897	10,431,210	79,069	2,290,566	556,270	20,761	2,946,666	1,006,485	483,000	29,624	1,068,050	324,418	2,911,578	16,289,453
1898	10,493,623	96,884	2,271,858	552,708	21,831	2,943,281	1,013,156	479,853	30,269	1,066,784	326,623	2,916,685	16,353,589
1899	10,556,036	107,766	2,461,207	549,146	22,901	3,141,020	1,019,827	480,120	30,450	1,065,518	328,828	2,924,743	16,621,799
1900	10,618,450	112,492	2,608,685	545,585	23,971	3,290,732	1,026,498	488,585	30,814	1,064,252	331,032	2,941,181	16,850,363
1901	10,680,863	112,987	2,665,214	577,640	25,041	3,380,882	966,459	496,668	30,219	1,062,986	333,237	2,889,569	16,951,314
1902	10,666,608	111,807	2,550,050	592,796	26,184	3,280,837	969,197	503,088	32,043	1,065,206	336,543	2,906,077	16,853,521
1903	10,652,353	113,518	2,617,182	607,932	27,327	3,365,979	971,935	463,185	33,681	1,067,426	339,848	2,878,075	16,896,406
1904	10,638,098	115,228	2,684,314	623,108	28,470	3,451,121	974,673	517,998	37,209	1,069,646	343,154	2,942,679	17,031,898
1905	10,623,843	116,939	2,751,446	638,264	29,613	3,536,263	977,411	528,879	39,808	1,071,866	346,459	2,964,423	17,124,529
1906	10,609,588	118,650	2,818,578	653,421	30,756	3,621,405	980,149	538,172	41,254	1,074,086	349,765	2,983,425	17,214,418
1907	10,595,333	120,309	2,944,405	668,577	31,898	3,765,189	982,886	533,288	43,173	1,076,306	353,070	2,988,724	17,349,246
1908	10,581,078	120,673	3,342,378	683,733	33,041	4,179,824	985,624	591,961	45,758	1,078,526	356,376	3,058,244	17,819,147
1909	10,566,823	121,482	3,283,291	698,889	34,184	4,137,847	988,362	591,777	48,144	1,080,746	359,681	3,068,710	17,773,380

TABLE A1. cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1910	10,552,568	121,176	3,229,762	714,045	35,327	4,100,310	991,100	578,910	53,227	1,082,966	362,987	3,069,190	17,722,067
1911	10,538,313	124,294	3,309,253	729,201	36,470	4,199,218	993,838	600,580	55,524	1,085,186	366,292	3,101,420	17,838,951
1912	10,608,846	122,761	3,271,286	744,045	37,170	4,175,262	1,006,642	612,627	54,835	1,086,923	376,897	3,137,924	17,922,032
1913	10,679,378	122,258	3,502,703	758,890	37,871	4,421,722	1,019,446	623,416	55,807	1,088,661	387,501	3,174,830	18,275,931
1914	10,749,911	117,025	3,481,670	773,734	38,571	4,411,001	1,032,250	640,243	57,827	1,090,398	398,106	3,218,824	18,379,735
1915	10,820,443	98,500	3,104,640	788,579	39,272	4,030,990	1,045,054	653,869	57,693	1,092,135	408,710	3,257,462	18,108,895
1916	10,890,976	93,924	3,088,973	803,423	39,972	4,026,292	1,057,858	668,875	57,112	1,093,873	419,315	3,297,031	18,214,299
1917	10,961,509	101,167	2,614,170	818,267	40,672	3,574,277	1,070,662	636,164	54,776	1,095,610	429,919	3,287,131	17,822,916
1918	11,032,041	95,098	3,151,706	833,112	41,373	4,121,288	1,083,466	637,728	53,026	1,097,347	440,524	3,312,091	18,465,420
1919	11,102,574	98,287	3,395,422	847,956	42,073	4,383,738	1,096,270	682,607	57,689	1,099,084	451,128	3,386,778	18,873,090
1920	11,173,106	118,544	3,738,755	862,801	42,774	4,762,873	1,109,074	719,988	68,250	1,100,822	461,733	3,459,866	19,395,845
1921	11,243,639	104,868	3,258,825	877,645	43,474	4,284,812	1,121,878	730,156	71,580	1,102,359	472,337	3,498,510	19,026,961
1922	11,164,213	98,175	3,521,930	661,180	45,827	4,327,112	1,178,241	767,769	75,132	1,114,434	494,801	3,630,378	19,121,702
1923	11,084,786	106,002	3,495,144	622,096	48,179	4,271,422	1,234,604	747,399	77,483	1,126,309	517,265	3,703,060	19,059,268
1924	11,005,360	112,585	3,830,309	743,590	50,532	4,737,016	1,290,966	736,691	82,165	1,138,184	539,729	3,787,736	19,530,112
1925	10,925,933	129,289	4,240,488	792,636	52,885	5,215,298	1,347,329	756,325	86,616	1,150,059	562,194	3,902,524	20,043,754
1926	10,846,507	103,223	4,300,312	838,703	55,238	5,297,476	1,403,692	714,761	92,589	1,161,934	584,658	3,957,634	20,101,616
1927	10,767,080	98,750	4,500,952	772,922	57,590	5,430,214	1,460,055	727,194	99,309	1,173,809	596,801	4,057,168	20,254,462
1928	10,687,654	134,107	4,522,555	944,081	59,943	5,660,686	1,428,790	737,457	101,882	1,185,684	601,792	4,055,605	20,403,944
1929	10,608,227	142,191	4,601,948	1,234,126	62,296	6,040,561	1,397,525	748,019	105,094	1,197,559	592,017	4,040,215	20,689,003
1930	10,528,801	135,142	4,289,208	1,121,816	72,568	5,618,734	1,366,261	760,510	107,282	1,209,434	607,634	4,051,120	20,198,655
1931	10,449,374	117,155	3,730,804	1,025,827	66,297	4,940,083	1,334,996	743,859	109,149	1,221,309	626,018	4,035,331	19,424,788
1932	10,460,082	106,486	3,226,581	953,710	60,993	4,347,770	1,392,553	717,242	106,172	1,261,350	716,413	4,193,730	19,001,582
1933	10,470,790	101,504	3,219,113	975,468	60,459	4,356,545	1,450,111	702,427	103,814	1,301,391	694,885	4,252,627	19,079,961
1934	10,481,497	107,403	3,370,821	1,014,998	65,216	4,558,438	1,507,668	700,080	102,694	1,341,432	681,912	4,335,786	19,373,721
1935	10,492,205	116,513	3,948,100	1,147,395	66,685	5,278,693	1,565,226	709,538	105,465	1,381,473	684,032	4,439,733	20,210,631

