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Wars, Depression, and Fascism: Income Inequality in Italy, 1900-1950

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Wars, Depression, and Fascism: Income Inequality in Italy, 1900-1950[1]

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Abstract

This paper shows yearly estimates of income inequality in Italy from 1900 to 1950. By constructing dynamic social tables, we comprehensively assess inequality across all components of Italian society. In a context of declining inequality across Europe, interwar Italy reveals a singular trajectory with a rise in inequality during WW1, markedly reversed during 1918-1922, resumed after the March on Rome and with a further increase during WW2. While consolidating the reinterpretation of inequality in interwar Europe, by showing so far overlooked short-term distributive shocks in Italy, our findings confirm the regressive nature of Italian Fascism.

JEL Codes: D31; E24; E25; J31; N34.
Keywords: Fascist Italy, income inequality, interwar Europe, dynamic social tables.

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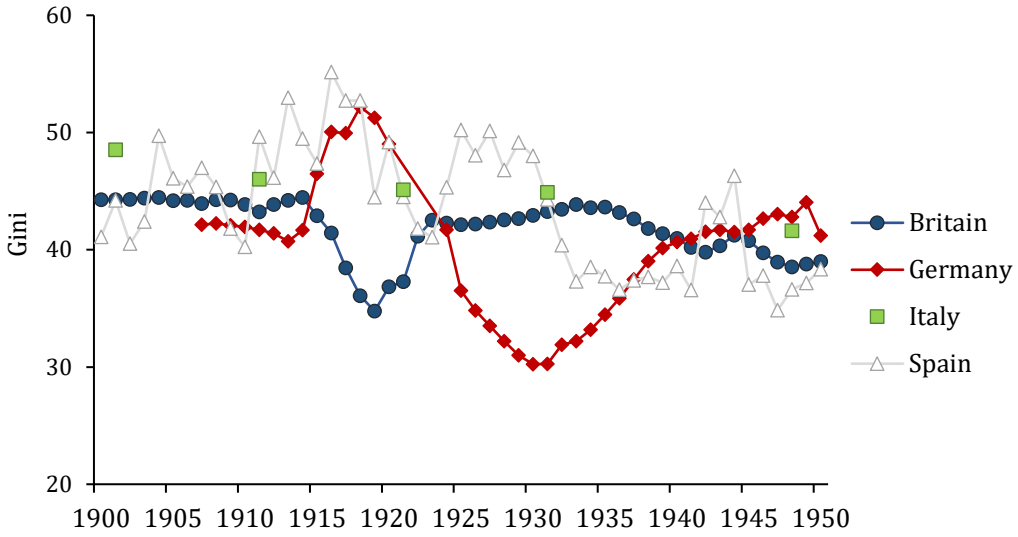
Introduction

In recent years, economists, historians, and social scientists have been increasingly involved in an international, scholarly, and public debate on the dynamics and causes of economic inequality. Since Kuznets' (1955) seminal work, scholars have estimated new, longer, and more consistent series of inequality indicators across countries. In interpreting this new evidence, rather than pointing to the development process itself, new theories have emphasised the 'egalitarian' effect of wars and depressions as crucial drivers of long-term decreases in inequality (Scheidel, 2018). These theories naturally fit the interwar period, when, in advanced economies, most of the 20th century's reductions in inequality took place (Milanovic, 2016; Piketty, 2014). However, recent research has shown diverging distributional histories in Europe in these turbulent years (Bartels, 2019; Gómez León and de Jong, 2019). While a long-term insight is necessary to address fundamental questions about trends and causes of inequality, we should not neglect the importance of the short and medium term in obtaining a wider understanding of its dynamics. The late Tony Atkinson (1997) already warned about not overlooking "key distributive episodes".

Crucially, the lack of data on income distribution for the interwar years makes it difficult to identify short-term changes in inequality over this period. Milanovic (2016, p. 78) noted that the current state of the evidence means it is not possible "to detect any influence of fascism", since the estimates available for 1921 and 1931 show "no change in the Gini", and the strong reduction visible in 1948 was "most likely explained, as in other countries, by the effect of war and not by fascism per se" (Figure 1). In light of the severe distributional conflicts and economic turbulences of the period, a more 'high-frequency' discussion about income inequality in interwar Italy seems needed.

Figure 1 - Inequality in Europe 1900-1950



Sources: Ginis for Britain and Germany - based on dynamic social tables - are from Gómez León and de Jong (2019); those for Spain are from Prados de la Escosura (2008) based on a similar approach. Finally, those of Italy - based on Historical Household Budgets – are from Amendola and Vecchi (2017). Notes: Gini coefficients are expressed in percentages.

In this article, we contribute to this literature by presenting new annual series of overall income inequality in Italy, between 1900 and 1950 — that is, the entire period, from the first industrialisation of the country to the dawn of the post-war 'miracle', covering both world wars and the rise and fall of the Fascist regime. We build so-called dynamic social tables, and obtain consistent estimates comparable to those for other European countries. The results for Italy support and extend recent findings which have highlighted the 'turbulent' dynamics of inequality in the interwar period (Gómez León and de Jong, 2019), suggesting the potential role of different national policies in driving inequality (Piketty, 2020), even in response to 'redistributive' shocks such as wars and major depressions. Our results reveal a steep decline in inequality after the Great War (driven by the within-labour component), and then a sharp reversal that followed between 1922 and 1931, followed by a 'plateau', and again, an increase during WWII. While confirming both the level of inequality, and its long-run decrease, documented by means of decadal Gini estimates by Vecchi (2017), our findings thus partially revise and qualify the Italian way to what is commonly referred as the 'Great Levelling' (Milanovic, 2016), confirming important short-term reversals in the interwar decades.

Our paper also contributes to the historiography of Italian fascism and its distributional legacy, by including three relevant, 'missing halves' of the country's income distribution: capital incomes, the self-employed, and the almost neglected contribution of women. Indeed, while the slow but steady tendency towards gender equality is one of the overlooked, driving forces of the long-term reduction of income inequality in Italy, the changing fortunes of capital incomes are crucial not only to fully appreciate the level of inequality, but also to determine its short-term dynamics.

Inequality in Interwar Europe and Fascist Italy

Within the broader debate on long-term trends in income inequality, recent research has enlarged the picture of inequality in interwar Europe. According to influential works such as Piketty (2014) and Scheidel (2018), after a long-term increase in inequality that started in the Middle Ages and culminated in the age of the so-called 'first globalisation', the middle decades of the 20th century —– characterised by two devastating conflicts, the dissolution of empires, and the collapse of global trade after the Great Depression — would have contributed greatly to a reverse in this trend, leading to a general reduction in inequality in wealthy countries.

While the extremely high levels of inequality on the eve of the 20th century could even have caused the Great War, as recently reassessed by Hauner, Milanovic and Naidu (2020), a series of top income shares for France and the US (Piketty, 2014, pp. 290-300), top wealth shares for Britain (Alvaredo, Atkinson and Morelli, 2018, p. 27), and wealth-to-income ratios for Germany, France and the UK (Piketty and Zucman, 2014, p. 1258), to different extents and with different timings, all indicated a decline in inequality. More recently, and expanding the analysis to income distribution as a whole, Gómez-León and de Jong (2019) showed the distinct, actually opposing trajectories of two leading European economies, such as Britain and Germany. Indeed, despite both being affected by such strong, 'malign' inequality-reducing mechanisms, the two leading European economies followed alternative paths to the so-called 'Great Levelling' (Milanovic, 2016, p. 53). Top income series for Germany also led Bartels (2019) to conclude that "World War I did not act as the great leveler", but "brought a large-scale redistribution from labour to

capital which the November revolution of 1918 intended to reverse". For a more peripheral European economy, such as Spain, Prados de la Escosura (2008) had already showed that the Kuznets-style relationship between inequality and development was broken by the Civil War, and its autarchic aftermath under Franco's dictatorship. Far from following simple, secular trends, national distributive histories crucially differed, not only because even long-term, common forces, such as globalisation, affected different countries in different ways, but because of the different socio-economic and political histories of each country, which explain sizeable differences in timing and extent, within an inequality-decreasing 'Kuznets wave' (Milanovic, 2016, pp. 50-53).

Italy is an interesting case in this debate, due to its position as a 'late industrialiser' on the European periphery, which started to converge towards the core economies just before the turn of the century, and eventually managed to enter the group of the most advanced economies (Toniolo, 2013, pp. 9-10). Moreover, in this period Italy has been the cradle of the first fascist regime. Indeed, in the interwar decades the country experienced several important developments in distributive terms – a mix of external, 'exogenous' shocks, and policy choices. Although it didn't experience the hyperinflation that characterised Weimar Germany, Italy was still affected by severe distributional conflicts in the troubled 'red biennium' (Zamagni, 1991) and the following 'black' one, eventually resulting in Mussolini's seizure of power (Gabbuti and Settis, forthcoming). After a brief 'liberal' phase – in which the new fascist government dismantled labour unions (Mattesini and Quintieri, 2006), and promoted pro-business fiscal policies (Fausto, 1993) – the mid-1920s marked the beginning of deflationary policies, the infamous 'battle for the lira', or *Quota 90* (Cohen, 1972), and eventually protectionism (Giordano and Giugliano, 2015), even before the Great Depression affected the Italian economy (Baffigi, 2015). Alongside with the sharp changes in the relative fiscal burdens and prices, 'slower', economic and demographic forces were also at play: mass emigration, which had helped to reduce social conflict and increase average wages, was strongly limited first by war, and then by the 'quotas' and restrictions imposed by destination countries (Gomellini, Ó Gráda and Vecchi, 2017). On the other hand, the fascist government tried to stimulate both population

growth and 'ruralisation', with mixed results, but arguably, important consequences for both gender (De Grazia, 1992) and regional inequalities (Felice, 2011).

The empirical evidence for income distribution in Italy between the two world wars is currently still limited, however. Giovanni Vecchi and co-authors estimated decadal Gini figures from 1861 to 1931, based on an innovative database of historical household budget, and documented a long-term decrease in inequality (actually, in the absence of any 'Kuznets curve') for the country (Rossi, Toniolo and Vecchi, 2001; Amendola, Brandolini and Vecchi, 2011; Amendola and Vecchi, 2017). Their results revealed a secular decrease in inequality, but cannot shed light on crucial, shorter-term dynamics, such as the impact of the world wars, and most notably, what happened in the 1930s, when the dramatic recession was followed by more dirigiste economic policies, a shift towards 'autarchy', and almost a decade of warfare following the aggression in Ethiopia (1935) (Gabbuti, 2020b).

After the early contributions by Sylos Labini (1974) and Zamagni (1980) (respectively based on census data and wage series), the only attempt to address the issue in quantitative terms was by Gabbuti (2020a), who presented new evidence on top incomes, alongside with the labour shares series estimated from 1895 in Gabbuti (2021a). Both series, while suggesting the 'regressive' nature of the fascist regime, as well as the existence of sizeable short-term distributive episodes – in particular, a striking decrease in the labour share during WWI, followed by an even more impressive 'bounce' in the red biennium; an increase in top incomes in the 1920s and even during the Great Depression – do not allow us to fully grasp the overall trends of income distribution.