TABLE A1. cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1936	10,502,913	126,552	3,926,449	1,042,646	70,270	5,165,917	1,622,783	708,012	97,904	1,421,514	688,858	4,539,071	20,207,901
1937	10,401,424	151,052	4,361,175	1,316,743	72,038	5,901,008	1,625,173	701,677	103,127	1,406,801	730,936	4,567,714	20,870,147
1938	10,299,936	164,890	4,537,101	1,295,790	73,806	6,071,586	1,627,564	735,014	108,350	1,392,089	800,337	4,663,353	21,034,875
1939	10,198,447	166,015	4,536,520	1,309,402	75,574	6,087,510	1,629,954	733,319	113,573	1,377,376	858,470	4,712,692	20,998,649
1940	10,096,958	167,139	4,535,939	1,323,014	77,342	6,103,434	1,632,344	738,008	118,795	1,362,664	1,016,972	4,868,783	21,069,176
1941	9,995,470	168,264	4,535,358	1,336,627	79,110	6,119,358	1,634,735	742,696	124,018	1,347,951	1,176,060	5,025,459	21,140,287
1942	9,893,981	169,388	4,534,777	1,350,239	80,878	6,135,281	1,637,125	747,384	129,241	1,333,238	1,341,437	5,188,426	21,217,688
1943	9,792,492	170,512	4,534,196	1,363,851	82,646	6,151,205	1,639,515	752,072	134,464	1,318,526	1,490,407	5,334,984	21,278,682
1944	9,691,004	171,637	4,533,615	1,377,463	84,413	6,167,129	1,641,906	756,760	139,687	1,303,813	1,365,345	5,207,511	21,065,644
1945	9,589,515	172,761	4,533,034	1,391,076	86,181	6,183,053	1,644,296	761,449	144,910	1,289,101	1,240,283	5,080,038	20,852,606
1946	9,488,026	173,886	4,532,453	1,404,688	87,949	6,198,976	1,646,686	766,137	150,133	1,274,388	1,115,221	4,952,565	20,639,568
1947	9,386,538	175,010	4,531,873	1,418,300	89,717	6,214,900	1,649,077	770,825	155,356	1,259,675	1,134,304	4,969,237	20,570,674
1948	9,285,049	176,135	4,531,292	1,431,912	91,485	6,230,824	1,651,467	775,513	160,578	1,244,963	1,153,386	4,985,908	20,501,781
1949	9,183,560	177,259	4,530,711	1,445,525	93,253	6,246,748	1,653,857	780,202	165,801	1,230,250	1,174,770	5,004,880	20,435,188
1950	9,082,072	178,384	4,530,130	1,459,137	95,021	6,262,671	1,656,248	784,890	171,024	1,215,538	1,115,948	4,943,647	20,288,390
1951	8,980,583	179,508	4,529,549	1,472,749	96,789	6,278,595	1,658,638	789,578	176,247	1,200,825	1,194,314	5,019,602	20,278,780
1952	8,759,885	182,950	4,518,663	1,657,233	101,831	6,460,676	1,761,515	807,084	176,931	1,232,076	1,237,479	5,215,085	20,435,646
1953	8,540,963	174,112	4,577,150	1,852,140	106,993	6,710,395	1,858,127	824,500	184,344	1,262,808	1,276,965	5,406,744	20,658,103
1954	8,385,272	165,374	4,694,215	1,952,716	113,376	6,925,681	1,969,250	840,543	189,714	1,293,853	1,310,495	5,603,854	20,914,807
1955	8,066,778	171,836	4,687,797	2,016,764	118,799	6,995,196	2,056,451	878,266	194,035	1,314,109	1,348,783	5,791,643	20,853,616
1956	7,772,878	154,660	4,825,468	1,952,516	120,919	7,053,563	2,165,643	892,813	199,216	1,351,719	1,382,033	5,991,443	20,817,884
1957	7,424,308	146,222	4,971,341	1,959,372	125,360	7,202,295	2,267,244	920,024	204,299	1,394,054	1,423,469	6,209,091	20,835,694
1958	7,283,083	135,070	4,939,159	1,954,256	127,520	7,156,005	2,348,539	930,571	211,144	1,451,667	1,451,972	6,393,893	20,832,981
1959	7,155,247	127,870	4,962,432	1,948,219	132,082	7,170,604	2,376,990	946,131	213,248	1,437,077	1,493,179	6,466,624	20,792,475
1960	6,867,239	124,860	5,006,826	2,038,843	135,502	7,306,032	2,390,894	1,007,156	220,792	1,397,402	1,557,676	6,573,920	20,747,190
1961	6,495,125	118,198	5,081,883	2,138,683	142,685	7,481,449	2,454,817	1,086,816	223,651	1,391,760	1,626,521	6,783,565	20,760,139

TABLE A1. cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1962	6,083,763	107,746	5,098,579	2,203,807	148,768	7,558,899	2,445,904	1,127,048	230,950	1,348,288	1,712,559	6,864,750	20,507,412
1963	5,548,203	103,886	5,136,691	2,243,450	152,408	7,636,435	2,439,327	1,164,564	241,691	1,314,930	1,790,482	6,950,992	20,135,631
1964	5,207,996	87,404	5,076,810	2,232,114	162,593	7,558,921	2,553,939	1,176,822	246,018	1,428,991	1,862,407	7,268,176	20,035,092
1965	5,199,931	77,026	4,920,934	2,035,211	170,376	7,203,547	2,536,045	1,197,760	245,841	1,338,823	1,913,881	7,232,351	19,635,828
1966	4,892,624	68,324	4,836,821	1,925,439	179,659	7,010,244	2,585,627	1,208,606	248,278	1,369,690	1,961,158	7,373,359	19,276,227
1967	4,786,622	59,046	4,901,737	1,918,219	191,865	7,070,866	2,696,304	1,215,633	247,437	1,412,881	2,024,678	7,596,953	19,454,441
1968	4,464,953	52,558	4,923,709	1,893,003	209,873	7,079,143	2,787,519	1,222,653	233,980	1,325,634	2,082,880	7,672,665	19,216,761
1969	4,232,274	46,170	4,957,842	1,906,955	219,916	7,130,883	2,879,974	1,232,080	256,989	1,499,658	2,163,894	8,032,595	19,395,751
1970	3,874,079	36,821	5,053,749	1,934,386	230,247	7,255,204	3,041,629	1,244,671	261,040	1,555,980	2,358,426	8,461,746	19,591,028
1971	3,872,288	36,988	5,142,035	1,828,253	237,144	7,244,420	2,940,719	1,257,579	266,814	1,533,939	2,470,722	8,469,773	19,586,481
1972	3,559,512	37,502	5,114,344	1,850,450	230,406	7,232,703	3,076,604	1,279,452	280,619	1,572,585	2,547,200	8,756,460	19,548,675
1973	3,453,490	38,442	5,209,168	1,840,898	233,511	7,322,020	3,158,956	1,322,183	300,186	1,663,737	2,616,489	9,061,551	19,837,061
1974	3,343,891	39,751	5,387,684	1,800,556	235,389	7,463,381	3,281,417	1,350,546	323,867	1,737,884	2,652,450	9,346,164	20,153,436
1975	3,168,028	40,550	5,454,799	1,731,225	236,321	7,462,894	3,376,173	1,366,845	346,881	1,777,222	2,679,769	9,546,890	20,177,812
1976	3,130,172	41,056	5,474,324	1,659,105	237,403	7,411,889	3,482,152	1,397,769	377,154	1,840,591	2,753,368	9,851,034	20,393,094
1977	2,982,810	42,450	5,537,606	1,648,725	239,980	7,468,762	3,502,440	1,398,913	400,285	1,876,747	2,827,309	10,005,694	20,457,266
1978	2,930,364	43,234	5,551,628	1,613,591	242,398	7,450,851	3,526,530	1,409,080	437,028	1,959,607	2,823,565	10,155,810	20,537,025
1979	2,842,742	44,389	5,635,147	1,608,628	241,874	7,530,037	3,625,030	1,423,695	471,738	2,044,066	2,838,483	10,403,011	20,775,790
1980	2,759,992	45,391	5,712,231	1,678,027	244,145	7,679,794	3,720,931	1,431,562	500,417	2,160,729	2,835,672	10,649,311	21,089,097
1981	2,578,572	46,599	5,583,352	1,706,595	247,446	7,583,992	3,811,348	1,457,339	526,952	2,275,609	2,863,694	10,934,943	21,097,507
1982	2,401,525	47,443	5,477,052	1,693,343	245,575	7,463,413	3,951,310	1,475,825	556,445	2,451,407	2,873,111	11,308,098	21,173,036
1983	2,378,888	43,717	5,342,521	1,673,051	246,871	7,306,161	4,058,188	1,476,960	571,133	2,607,379	2,871,505	11,585,165	21,270,213
1984	2,228,491	40,655	5,126,886	1,568,319	254,163	6,990,023	4,240,325	1,462,397	595,128	2,867,417	2,932,557	12,097,824	21,316,338
1985	2,089,825	38,885	5,033,641	1,549,613	261,194	6,883,333	4,305,424	1,478,474	616,457	3,226,308	2,965,685	12,592,348	21,565,506
1986	2,014,426	40,602	4,997,675	1,519,246	269,181	6,826,705	4,348,696	1,524,797	619,162	3,411,522	2,993,061	12,899,238	21,740,368
1987	1,928,147	41,106	4,933,479	1,498,463	275,731	6,748,780	4,424,913	1,531,822	615,920	3,520,821	3,040,037	13,133,513	21,810,440

TABLE A1. cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1988	1,801,797	41,901	5,004,758	1,477,050	277,750	6,801,458	4,427,992	1,548,416	623,233	3,770,403	3,094,578	13,464,623	22,067,878
1989	1,698,488	42,621	5,061,048	1,453,321	281,320	6,838,310	4,396,817	1,544,335	642,913	3,995,762	3,121,633	13,701,459	22,238,257
1990	1,626,778	41,456	5,117,421	1,477,803	286,924	6,923,605	4,448,869	1,541,820	652,606	4,265,123	3,156,900	14,065,319	22,615,702
1991	1,580,812	37,458	5,088,718	1,523,541	289,332	6,939,048	4,535,953	1,544,040	670,153	4,608,658	3,194,088	14,552,892	23,072,752
1992	1,518,859	35,622	4,905,775	1,556,005	283,349	6,780,751	4,513,267	1,534,262	680,764	4,675,684	3,208,784	14,612,761	22,912,371
1993	1,401,138	34,347	4,735,210	1,517,329	278,938	6,565,824	4,397,021	1,492,575	672,876	4,569,108	3,201,775	14,333,355	22,300,317
1994	1,322,044	32,116	4,659,939	1,469,104	272,952	6,434,110	4,320,205	1,457,157	668,201	4,549,665	3,187,715	14,182,942	21,939,096
1995	1,265,700	31,000	4,636,800	1,447,500	265,600	6,380,900	4,286,700	1,446,500	664,500	4,690,150	3,176,550	14,264,400	21,911,000
1996	1,213,500	30,000	4,577,400	1,437,200	269,300	6,313,900	4,288,700	1,509,300	651,700	4,909,990	3,157,110	14,516,800	22,044,200
1997	1,195,600	30,300	4,559,900	1,446,900	265,700	6,302,800	4,260,200	1,541,400	651,000	5,027,235	3,135,565	14,615,400	22,113,800
1998	1,138,700	30,900	4,640,800	1,429,500	268,600	6,369,800	4,292,700	1,570,400	658,000	5,160,895	3,145,905	14,827,900	22,336,400
1999	1,076,500	31,300	4,606,500	1,467,700	273,200	6,378,700	4,380,100	1,628,100	648,700	5,328,121	3,140,779	15,125,800	22,581,000
2000	1,064,600	30,300	4,574,000	1,507,300	278,400	6,390,000	4,494,600	1,701,000	647,000	5,588,785	3,135,315	15,566,700	23,021,300
2001	1,071,100	30,300	4,569,300	1,616,300	273,700	6,489,600	4,646,300	1,714,100	653,300	5,727,493	3,171,407	15,912,600	23,473,300
2002	1,047,400	31,800	4,593,000	1,656,100	272,900	6,553,800	4,709,400	1,727,000	655,500	5,987,679	3,186,621	16,266,200	23,867,400
2003	1,006,800	30,400	4,620,600	1,716,300	272,200	6,639,500	4,794,900	1,737,900	658,900	6,214,838	3,165,062	16,571,600	24,217,900
2004	1,015,000	29,200	4,572,400	1,774,800	267,200	6,643,600	4,808,800	1,726,500	667,700	6,369,724	3,133,276	16,706,000	24,364,600
2005	998,800	29,900	4,531,800	1,866,500	271,200	6,699,400	4,819,400	1,726,300	670,900	6,462,405	3,124,095	16,803,100	24,501,300
2006	1,017,100	29,200	4,572,100	1,894,800	281,700	6,777,800	4,972,100	1,750,400	687,100	6,659,811	3,119,489	17,188,900	24,983,800
2007	985,200	28,500	4,598,500	1,960,700	278,900	6,866,600	5,064,200	1,762,100	707,900	6,834,683	3,074,217	17,443,100	25,294,900
2008	963,400	27,500	4,551,000	1,966,100	277,300	6,821,900	5,084,800	1,772,900	710,300	6,921,433	3,074,467	17,563,900	25,349,200
2009	942,100	26,600	4,328,300	1,945,300	278,400	6,578,600	5,008,600	1,750,800	699,900	6,810,583	3,134,917	17,404,800	24,925,500
2010	959,500	25,800	4,166,200	1,911,900	278,200	6,382,100	4,998,700	1,731,700	690,300	6,887,033	3,116,367	17,424,100	24,765,700
2011	942,200	25,500	4,135,300	1,867,600	279,100	6,307,500	5,044,800	1,738,100	684,700	7,019,518	3,105,882	17,593,000	24,842,700
2012	913,100	24,400	4,062,600	1,774,400	280,300	6,141,700	5,097,300	1,718,000	685,900	7,151,701	3,080,999	17,733,900	24,788,700
2013	883,500	23,700	3,990,100	1,614,600	282,800	5,911,200	4,969,900	1,695,900	669,700	7,124,893	3,049,007	17,509,400	24,304,100