Current evidence is also silent on important groups: the roughly half of the working population that could be characterised as self-employed (small and medium entrepreneurs, shopkeepers, but also farmers, sharecroppers, and tenants); non-labour incomes, accounting for around half the national income during these decades (Giordano and Zollino, 2021, p. 42); and most importantly, a fundamental component of the society such as women. Despite the early, important contribution by Bettio (1988, p. 98), according to whom gender pay gaps in post-unification Italy "declined to an extent unparalleled in other industrialised countries", women have never been included in the discussion of historical income

inequality in Italy. In fact, historical literature on inequality has often failed to include women's participation and pay gaps in the picture, due either to methodological issues, or source limitations. For instance, while factor shares are 'gender-blind', household-level information makes it hard to include this dimension, while Italian fiscal sources do not tabulate women separately.

We use dynamic social tables, obtained by combining data on the occupational structure from population censuses with information on earnings linked to different work categories distinguishing by work status and gender, to move beyond the current empirical evidence. Dynamic social tables allow us to obtain yearly direct estimates of inequality (Ginis) for the first half of the 20th century, covering the whole range of the distribution, as well as to explore the origins of changes in inequality, disentangling the contributions of individual components, such as within-labour inequality, gender wage gaps, and the owner to worker income ratio.

This methodology allows us to address the above-mentioned omissions of the self-employed, capital incomes, and women. By relying on so-far overlooked fiscal sources, our paper is the first to systematically address the relative position of self-employed workers — a sizeable group in Italian history (Sylos Labini, 1974), given the long-term, "strong presence of an industrial and artisan petty-bourgeoisie" (Paci, 1979), alongside with the relevant group of sharecroppers and small landowners. More broadly, by assembling a broad set of series, we are able to discuss the evolution of the relative position of all the groups comprising the heterogeneous 'middle classes'.[2] Despite the absence of long-term series on gender wage gaps, we manage to combine official statistics and secondary literature to consistently estimate them in benchmark years for many different sectors, making possible to discuss their contribution to the overall dynamics of inequality. Finally, despite the many source limitations (not exclusive to Italy), this paper also explicitly

[2] The definition of 'middle-class' is a troubling field. In this paper, we aim to simply document the incomes of those groups that Italian historians (as well as observers at the times) used to call *classi medie* (Salvati, 1994). Rather than referring to the middling parts of income distribution, the expression refers to the more classic definitions of 'mixed incomes' (those who were not wage labourers, although not fully 'capitalists') (see, for instance, Sylos Labini, 1974), as well as more 'sociological' issues of power and status — indeed, dependent workers, such as white-collar workers, who enjoyed higher wages and status, are normally included among 'middle classes'.

addresses the underestimation of capital income in historical estimates of personal income inequality in Italy, recently raised by Gabbuti (2021a). Here our estimates are necessarily more tentative, and further research is definitely needed. The dynamic social tables presented here can be seen an 'infrastructure', however, which will make it possible to integrate the overall structure of Italians' incomes whenever more refined series will become available: this methodology is the focus of the next section.

Methodology: The Dynamic Social Tables Approach

For periods prior the development of modern household surveys, scholars usually infer inequality trends from the evolution of indirect estimates such as wage differentials, the GDP wage-ratio, or the evolution of top income shares and labour shares. These alternatives have been particularly useful for filling gaps in inequality trends and the study of particular segments of the distribution. However, if one wants to examine changes in inequality levels and to cover the whole income distribution, in the absence of (historically rare) micro-datasets, the best possible alternative is the construction of social tables. Social tables have permitted scholars to study income distribution in early periods for a range of societies in Europe, Latin America and Africa — in many cases, a task virtually impossible with alternative sources and approaches. Yet, they have been relatively underexploited for south European countries.[3]

Essentially, social tables compile data on the number of people belonging to different social groups and the estimated average incomes that can be linked to these groups. The methodology, conceptually very similar to that applied for the construction of national accounts, permits to cover a representative sample of the population to be considered, and moreover captures the whole range of the distribution. It is important to include the total distribution when studying

[3] For Central and Northern Europe, there are social tables for Britain (from 1688) from Lindert and Williamson (1982) and Allen (2019), and then for 1900-1950 in Gómez León and de Jong (2019), who also cover Germany over the same period; for France (between 1788 and 1894), see Morrisson and Snyder (2002); finally, Van Zanden (1999) covers several European cities after 1500. For Southern Europe, some examples can be found for pre-industrial European cities in Milanovic, Lindert and Williamson (2011) and Van Zanden (1999), while Prados de la Escosura (2008) covers Spain from 1850. For Latin American societies see Castañeda and Bengtsson (2020), Gómez León (2021), Díaz Vidal (2021), Rodríguez Weber (2017). For Africa see Aboagye and Bolt (2021), Bolt and Hillbom (2016), and Hillbom et al. (2021).

inequality in periods of rapid structural change (linked to sectoral shifts and inter-occupational inequalities), when changes in inequality are mostly linked to increasing differences between the middle and lower part of the income distribution. Social tables, however, are limited by the lack of information on family structures (unlike household surveys) and the level of disaggregation within the richest group (unlike fiscal sources). They are also limited by the potential underestimation of inequality when the number of groups is small, or when the members of a group are considered to share the same average income. These sources of bias can, however, be mitigated by introducing the largest possible level of disaggregation within each occupational group.

Conventionally, social tables have been used to estimate inequality for benchmark years. A more recent approach initiated by Rodríguez Weber (2014), and applied by Gómez-León (2019; 2020) and Gómez-León and de Jong (2019), however, allows inequality to be assessed across longer periods, by letting both the population shares and income of different social groups move on an annual basis.[4] We follow this approach, and construct, for the first time, dynamic social tables for Italy from 1901 to 1950 – that is, for the half of the 20th century not covered by modern household surveys. While not exactly comparable to modern household survey data, when built adopting the same categories, dynamic social tables permit consistent comparisons of income distribution across time and countries. Whenever possible, we therefore applied a similar categorisation to that used in Gómez-León and de Jong (2019).