TABLE A2. Full-time equivalent workers in Italy, 1861-2013

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1861	5,339,576	18,474	1,442,496	29,853	2,176	1,492,999	645,697	121,456	6,108	697,573	140,832	1,611,667	8,444,242
1862	5,397,387	19,862	1,425,555	31,021	2,236	1,478,674	655,796	122,018	6,588	701,110	145,555	1,631,068	8,507,129
1863	5,455,199	21,249	1,408,614	32,189	2,296	1,464,349	665,895	125,641	7,069	704,647	150,279	1,653,531	8,573,079
1864	5,513,010	22,637	1,391,674	33,358	2,357	1,450,025	675,995	125,692	7,549	708,184	155,002	1,672,421	8,635,456
1865	5,570,822	24,024	1,374,733	34,526	2,417	1,435,700	686,094	122,138	8,029	711,721	159,725	1,687,707	8,694,228
1866	5,628,633	25,412	1,357,792	35,694	2,477	1,421,375	696,193	134,942	8,509	715,257	164,449	1,719,351	8,769,358
1867	5,686,445	26,800	1,340,851	36,863	2,537	1,407,050	706,292	139,279	8,989	718,794	169,172	1,742,528	8,836,022
1868	5,744,256	28,187	1,323,911	38,031	2,597	1,392,725	716,392	144,507	9,470	722,331	173,895	1,766,595	8,903,576
1869	5,802,067	29,575	1,306,970	39,199	2,657	1,378,400	726,491	147,038	9,950	725,868	178,619	1,787,965	8,968,433
1870	5,859,879	30,962	1,290,029	40,367	2,717	1,364,076	736,590	149,985	10,430	729,405	183,342	1,809,752	9,033,706
1871	5,917,690	30,117	1,273,089	41,536	2,777	1,347,518	746,690	150,289	10,910	732,941	188,065	1,828,896	9,094,105
1872	5,944,368	36,576	1,315,191	46,546	2,853	1,401,167	758,369	158,377	11,901	747,476	194,373	1,870,496	9,216,031
1873	5,971,046	39,853	1,357,294	51,557	2,930	1,451,635	770,048	168,539	12,892	762,011	200,680	1,914,169	9,336,849
1874	5,997,723	37,621	1,399,397	56,568	3,006	1,496,592	781,726	178,914	13,883	776,546	206,988	1,958,057	9,452,372
1875	6,024,401	40,686	1,441,500	61,579	3,083	1,546,848	793,405	188,745	14,873	791,080	213,295	2,001,400	9,572,648
1876	6,051,078	40,155	1,483,603	66,589	3,159	1,593,507	805,084	198,327	15,864	805,615	219,603	2,044,493	9,689,079
1877	6,077,756	42,116	1,525,706	71,600	3,236	1,642,658	816,763	204,241	16,855	820,150	225,910	2,083,919	9,804,333
1878	6,104,434	41,920	1,567,809	76,611	3,312	1,689,652	828,442	211,060	17,846	834,684	232,218	2,124,250	9,918,336
1879	6,131,111	46,605	1,609,912	81,621	3,389	1,741,527	840,121	173,359	18,837	849,219	238,525	2,120,061	9,992,699
1880	6,157,789	45,465	1,652,015	86,632	3,465	1,787,577	851,800	190,768	19,827	863,754	244,833	2,170,982	10,116,348
1881	6,184,467	48,822	1,694,118	91,643	3,541	1,838,124	863,479	198,292	20,818	878,289	251,140	2,212,018	10,234,609
1882	6,187,413	56,341	1,654,248	91,110	4,583	1,806,282	866,680	211,965	21,008	877,267	253,055	2,229,975	10,223,671
1883	6,190,360	56,525	1,982,707	90,578	5,624	2,135,434	869,881	235,923	21,198	876,245	254,970	2,258,217	10,584,011

TABLE A2, cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1884	6,193,307	56,721	1,861,543	90,046	6,665	2,014,975	873,082	247,523	21,388	875,223	256,885	2,274,101	10,482,383
1885	6,196,254	56,050	1,740,419	89,514	7,706	1,893,689	876,283	260,498	21,578	874,202	258,800	2,291,360	10,381,303
1886	6,199,201	53,376	1,619,295	88,981	8,747	1,770,400	879,484	273,473	21,768	873,180	260,715	2,308,620	10,278,220
1887	6,202,148	51,106	1,498,171	88,449	9,788	1,647,514	882,685	286,449	21,958	872,158	262,629	2,325,879	10,175,541
1888	6,205,095	53,420	1,554,223	87,917	10,829	1,706,389	885,886	299,424	22,148	871,137	264,544	2,343,139	10,254,622
1889	6,208,042	53,368	1,753,750	87,385	11,870	1,906,373	889,087	300,577	22,337	870,115	266,459	2,348,576	10,462,990
1890	6,210,988	57,839	1,651,121	86,852	12,911	1,808,723	892,288	304,275	22,527	869,093	268,374	2,356,558	10,376,270
1891	6,213,935	61,822	1,448,840	86,320	13,952	1,610,934	895,489	299,842	22,717	868,072	270,289	2,356,409	10,181,278
1892	6,216,882	62,881	1,309,479	85,788	14,993	1,473,142	898,690	295,410	22,907	867,050	272,204	2,356,261	10,046,285
1893	6,219,829	60,943	1,172,047	85,256	16,034	1,334,280	901,891	290,977	23,097	866,028	274,119	2,356,113	9,910,222
1894	6,222,776	56,550	1,244,648	84,724	17,076	1,402,997	905,092	291,131	23,287	865,007	276,034	2,360,550	9,986,323
1895	6,225,723	49,657	1,320,549	84,191	18,117	1,472,514	908,293	280,996	23,226	863,985	277,949	2,354,449	10,052,686
1896	6,228,670	52,436	1,421,957	83,659	19,158	1,577,210	911,494	290,761	23,820	862,963	279,863	2,368,902	10,174,781
1897	6,231,617	57,992	1,588,106	83,127	20,199	1,749,424	914,696	303,569	27,290	861,941	281,778	2,389,274	10,370,314
1898	6,234,564	64,211	1,575,136	82,595	21,240	1,743,181	917,897	303,704	27,883	860,920	283,693	2,394,097	10,371,842
1899	6,237,510	70,430	1,706,416	82,062	22,281	1,881,189	921,098	305,990	28,051	859,898	285,608	2,400,644	10,519,344
1900	6,240,457	76,649	1,808,666	81,530	23,322	1,990,167	924,299	316,506	28,386	858,876	287,523	2,415,590	10,646,214
1901	6,243,404	82,869	1,847,859	86,320	24,363	2,041,411	927,500	326,472	27,838	857,855	289,438	2,429,102	10,713,917
1902	6,265,339	80,320	1,768,013	88,585	25,475	1,962,393	930,127	334,222	29,569	859,646	292,309	2,445,873	10,673,605
1903	6,287,274	80,432	1,814,557	90,850	26,587	2,012,426	932,755	338,499	32,977	861,438	295,180	2,460,848	10,760,548
1904	6,309,209	80,544	1,861,102	93,115	27,699	2,062,459	935,382	346,448	34,436	863,229	298,051	2,477,547	10,849,215
1905	6,331,144	80,656	1,907,646	95,380	28,811	2,112,492	938,010	354,396	36,711	865,021	300,922	2,495,060	10,938,696
1906	6,353,079	80,768	1,954,190	97,645	29,923	2,162,525	940,637	362,345	38,095	866,813	303,793	2,511,683	11,027,288
1907	6,375,014	80,334	2,041,429	99,909	31,035	2,252,707	943,265	407,878	39,915	868,604	306,664	2,566,327	11,194,048
1908	6,396,949	79,069	2,317,353	102,174	32,147	2,530,743	945,892	444,614	42,352	870,396	309,535	2,612,789	11,540,481
1909	6,418,884	76,726	2,276,387	104,439	33,259	2,490,811	948,520	449,696	44,606	872,187	312,406	2,627,415	11,537,111