A range of sources, such as consumption baskets, tax records and population censuses, can be used to gather information on the number of individuals belonging to different social classes, and the average income that can be linked to them. We follow Milanovic and others, and construct social tables with information on the active population structure provided in the population censuses.[5] We use population censuses to obtain a representative sample which captures the whole range of the distribution (from owners at the top, to unoccupied people at the

[4] Although not specifically labelled 'dynamic social tables', Prados de la Escosura (2008) applied a very similar approach to assessing inequality in Spain from 1850.
[5] See Milanovic, Lindert and Williamson (2011) and Lindert and Williamson (2016).

bottom). We then compile nominal income data linked to each profession (by work status) from different sources, further described in the following section. We use information from secondary sources to incorporate gender differences, also explained in the next section and further detailed in the Online Appendix 2. Notably, resulting social tables, which include annual information on the number of individuals by income group and their respective associated incomes allow us to compute yearly direct estimates on inequality, Gini coefficients, in a conventional way, as in Milanovic, Lindert and Williamson (2010):

$$G = \sum_{i=1}^{n} G_i p_i \pi_i + \frac{1}{\mu} \sum_{i}^{n} \sum_{j>i}^{n} (y_j - y_i)\, p_i p_j + L \qquad (1)$$

$$\{^{inequality}_{within}\} \qquad \{^{inequality}_{between}\} \qquad \{overlap\}$$

where *n* is the number of social classes; μ is the overall mean income, p_i is the proportion of people belonging to the i-th social class; and y_i is the mean income of people belonging to the i-th social class, with social classes ranked in ascending order ($y_j > y_i$), G_i is the Gini among individuals belonging to i-th social class, and L is the overlap between classes, which is different from 0 if members of a lower class (i) have incomes exceeding that of members of a higher social class. Furthermore, we follow the most conventional approach where the first term (inequality within classes) and L (the overlap term) are assumed to be zero.[6] In other words, we assume that individuals belonging to a particular group earn the same mean income and, consequently, that incomes do not overlap across classes.[7]

Despite the clear limitations, starting from the absence of "truly" micro-data, the advantage of the dynamic social tables approach is to offer a full representation of the basic, macroeconomic, demographic and structural forces driving inequality, throughout the whole spectrum of the distribution, in their year-to-year

[6] See Milanovic, Lindert and Williamson (2011), Lindert and Nafziger (2014).

[7] As discussed by Modalsli (2015), this might result into the underestimation of the overall Gini, a bias we try to mitigate by including as many classes —salient groups— as possible. As lately argued by Milanovic (2018, p. 1043), while imperfect, this seems the best possible option against adopting any arbitrary adjustment for the within group distribution.

development. In a field, such as inequality, in which every source and methodology suffers from limitations — for instance, the opposite representative issues affecting household budgets and tax records have (Gómez-León and de Jong, 2019, p. 6) — dynamic social tables are thus a valuable addition, also when they can be analysed together with existing estimates based on alternative approaches.

Sources and Data: On the Construction of Italian Social Tables

Active Population

Information on the active population structure by profession is obtained from the population censuses, along with inter-census headcount of workers estimated for the main sectors in Giordano and Zollino (2015). Italian economic historians have heatedly debated whether industrial censuses provide a better portrait of the evolution of the employment structure (Fenoaltea, 2005; 2016; Zamagni, 2016). While those in favour of this source consider it, at most, as a proper proxy of full-time equivalent workers (a concept more suitable for productivity than distribution concerns), population censuses are the only source covering the whole Italian population (including those without any profession) and agriculture, still accounting for the lion's share of employment.

In population censuses individuals were asked about their main occupation, and were grouped according to their work category and gender. The 1901 and 1911 censuses included the resident population of the Kingdom of Italy. The censuses of 1921, 1933 and 1936 also included the territories annexed after the First World War (Trentino, Alto Adige, Gorizia, eastern Friuli and part of Slovenia and Croatia, and the city of trieste), some of which were lost after the Second World War, and therefore not included in 1951. In order to avoid these territorial changes affecting our estimates, we followed the adjustment proposed by the statistician Vitali (1968), to obtain homogeneous series using current borders. This choice has the advantage of being consistent with most of the historical statistics available for Italy, from GDP (Baffigi, 2015) to the aforementioned labour inputs by Giordano and Zollino (2015). In order to prevent the potential double accounting, due to the inclusion of individuals who actually lived on a family wage, we have adjusted the sample by leaving out family assistants, housewives and students. Finally, given that

historians have discussed for a long time the arguable underestimation of women working in agriculture (Patriarca, 1988; Mancini, 2018), we corrected the original census figures, again following Vitali (1968), by equating the numbers of women employed on family-run farms to the corresponding males similarly employed.[8]

Despite the aforementioned adjustments, differences between benchmark years are small in terms of both coverage and structure (see Online Appendix 1, Table A1). The sample represents 52 per cent of the total population on average (standard deviation equal to 1.1), with relatively stable proportions for the male and female labour forces (67 and 33 per cent, respectively), and male and female unemployed (64 vs. 36 per cent).