TABLE A2. cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1910	6,440,820	75,176	2,239,274	106,704	34,371	2,455,525	951,147	449,083	49,361	873,979	315,277	2,638,848	11,535,192
1911	6,462,755	75,767	2,294,387	108,969	35,483	2,514,606	953,775	448,203	51,149	875,771	318,148	2,647,046	11,624,406
1912	6,570,199	76,242	2,268,064	124,665	36,812	2,505,782	966,063	446,812	50,538	877,173	327,359	2,667,944	11,743,926
1913	6,677,644	77,341	2,428,511	140,361	38,141	2,684,355	978,351	447,344	51,458	878,575	336,570	2,692,297	12,054,295
1914	6,785,088	75,390	2,413,928	156,058	39,470	2,684,845	990,639	455,343	53,347	879,977	345,780	2,725,085	12,195,019
1915	6,892,532	64,606	2,152,524	171,754	40,799	2,429,683	1,002,926	465,742	53,251	881,379	354,991	2,758,288	12,080,503
1916	6,999,977	62,709	2,141,661	187,450	42,128	2,433,948	1,015,214	496,875	52,786	882,781	364,202	2,811,858	12,245,782
1917	7,107,421	68,740	2,213,253	203,146	43,457	2,528,596	1,027,502	500,999	50,655	884,183	373,412	2,836,751	12,472,769
1918	7,214,866	65,747	2,284,844	218,842	44,786	2,614,219	1,039,790	506,228	49,139	885,585	382,623	2,863,365	12,692,451
1919	7,322,310	69,128	2,356,435	234,539	46,115	2,706,216	1,052,078	567,813	54,155	886,987	391,834	2,952,867	12,981,393
1920	7,429,755	84,801	2,428,027	250,235	47,444	2,810,506	1,064,366	622,664	64,913	888,389	401,044	3,041,376	13,281,637
1921	7,537,199	76,584	2,116,350	265,931	48,773	2,507,638	1,076,654	640,560	65,940	889,791	410,255	3,083,199	13,128,036
1922	7,558,031	70,836	2,287,216	281,627	50,102	2,689,781	1,140,554	671,402	69,204	899,374	429,767	3,210,301	13,458,113
1923	7,578,863	75,601	2,269,821	264,979	51,431	2,661,832	1,204,454	602,620	71,361	908,958	449,278	3,236,672	13,477,366
1924	7,599,695	79,402	2,487,484	316,729	52,760	2,936,376	1,268,354	520,499	73,666	918,341	468,790	3,251,850	13,787,921
1925	7,620,527	90,207	2,753,863	337,620	54,089	3,235,779	1,332,254	528,360	79,757	928,125	488,301	3,356,797	14,213,103
1926	7,641,359	92,587	2,792,715	357,242	55,418	3,297,962	1,396,155	519,643	83,248	937,708	507,813	3,446,567	14,385,888
1927	7,662,191	97,099	2,570,014	329,223	56,747	3,053,083	1,460,055	510,160	91,484	947,291	518,360	3,527,350	14,242,624
1928	7,683,023	93,450	2,582,349	400,304	45,773	3,121,875	1,415,336	499,849	91,859	956,875	522,695	3,486,613	14,291,511
1929	7,703,855	98,378	2,627,682	520,902	34,799	3,281,761	1,370,618	490,408	92,783	966,458	514,205	3,434,472	14,420,087
1930	7,724,687	92,858	2,449,110	471,330	40,537	3,053,835	1,325,899	482,791	92,783	976,042	527,769	3,405,283	14,183,805
1931	7,745,519	81,344	2,130,265	429,019	37,034	2,677,661	1,281,180	457,710	92,508	985,625	543,737	3,360,760	13,783,940
1932	7,613,711	75,969	1,842,357	402,459	32,224	2,353,008	1,336,418	433,953	89,985	1,017,939	638,329	3,516,624	13,483,344
1933	7,481,904	74,406	1,838,092	415,426	30,299	2,358,223	1,381,066	417,175	87,986	1,050,253	635,570	3,572,050	13,412,178
1934	7,350,097	80,897	1,924,716	436,310	31,156	2,473,079	1,417,244	409,068	87,037	1,082,567	640,699	3,636,615	13,459,790
1935	7,218,289	90,176	2,254,339	497,931	30,369	2,872,815	1,446,645	404,556	89,385	1,114,881	660,693	3,716,161	13,807,265

TABLE A2. cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1936	7,086,482	100,681	2,351,026	457,148	30,513	2,939,368	1,557,366	401,510	94,083	1,147,195	683,935	3,884,090	13,909,940
1937	7,046,109	121,685	2,611,325	574,595	31,954	3,339,560	1,559,660	397,918	98,780	1,135,322	722,127	3,913,808	14,299,476
1938	7,005,737	133,700	3,255,920	561,710	41,174	3,992,504	1,561,954	416,823	103,478	1,123,448	786,805	3,992,509	14,990,749
1939	6,965,364	132,543	3,270,620	559,429	45,158	4,007,749	1,564,248	415,862	108,175	1,111,575	839,827	4,039,688	15,012,801
1940	6,924,991	131,386	3,285,319	557,148	49,142	4,022,995	1,566,542	421,743	112,873	1,099,702	990,045	4,190,905	15,138,891
1941	6,884,619	130,230	3,300,019	554,866	53,125	4,038,240	1,568,836	433,582	117,570	1,087,828	1,139,374	4,349,191	15,272,050
1942	6,844,246	129,073	3,314,718	552,585	57,109	4,053,486	1,571,130	449,422	122,268	1,075,955	1,293,328	4,512,102	15,409,834
1943	6,803,873	127,916	3,329,418	550,304	61,093	4,068,731	1,573,424	463,261	126,965	1,064,081	1,430,061	4,657,792	15,530,397
1944	6,763,501	126,759	3,344,117	548,023	65,077	4,083,977	1,575,718	477,100	131,663	1,052,208	1,305,002	4,541,690	15,389,168
1945	6,723,128	125,603	3,358,817	545,742	69,061	4,099,222	1,578,012	490,939	136,360	1,040,334	1,179,943	4,425,588	15,247,939
1946	6,682,756	124,446	3,373,516	543,461	73,045	4,114,468	1,580,306	504,778	141,058	1,028,461	1,054,884	4,309,487	15,106,710
1947	6,642,383	123,289	3,388,216	541,180	77,029	4,129,713	1,582,600	518,617	145,755	1,016,588	1,064,650	4,328,209	15,100,305
1948	6,602,010	122,132	3,402,915	538,898	81,012	4,144,959	1,584,894	532,456	150,453	1,004,714	1,074,415	4,346,932	15,093,901
1949	6,561,638	120,976	3,417,615	536,617	84,996	4,160,204	1,587,188	546,295	155,150	992,841	1,089,261	4,370,735	15,092,577
1950	6,521,265	119,819	3,432,314	534,336	88,980	4,175,450	1,589,482	560,134	159,848	980,967	1,074,575	4,365,006	15,061,720
1951	6,480,892	118,662	3,447,014	532,055	92,964	4,190,695	1,591,776	573,973	164,545	969,094	1,097,209	4,396,597	15,068,184
1952	6,396,081	117,355	3,479,529	610,215	98,203	4,305,303	1,694,637	588,122	165,350	1,026,498	1,163,658	4,638,264	15,339,648
1953	6,309,975	115,374	4,118,865	695,354	103,236	5,032,829	1,789,514	601,571	172,805	1,084,547	1,227,924	4,876,361	16,219,165
1954	6,261,477	115,119	3,676,157	748,413	110,291	4,649,981	1,901,721	616,123	178,247	1,144,002	1,287,500	5,127,593	16,039,051
1955	6,076,403	112,928	3,711,612	789,574	116,013	4,730,127	2,011,260	644,775	183,591	1,208,442	1,352,366	5,400,434	16,206,964
1956	5,918,150	108,658	3,851,789	783,014	119,904	4,863,364	2,153,463	658,082	191,851	1,296,336	1,414,506	5,714,238	16,495,751
1957	5,700,838	105,451	3,998,399	803,394	125,241	5,032,485	2,286,732	681,595	199,176	1,389,730	1,488,729	6,045,962	16,779,284
1958	5,628,894	100,083	4,016,987	819,786	128,223	5,065,078	2,389,894	692,140	207,970	1,494,784	1,546,147	6,330,935	17,024,908
1959	5,576,184	95,883	4,075,961	836,158	132,859	5,140,860	2,438,925	705,646	210,963	1,524,244	1,617,992	6,497,769	17,214,813
1960	5,428,941	93,825	4,176,175	894,296	141,031	5,305,327	2,504,664	754,234	223,641	1,548,306	1,718,258	6,749,103	17,483,372
1961	5,199,782	89,618	4,292,803	959,501	146,635	5,488,557	2,593,293	810,080	227,133	1,567,048	1,804,418	7,001,971	17,690,310

TABLE A2. cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1962	4,999,946	84,899	4,356,013	1,011,448	151,822	5,604,181	2,633,493	840,818	233,631	1,475,885	1,909,002	7,092,829	17,696,957
1963	4,603,276	79,941	4,444,389	1,053,669	156,974	5,734,973	2,681,295	872,971	243,348	1,400,071	2,004,385	7,202,070	17,540,319
1964	4,431,215	75,077	4,431,889	1,073,021	162,772	5,742,758	2,768,472	888,254	247,473	1,575,906	2,096,161	7,576,266	17,750,239
1965	4,377,399	70,373	4,348,151	1,003,582	169,566	5,591,672	2,769,508	909,054	247,555	1,463,562	2,182,624	7,572,303	17,541,374
1966	4,173,138	65,682	4,332,280	973,098	177,278	5,548,337	2,793,496	922,211	250,170	1,540,030	2,278,519	7,784,425	17,505,901
1967	4,135,698	61,190	4,448,350	992,782	186,785	5,689,108	2,892,998	933,031	250,050	1,649,512	2,380,847	8,106,438	17,931,245
1968	3,862,457	56,010	4,528,399	1,004,701	195,690	5,784,799	2,964,928	938,105	255,985	1,797,499	2,487,564	8,444,082	18,091,338
1969	3,710,976	49,999	4,621,430	1,037,928	203,015	5,912,372	3,087,241	934,754	258,577	1,857,394	2,596,029	8,753,994	18,377,342
1970	3,484,846	35,388	4,791,010	1,905,365	219,557	6,951,320	3,215,184	972,480	243,759	1,975,697	2,559,419	8,966,539	19,402,705
1971	3,469,010	35,387	4,862,368	1,801,141	225,698	6,924,595	3,103,388	981,313	249,076	1,966,742	2,685,118	8,985,637	19,379,241
1972	3,190,864	35,719	4,774,324	1,794,599	218,548	6,823,190	3,232,332	1,006,938	259,914	2,016,239	2,766,072	9,281,495	19,295,549
1973	3,136,308	36,753	4,905,915	1,790,026	221,633	6,954,326	3,320,186	1,057,473	278,364	2,137,734	2,843,492	9,637,248	19,727,882
1974	3,070,650	38,070	5,067,636	1,752,449	223,550	7,081,705	3,456,369	1,097,756	300,837	2,238,068	2,885,024	9,978,054	20,130,409
1975	2,952,500	38,749	5,046,672	1,690,656	224,497	7,000,574	3,553,038	1,127,184	322,486	2,296,699	2,915,799	10,215,206	20,168,280
1976	2,947,557	39,361	5,099,860	1,611,795	225,617	6,976,634	3,663,593	1,169,936	351,105	2,389,232	2,996,879	10,570,745	20,494,935
1977	2,841,612	40,747	5,215,506	1,604,647	228,285	7,089,185	3,687,123	1,189,331	372,839	2,451,252	3,078,625	10,779,169	20,709,967
1978	2,841,226	41,283	5,189,622	1,570,240	230,715	7,031,860	3,707,691	1,215,789	407,906	2,562,611	3,076,353	10,970,350	20,843,436
1979	2,794,233	42,664	5,282,677	1,556,185	230,215	7,111,741	3,811,103	1,247,343	440,813	2,677,502	3,094,061	11,270,822	21,176,796
1980	2,744,960	43,697	5,367,262	1,641,101	232,411	7,284,470	3,914,900	1,273,104	468,707	2,819,819	3,104,200	11,580,731	21,610,160
1981	2,605,136	44,419	5,183,359	1,663,203	235,332	7,126,314	4,010,330	1,318,023	494,802	2,907,170	3,181,600	11,911,924	21,643,374
1982	2,454,689	45,637	5,065,794	1,660,499	233,675	7,005,605	4,151,824	1,361,247	524,436	3,102,767	3,217,800	12,358,073	21,818,368
1983	2,481,972	42,215	4,885,391	1,648,293	234,886	6,810,785	4,258,393	1,389,385	538,917	3,284,298	3,251,400	12,722,392	22,015,149
1984	2,395,210	39,006	4,679,158	1,548,286	241,627	6,508,076	4,430,802	1,385,226	565,533	3,615,577	3,301,600	13,298,737	22,202,023
1985	2,269,749	37,056	4,631,888	1,532,559	248,271	6,449,773	4,477,525	1,391,535	583,199	3,959,395	3,358,700	13,770,354	22,489,876
1986	2,223,834	38,498	4,623,155	1,514,650	235,644	6,431,947	4,526,322	1,429,483	585,454	4,116,820	3,404,300	14,062,380	22,718,160
1987	2,154,712	39,321	4,591,559	1,500,889	261,705	6,393,474	4,597,990	1,445,717	584,221	4,214,780	3,471,800	14,314,508	22,862,694

TABLE A2. cont.