The number of occupations was standardised to 18 to make censuses comparable across time, as reported in detail in the Online Appendix 1, Table A2. We also re-classified work categories into three for agriculture (owners, self-employed, and wage earners); one for owners in industry, commerce and transport; three for industry (self-employed, salary-earners and wage earners); three for commerce and transport (self-employed, salary earners and wage-earners); two for public administration and services (salary earners and wage earners); one for liberal professions; and one for the unoccupied. They were all disaggregated, in turn, by gender (male and female), resulting into 60 classes.[9]

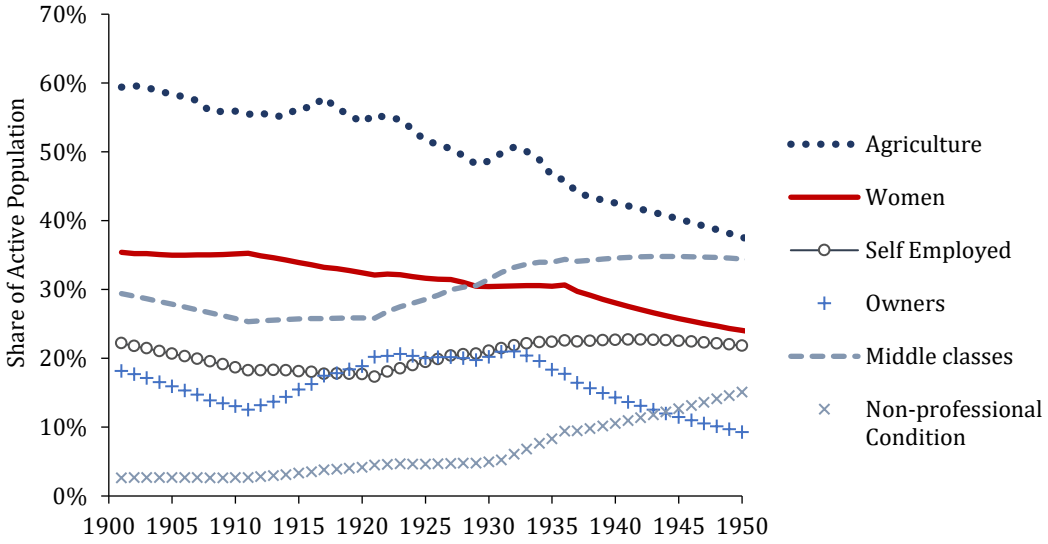
Once the censuses were homogenised, we applied interpolation methods between the census benchmark years in order to obtain annual data on the active population structure of Italy between 1901 and 1950. To obtain more accurate figures, as well as for reasons of consistency with existing evidence, we adjusted our

[8] Although considered positively even by a gender historian such as Patriarca (1988), Vitali's correction is probably an underestimation; looking at the differences between agrarian and population censuses, Mancini (2018) adjusted the total number of women employed in agriculture even further. She did not provide separate figures for peasants, sharecroppers, and the like, however, making it impossible to adopt her adjustment in social tables without losing these crucial distinctions.

[9] The main difference with the classification adopted for Britain and Germany in Gómez-León and de Jong (2019) is the impossibility of obtaining accurate income information for salaried workers across different industrial branches. While this is unfortunate, the limited size of this group should limit the impact of this difference in estimating income inequality levels; on the other hand, their inclusion would hardly affect inequality trends.

interpolations following the annual figures provided by Giordano and Zollino (2015) on the evolution of the population occupied in the main sectors (Figure 2).[10]

Figure 2 – The Evolution of Workforce in Italy, 1900-1950



Source: authors' elaborations on population censuses and labour input series by Giordano and Zollino (2015) – for full details, see Online Appendix 1, Tables A1-A3.

As shown in Figure 2, the resulting series makes the strong structural changes experienced in this period clear, where the share of the population employed in agriculture in all occupational conditions declined from 60 to less than 40 per cent. The proportion of women also fell from 35 to 25 per cent, with a plateau in the 1930s.[11] This overall reduction was mainly driven by agriculture (which remained the main sector of women's activity, but declined from 65% to 49% of the female working population), while the smaller proportions of women in the services, professions, and even heavy industry increased more or less constantly, in this period, as already discussed by De Grand (1976) and Pescarolo (2019).

Population in non-dependent positions — combining owners and the self-employed — accounted for more than 40% in 1901, and still 30 per cent half a

[10] In fact, these changes do not alter the overall inequality trends much, but reassure us on the fact that they are not driven by artificial trends (especially during the war years), given that Giordano and Zollino relied on a great number of existing sources, in order to avoid linear interpolation for all sectors apart from agriculture.

[11] The declining trend in the share of female workers in our sample is consistent with recent estimates by Mancini (2018) on female participation rates, showing a strong decline throughout the period, but with a partial reversal in the 1930s, when the 1936 census registered a higher share of women in employment than in 1931.

century later, a reduction almost entirely due to the decrease in the number of owners by half. At the same time, the heterogeneous group of 'middle classes' — including all self-employed, professional and salary-earners — irrespectively of gender and sector represented almost 30 per cent at the beginning of the period. Their share had declined by some five points in the first decades of the century, but grew by almost ten in the following decades, peaking just below 35.[12]

Finally, censuses reveal an increasing proportion of the 'active' population that is not in professional condition; an increase, particularly strong after the Great Depression (Toniolo and Piva, 1988), which probably reflects a strong increase in unemployment, which is hard to detect via 'official' sources, and often 'hidden' by both population and industrial censuses (Alberti, 2018).

Incomes of Dependent Workers

Annual estimations of the average income associated with dependent workers in industry are mostly based on Zamagni (1975, 1984, 1995), from which we obtained data for dependent workers across 12 branches. We had to rely on other sources, however, for the uncovered years, and differences in work status.[13] For instance, Zamagni (1980, p. 38) mentioned that the incomes of salary-earners in industry matched those of clerks in public administration or the lower ranked civil servant employees. Meanwhile, Rey and Vitali (1991) provide annual data (between 1900 and 1950) for government civil employees, across different categories (directive, executive and auxiliary careers), distributed, in turn, by work status levels (ten in total), from the highest to the lowest remunerated (for example, general director, first manager, clerks). We therefore assigned the annual income of clerks provided by Rey and Vitali (1991) to salaried-employees in industry. Since it was not possible to obtain separate information on income for salaried employees

[12] While the classification differs from that used by Sylos Labini (1974, pp. 153-156), who grouped landowners together with the self-employed in what he defined as a "relatively-autonomous petit bourgeoisie", our series captures the increase in this group between 1921 and 1951, especially evident for small shopkeepers and artisans, whose "continued prominence in Italy" has been attributed by historians to the "restrictive shop-licensing system" instituted in 1926 by the Fascist regime (Morris, 1996, p. 286).

[13] See Online Appendix 2, Tables A4, A5 and A6 for detailed information on sources by sector, period, and work status.

across different industrial branches, those in industry were added and considered an individual category.[14]

We rely on Zamagni (1980) for dependent workers in transport, public administration, liberal professions, services and commerce; and we extrapolated data for uncovered years based on the evolution of annual incomes for the most similar occupations in Rey and Vitali (1991) and Istat (1953), which, also provides annual data for central government employees across four categories (division chief, vice-secretary, clerk and usher).[15] For instance, the income of salary earners in transport associated with *ferrovieri* (railway workers) in Zamagni (1980), who estimate that for 1910, and from 1925 to 1938, was extrapolated from the evolution of the managerial staff's annual income from 1900 to 1950 in Rey and Vitali (1991). Similarly, incomes for wage-earners, associated with *operai* in Zamagni, was extrapolated from the evolution of the auxiliary staff's annual income in Rey.[16] The same methodology has been applied for the rest of occupations.

In the absence of comparably detailed evidence of women's wages, female earnings have been estimated from the gender ratios (female earnings as a percentage of male earnings) obtained from both the secondary literature (most notably, Bettio, 1988) and primary sources (in particular, the *Annuario Statistico Italiano*).[17] These sources enabled us to identify material to build separate ratios for agriculture, industry (here distinguishing between heavy and light industries), transport, commerce, public administration, liberal professions and services. The sources for these sectors provided us with information on gender gaps for 1901, 1911, 1914, 1918, 1925, 1938 and 1951. Annual series were obtained by interpolating the ratios between available benchmark years, with the exception of agriculture, for which the statistical abstract provides us with annual estimates, from 1911 to 1950.

[14] Given the limited size of this category (compared to self-employed and dependent workers), this should not affect too heavily our results: still, the inclusion of a separate income for these 'middle class' workers, as well as for the self-employed, enriches our results.
[15] See Online Appendix 2, Tables A4, A5 and A6 for detailed information
[16] See Online Appendix 2, Figures A2 and A3.
[17] For a full list of primary and secondary quantitative sources on female wages and gender pay gaps see Online Appendix 2, Table A6.

Incomes of the Self-Employed

While Zamagni and others have made available a large amount of information on wage and salary earners, almost nothing is known about the incomes of the self-employed.[18] A first, 'conservative' possibility, would be to impute the self-employed an income slightly above that perceived by those working as waged labour in the same sectors, as this is a common practice when estimating labour shares (Bengtsson and Waldenström, 2018). This alternative inevitably excludes any variation in the relative position of the self-employed, however, with respect to both waged workers and 'capitalists' in their same sectors. While this is not an issue when assessing inequality trends through variation in labour shares, a better understanding of the variation within the group of workers is crucial for understanding the 'political economy' of the fascist regime. For this reason, we made our best efforts to arrive at alternative estimates for self-employed.

We use daily wages in agriculture (from the Statistical Abstract) and the assumption made by Giordano and Zollino (2015) on the number of working days for owner-occupiers, tenants and share-croppers for the self-employed in agriculture (small owners, share-croppers, and tenants). According to Giordano and Zollino (2015), male farmers (that is owner-occupiers, tenants, share-croppers) worked for 265 days a year; while landless male labourer's aged worked 220 days a year; and females and children worked 120 days a year, regardless of their status. In order to avoid potential double counting, we were also forced to treat female owners as self-employed, since the wives of owners were inconsistently recorded as owners themselves, or as labourers (Pescarolo, 2019, p. 58). Although unsatisfactory – especially because we were forced to impose the same income on a very heterogeneous group – this seems the only viable alternative at the moment.

We propose to use a different, innovative source for the self-employed in industry and services: official fiscal statistics reporting individual taxpayers' incomes, assessed for the purpose of the *Imposta di ricchezza mobile*, the main direct income tax of the period. In particular, the *Direzione Generale per le Imposte Dirette*

[18] To our knowledge, the only exception is represented by Zamagni's (1981) work on commercial distribution, which included estimates for the incomes of different categories of traders for 1938, based on the statistics of the National Fascist Confederation of Traders, and costs and revenues in the retail trade.

(various years) issued dozens of volumes, reporting the incomes declared by all private taxpayers (that is, excluding proper firms and 'fiscal persons'). While the tax did not work as a 'personal' tax, in practice the great majority of the declarations for private taxpayers referred to a single individual and can be used as a good proxy for the incomes in these categories.[19] For our purposes, we will focus on information provided under the Schedule B: the so-called 'mixed incomes', business incomes obtained by combining capital and work (unfortunately, excluding most of those in agriculture, who were subject to a different type of tax). In this sense, it is worth noting that while some of the taxpayers in Schedule B were rich entrepreneurs (such as the engineer Camillo Olivetti, founder of the homonymous type-writing machine), it excluded legal entities, such as the car-making FIAT, and their shareholders, members of the Agnelli family. Indeed, the vast majority of declarations were made by the self-employed, family businesses, and similar categories, including those declaring less than the exemption threshold; their incomes should have not been far, on average, from those of workers employed by larger firms.