	Agriculture, Forestry, and Fishing	Mining and Quarrying	Manufacturing	Construction	Public Utilities	Total Industry	Trade, Hotels and Restaurants	Transport and Communications	Credit and Insurance	Community, Social and Personal Services	Government Services	Total Services	Total Economy
1988	2,035,127	40,085	4,686,418	1,491,368	263,660	6,481,532	4,600,229	1,462,325	588,535	4,458,540	3,527,600	14,637,230	23,153,888
1989	1,923,397	40,634	4,740,959	1,475,286	266,603	6,523,481	4,556,691	1,477,209	602,089	4,631,671	3,554,100	14,821,760	23,268,639
1990	1,876,575	39,255	4,773,730	1,502,556	272,011	6,587,552	4,581,185	1,459,009	607,682	4,862,693	3,574,800	15,085,370	23,549,497
1991	1,853,903	35,373	4,689,836	1,550,146	274,505	6,549,861	4,633,067	1,451,201	620,825	5,084,875	3,601,100	15,391,068	23,794,831
1992	1,843,943	34,068	4,559,816	1,605,896	272,243	6,472,023	4,638,568	1,486,997	639,294	4,820,285	3,605,000	15,190,144	23,506,111
1993	1,702,400	32,210	4,354,538	1,559,469	264,940	6,211,157	4,494,877	1,464,680	628,948	4,697,406	3,577,500	14,863,411	22,776,968
1994	1,639,576	30,119	4,337,423	1,515,446	260,376	6,143,365	4,449,229	1,458,601	623,818	4,660,517	3,562,900	14,755,065	22,538,006
1995	1,702,400	29,500	4,367,100	1,491,800	255,000	6,143,400	4,411,400	1,430,900	620,900	4,818,100	3,547,000	14,828,300	22,674,100
1996	1,664,800	28,300	4,293,700	1,481,700	258,300	6,062,000	4,404,100	1,493,900	609,700	5,033,800	3,529,800	15,071,300	22,798,100
1997	1,640,500	28,500	4,291,100	1,500,700	254,900	6,075,200	4,372,400	1,524,100	611,200	5,133,000	3,504,300	15,145,000	22,860,700
1998	1,596,400	29,200	4,368,700	1,481,700	256,300	6,135,900	4,386,400	1,556,600	619,400	5,247,400	3,480,600	15,290,400	23,022,700
1999	1,525,300	29,500	4,325,500	1,520,100	260,000	6,135,100	4,417,600	1,608,800	609,100	5,358,700	3,484,400	15,478,600	23,139,000
2000	1,491,300	28,500	4,306,100	1,565,700	264,200	6,164,500	4,519,600	1,669,100	608,500	5,565,600	3,524,600	15,887,400	23,543,200
2001	1,503,500	28,700	4,285,700	1,658,400	259,100	6,231,900	4,616,000	1,683,000	614,000	5,732,000	3,569,100	16,214,100	23,949,500
2002	1,451,000	30,500	4,297,800	1,700,600	258,200	6,287,100	4,688,100	1,709,300	612,100	5,854,100	3,594,700	16,458,300	24,196,400
2003	1,405,500	28,700	4,292,900	1,751,700	257,100	6,330,400	4,783,800	1,711,000	612,800	5,875,500	3,618,500	16,601,600	24,337,500
2004	1,394,300	27,900	4,251,200	1,790,400	252,600	6,322,100	4,802,100	1,697,500	621,600	5,995,900	3,614,500	16,731,600	24,448,000
2005	1,332,900	28,400	4,193,300	1,858,500	255,200	6,335,400	4,781,400	1,696,000	622,400	6,063,300	3,631,100	16,794,200	24,462,500
2006	1,354,800	27,400	4,230,300	1,868,000	263,400	6,389,100	4,893,800	1,725,800	639,800	6,241,300	3,635,900	17,136,600	24,880,500
2007	1,310,600	27,000	4,263,200	1,925,700	261,000	6,476,900	4,938,200	1,735,400	660,600	6,385,400	3,618,300	17,337,900	25,125,400
2008	1,276,000	26,100	4,192,900	1,927,800	258,700	6,405,500	4,922,400	1,742,300	662,400	6,428,100	3,586,600	17,341,800	25,023,300
2009	1,258,000	25,000	3,772,900	1,905,700	257,900	5,961,500	4,843,700	1,707,400	651,100	6,372,600	3,541,300	17,116,100	24,335,600
2010	1,268,400	23,800	3,642,100	1,866,600	256,300	5,788,800	4,797,100	1,681,900	640,400	6,495,047	3,458,153	17,072,600	24,129,800
2011	1,241,900	23,800	3,642,400	1,830,600	256,000	5,752,800	4,836,100	1,683,800	634,100	6,573,914	3,439,486	17,167,400	24,162,100
2012	1,193,400	22,500	3,570,000	1,741,400	256,700	5,590,600	4,817,800	1,659,500	636,100	6,642,487	3,399,613	17,155,500	23,939,500
2013	1,175,300	22,000	3,514,500	1,593,200	259,000	5,388,700	4,676,000	1,650,500	619,900	6,647,330	3,369,770	16,963,500	23,527,500

TABLE A3. Estimates of net capital stock in Italy, 1861-2013
(*chained values; 2010 reference year; millions of euros*)

Year	Machinery and Equipment	Means of Transport	Construction	Of which: Residential	Non-residential	Total
1861	2,173	515	86,821	21,746	53,912	71,164
1862	2,190	520	88,085	22,231	54,462	72,152
1863	2,214	526	89,406	22,565	55,238	73,198
1864	2,289	549	90,622	23,066	56,005	74,398
1865	2,417	589	91,738	23,225	56,509	75,850
1866	2,580	637	91,920	23,435	57,172	76,675
1867	2,749	685	91,541	23,641	57,338	77,065
1868	2,918	733	91,085	23,735	57,501	77,361
1869	3,034	765	90,721	23,679	56,904	77,631
1870	3,222	815	90,539	23,849	57,269	78,203
1871	3,570	913	90,479	24,348	57,991	79,507
1872	4,010	1,041	90,810	24,685	58,494	81,419
1873	4,539	1,191	91,555	25,510	59,697	83,727
1874	5,313	1,409	92,746	27,180	62,398	86,884
1875	5,897	1,567	93,231	27,959	63,474	89,124
1876	6,219	1,647	93,676	27,795	62,468	91,122
1877	6,579	1,730	94,056	28,105	62,575	92,830
1878	6,951	1,816	94,485	28,369	62,759	94,608
1879	7,203	1,861	95,075	28,604	63,107	95,976
1880	7,564	1,939	95,968	28,892	63,684	97,997
1881	7,904	2,010	97,090	29,341	64,340	100,063
1882	8,207	2,067	98,844	30,014	65,387	102,427
1883	8,465	2,110	101,118	30,687	66,905	104,986
1884	8,747	2,161	103,643	31,445	68,582	107,825
1885	8,912	2,179	106,323	32,397	70,243	110,330

TABLE A3. cont.

Year	Machinery and Equipment	Means of Transport	Construction	Of which: Residential	Non-residential	Total
1886	9,288	2,268	108,956	33,329	71,878	113,637
1887	9,542	2,322	111,507	33,881	73,746	116,413
1888	10,142	2,492	113,917	34,034	75,809	120,433
1889	10,433	2,562	115,816	34,194	77,407	122,880
1890	10,527	2,571	117,793	34,688	78,802	124,633
1891	10,521	2,549	119,778	35,367	80,053	126,011
1892	10,419	2,498	121,591	35,939	81,235	126,905
1893	10,317	2,448	123,295	36,740	82,132	127,728
1894	10,360	2,446	125,038	37,507	83,092	129,117
1895	10,458	2,463	125,529	38,137	83,030	129,826
1896	10,682	2,521	125,708	38,780	82,671	130,825
1897	10,995	2,608	125,901	39,407	82,338	132,202
1898	11,346	2,707	125,990	40,006	81,932	133,669
1899	11,808	2,844	126,064	40,573	81,541	135,617
1900	12,369	3,012	126,405	41,199	81,342	138,194
1901	13,216	3,271	127,123	42,029	81,322	142,267
1902	14,122	3,546	128,547	43,181	81,679	147,061
1903	15,016	3,810	130,450	44,684	82,189	152,036
1904	16,218	4,163	132,862	46,516	82,894	158,574
1905	18,132	4,731	135,851	48,585	83,929	168,431
1906	20,408	5,395	139,071	50,439	85,348	180,069
1907	22,346	5,928	142,778	52,427	87,103	190,615
1908	23,772	6,279	147,274	54,620	89,407	199,491
1909	24,853	6,507	153,059	57,235	92,539	207,780
1910	25,707	6,653	160,345	60,465	96,533	216,167
1911	26,125	6,656	167,495	63,429	100,621	222,699
1912	25,902	6,453	174,316	66,272	104,508	226,396
1913	25,566	6,221	180,843	69,002	108,220	229,511
1914	25,234	6,003	187,933	71,984	112,239	233,114
1915	23,955	5,495	190,845	72,532	114,409	229,869
1916	21,916	4,770	189,584	71,396	114,153	220,208
1917	19,937	4,101	186,766	70,101	112,634	209,451
1918	17,868	3,446	183,637	68,789	110,851	198,413
1919	16,014	2,905	182,706	68,110	110,539	190,678
1920	14,517	2,521	182,054	67,507	110,419	184,799
1921	13,399	2,294	182,947	67,355	111,326	181,783
1922	12,924	2,297	187,113	68,545	114,122	183,611
1923	12,911	2,461	193,038	70,982	117,534	188,242
1924	12,680	2,553	199,603	74,763	120,492	192,228

TABLE A3. cont.