Although it is an imperfect estimation, we believe that the average income declared by Schedule B taxpayers can be used to proxy the incomes of the self-employed. Since these incomes are reported together for industry, services and transport, our baseline series for those three groups of self-employed will be obtained as an average of the declared incomes, adjusted by one third to take evasion and exemptions in consideration, and the average wage earned in the respective sector by wage earners. As reported in the Online Appendix 2 Figure A.4, the resulting figures are now able to capture the changing relative fortunes of this 'traditional middle class', which — as suggested by coeval anecdotal evidence — had lost ground in the post-war years of labour unrest and inflation, but regained their position after the March on Rome, and especially after the deflationary shift of *Quota 90*.

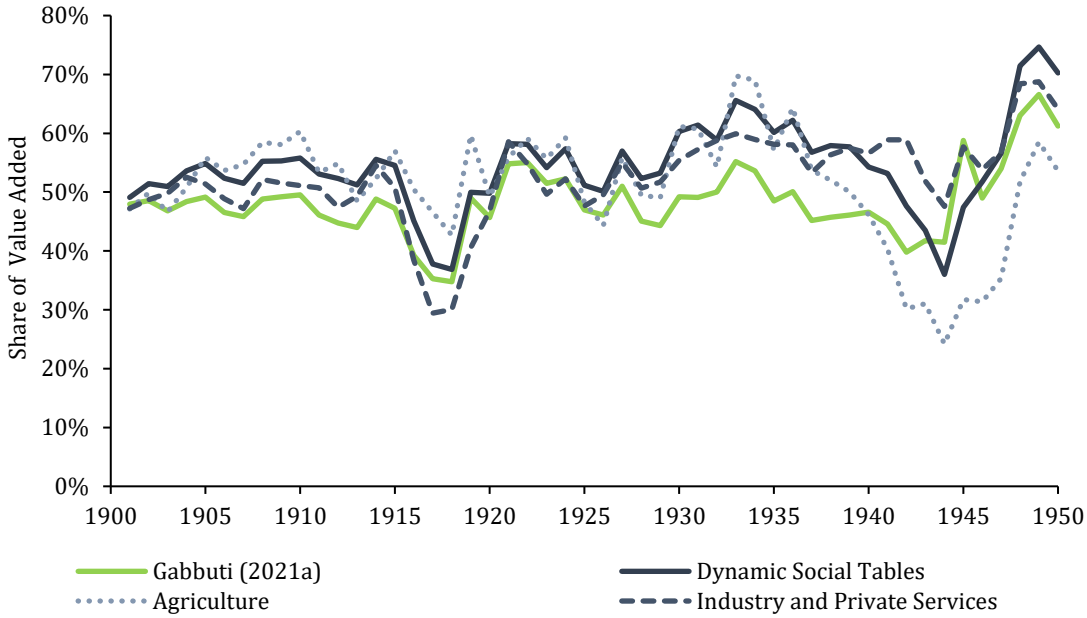
[19] While contemporary observers lamented the low number of taxpayers included in these lists, it should be noted that the number of individual taxpayers and professionals included increased from 450,000 in 1889, to more than a million by 1922. Moreover, as discussed in Gabbuti (2022), both the intertemporal, occupational and provincial comparisons are reassuring on the relative quality of the source.

Incomes of Owners

As in many countries, historical estimates of the incomes of the rich in Italy are quite unsatisfactory. Contrary to all other groups, we cannot directly estimate incomes for owners on an annual basis. A good starting point would be the tabular data, available in the same fiscal records discussed for the self-employed, which make it possible to isolate the incomes of the 'top' groups. However, they are only available for a few years (1902, 1922 and 1929), and their interpolation over long periods, characterised by major shocks or sustained inflation, severely undermines any meaningful interpretation of the results. For this reason, while we document a tentative alternative in the Online Appendix 3, made by relying on these tabulations, our baseline estimate is based on the residual value added, obtained after subtracting all labour and self-employment incomes, divided by the number of owners (in line with Arroyo Abad and Astorga, 2017, p. 354). Indeed, we note that the sum of all the labour and self-employment incomes just described is consistent, in trends and levels, with the overall labour share estimated by Gabbuti (2021a) (Figure 3).[20] While it is not our goal to propose a refined version of the labour shares, we use residual income to obtain a first, yearly proxy of the incomes of the owners groups. As shown in Figure 3, we can obtain separate labour shares and, by default, residuals for agriculture, and for industry and the services.

[20] Our labour inputs are based on the population censuses, while Gabbuti (2021a) is based on FTE figures, available for the four main sectors of agriculture, industry, services and the government, and do not distinguish between self-employed and dependent workers, nor between waged and salary earners, and not even by gender.

Figure 3 – The Labour Share: Social Tables vs. Existing Series



Source: Gabbuti (2021a) for the green series; authors' elaborations for the others.
Notes: The Dynamic Social Tables labour share is obtained by adding all the incomes of both self-employed and dependent workers (waged and salaried), each of which was multiplied by the respective population series, and then divided by GDP at factor prices, obtained by Baffigi (2015) following the same procedure in Gabbuti (2021a, p. 363); series for agriculture and industry and private services are obtained analogously, but only for the respective sector (in the latter case, excluding professionals and, from services value added, miscellaneous services and location of buildings).