Year	Machinery and Equipment	Means of Transport	Construction	Of which: Residential	Non-residential	Total
1925	12,629	2,695	205,646	79,156	122,524	196,643
1926	12,864	2,913	211,798	83,103	124,990	202,405
1927	13,430	3,213	217,217	85,831	127,732	208,954
1928	14,063	3,502	222,317	88,506	130,217	215,378
1929	14,808	3,789	231,681	94,259	134,028	225,214
1930	15,462	4,007	243,969	101,495	139,342	236,812
1931	16,180	4,207	255,044	107,950	144,243	247,647
1932	17,526	4,578	265,573	113,477	149,332	260,272
1933	18,941	4,943	277,433	118,950	155,690	274,081
1934	20,038	5,188	290,720	126,644	161,709	287,798
1935	21,553	5,561	306,363	137,814	167,434	304,814
1936	24,190	6,291	320,152	148,029	172,070	324,573
1937	25,281	6,517	327,858	153,672	174,704	334,142
1938	26,821	6,892	332,711	157,266	176,346	343,360
1939	28,902	7,439	338,657	160,377	179,282	355,582
1940	30,049	7,682	343,180	161,545	182,373	362,990
1941	30,907	7,831	345,053	161,101	184,316	367,344
1942	30,233	7,510	341,987	158,825	183,283	362,230
1943	30,500	7,520	333,571	154,525	179,053	356,907
1944	32,877	8,209	324,196	149,984	174,161	358,004
1945	35,715	9,011	318,500	146,932	171,628	360,201
1946	38,772	9,845	323,937	147,883	176,916	372,762
1947	39,773	10,012	330,112	147,853	183,389	380,462
1948	40,053	9,956	337,143	149,308	188,941	386,600
1949	40,463	9,957	345,758	152,103	194,783	394,360
1950	43,289	10,748	357,932	158,062	201,063	412,796
1951	46,159	11,547	373,040	165,420	208,895	433,647
1952	49,229	12,224	392,637	175,281	218,682	458,235
1953	52,614	13,171	417,351	187,928	230,814	488,173
1954	56,498	14,221	446,770	203,894	244,369	523,271
1955	61,050	15,223	483,205	224,559	260,123	565,508
1956	65,489	16,356	521,872	247,971	275,356	609,515

TABLE A3. cont.

Year	Machinery and Equipment	Means of Transport	Construction	Of which: Residential	Non-residential	Total
1957	69,805	17,330	566,886	275,427	292,877	658,061
1958	74,760	18,266	616,276	304,099	313,516	711,575
1959	80,883	19,647	670,813	335,687	336,418	772,916
1960	87,756	21,820	729,267	367,983	362,604	840,683
1961	95,839	24,386	793,313	403,865	390,756	916,547
1962	104,260	26,963	866,934	446,685	421,474	1,001,062
1963	110,845	29,534	947,040	495,751	452,082	1,086,837
1964	116,099	32,153	1,031,088	549,426	481,853	1,173,193
1965	120,216	35,171	1,112,150	600,430	511,369	1,255,821
1966	124,605	37,148	1,193,524	650,998	541,905	1,337,646
1967	129,368	39,637	1,283,052	705,472	576,805	1,428,007
1968	135,304	42,510	1,383,494	768,093	614,451	1,530,881
1969	142,041	45,227	1,497,152	838,671	657,321	1,646,643
1970	151,591	48,090	1,606,507	905,889	699,213	1,764,687
1971	162,628	50,757	1,710,575	970,663	738,053	1,880,607
1972	174,744	53,292	1,813,488	1,031,862	779,531	1,997,314
1973	190,557	55,566	1,916,747	1,091,028	823,485	2,120,520
1974	206,366	57,352	2,021,593	1,150,122	869,167	2,244,254
1975	216,589	58,517	2,120,383	1,204,673	913,478	2,351,930
1976	228,501	60,433	2,208,284	1,252,004	954,208	2,453,888
1977	240,791	62,777	2,295,483	1,298,281	995,406	2,556,428
1978	253,203	63,949	2,381,801	1,343,150	1,037,240	2,656,766
1979	269,490	66,277	2,466,929	1,389,142	1,076,582	2,763,778
1980	288,903	70,119	2,553,305	1,437,355	1,114,750	2,878,051
1981	303,127	74,740	2,638,925	1,484,326	1,153,437	2,983,990
1982	314,505	78,158	2,717,859	1,526,605	1,190,119	3,077,881
1983	323,355	79,975	2,796,539	1,571,435	1,223,907	3,166,139
1984	335,022	82,208	2,873,213	1,615,721	1,256,192	3,256,870
1985	346,458	84,361	2,946,955	1,656,484	1,289,177	3,344,439
1986	358,601	86,235	3,020,212	1,693,763	1,325,303	3,432,244
1987	374,409	88,902	3,090,951	1,728,461	1,361,570	3,523,597
1988	395,241	92,256	3,163,266	1,763,540	1,399,025	3,624,077

TABLE A3, cont.

Year	Machinery and Equipment	Means of Transport	Construction	Of which: Residential	Non-residential	Total
1989	415,927	96,771	3,239,364	1,799,482	1,439,427	3,728,761
1990	437,179	101,374	3,319,806	1,837,175	1,482,420	3,838,254
1991	458,273	104,555	3,400,096	1,876,103	1,524,004	3,945,157
1992	476,518	107,546	3,475,793	1,914,803	1,561,144	4,043,428
1993	482,859	106,961	3,538,531	1,950,794	1,587,832	4,111,397
1994	492,822	106,672	3,592,079	1,984,231	1,607,811	4,175,137
1995	506,974	109,174	3,648,103	2,017,102	1,630,893	4,248,857
1996	521,399	110,908	3,702,535	2,048,068	1,654,334	4,320,796
1997	533,912	112,312	3,753,563	2,076,835	1,676,578	4,386,691
1998	553,088	115,748	3,802,904	2,104,646	1,698,092	4,460,886
1999	572,721	121,080	3,855,241	2,133,256	1,721,824	4,540,423
2000	597,425	126,793	3,915,077	2,164,762	1,750,191	4,633,548
2001	620,550	132,115	3,979,936	2,196,880	1,783,009	4,729,128
2002	642,166	137,743	4,053,915	2,230,620	1,823,360	4,832,130
2003	656,809	141,025	4,129,996	2,266,515	1,863,666	4,926,538
2004	670,281	144,924	4,207,735	2,304,175	1,903,818	5,021,814
2005	684,894	147,852	4,285,067	2,345,759	1,939,576	5,116,888
2006	702,557	150,590	4,364,112	2,390,845	1,973,523	5,216,626
2007	721,791	152,917	4,441,440	2,436,221	2,005,449	5,315,880
2008	735,190	154,634	4,509,576	2,478,801	2,030,939	5,399,225
2009	741,127	151,007	4,557,054	2,511,351	2,045,806	5,449,057
2010	735,829	145,978	4,596,605	2,542,957	2,053,648	5,478,412
2011	741,524	142,122	4,628,289	2,567,567	2,060,722	5,511,934
2012	736,772	137,526	4,647,775	2,586,043	2,061,841	5,522,421
2013	727,510	134,220	4,655,633	2,599,559	2,056,384	5,518,185

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