As discussed by Arroyo Abad and Astorga (2017, pp. 354-355), this still could introduce a bias in the trends, in those periods (especially the Great Depression) in which the incomes of workers are overestimated, due to the impossibility, with the current state of the evidence, of taking the reduction in working hours into account.[21] On the other hand, including all the residual income from the VA would clearly imply an overestimation of the owners share (and thus, of inequality), since the discrepancies between GDP and disposable income (the concept we should aim at, in making personal income inequality estimates) are well documented. While any assumption is inevitably arbitrary, we consider reasonable to follow the analogous assumption adopted by Gabbuti (2020a, p. 20) and thus to input only 80 per cent of the residual income of agriculture, industry and private services to the owners of the respective sectors.[22] The resulting levels are also in line with the evidence from

[21] Indeed, this is the period in which our labour share is more distant from those estimated using the available FTE figures.
[22] As discussed in the reference, the assumption is relatively customary in the top income literature (Atkinson and Piketty, 2007, pp. 29-30 and 535-536).

tabulations in the less 'troubled' years.[23] While more direct and continuous evidence on these incomes will definitely improve our understanding of this period, with the current state of the evidence, this seems the most reliable way of treating owners incomes. This also has the advantage of explicitly linking our estimates to the macroeconomic trend from the capital shares.

Income Inequality Between Workers

Following the construction of the dynamic social tables, this section provides the results on inequality between workers between 1900 and 1950, and analyses two of the major 'forces' driving changes in inequality over time – gender and 'skill' differences.

Inequality Between Workers

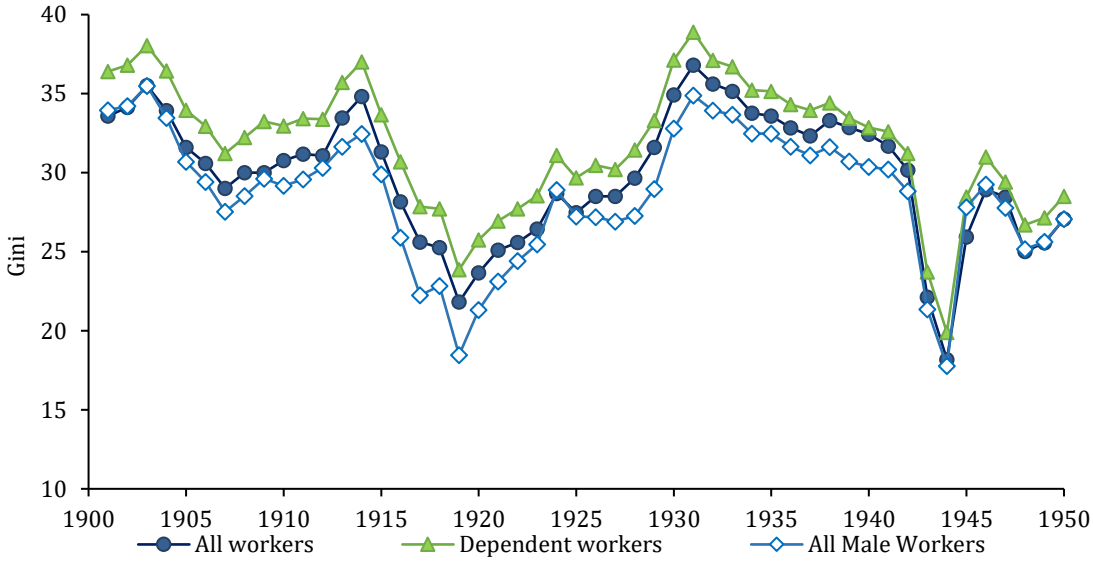
Figure 4 shows direct estimates of inequality (Ginis) among workers. Our series shows a fall in inequality levels between 1901 and 1907 (from 34 to 30), followed by a sharp increase (of 4 percentage Gini points) before the Great War, revealing further fluctuations as well as an increase in stratification among workers by the end of the 'Liberal' age. The outbreak of WWI, however, marked the beginning of a major decrease in inequality (from 35 to 22). The equalisation seems to be the result of an overall downward compression: there was a reduction of pay gaps during the conflict. Between 1914 and 1919, the average wage of dependent workers in industry decreased, in relative terms compared to those earned by rural labourers, from a ratio of 1.47, to almost parity (1.05).[24] This effect arguably overcame the relative improvement of skilled workers in "privileged", war-related sectors, that contemporary observers erroneously considered an indicator of overall wage increases in industry (Frascani, 1975, pp. 71-2).

The decrease of Inequality continued also in the immediate post-war years — a period of increasing labour demands all around Europe, including in Italy, where the years 1919-1920 became known as the *biennio rosso* ('two red years') for

[23] In the Online Appendix 3 we document, together with the one obtained from tabulations, a series based on 50% of the residuals. Notably, the results of those two series are quite similar in levels, while trends are only partially affected.
[24] As shown in Figure 3, the labour share, especially in industry, actually fell in these years.

their intense labour unrest. This time, industrial workers in particular managed to obtain substantial pay increases, as well as substantial concessions in terms of 'work discipline, factory councils, right to dismiss workers and the like' (Zamagni, 1991), while rural workers also achieved important victories.

Figure 4 – Inequality Between Workers (1901-1950)



Sources: authors' elaborations based on the sources listed in Online Appendix 1 and 2.
Notes: Ginis are expressed in percentages. Gini series are computed using incomes and population data, limited to, and applied to all workers (dependent and self-employed, male and females); all dependent workers (males and females, excluding self-employed); and all male workers (dependent and self-employed).

There was a 'rebound' from 1919, and, in 1931, inequality between workers increased (up to 37) reaching its absolute maximum. Inequality among workers decreased constantly in the following years, and, significantly, also in the late 1930s, when the aggression in Ethiopia marked the beginning of a decade of warfare (Gabbuti, 2020b, pp. 45-46), as well as the economic recovery (Baffigi, 2015). The reduction in the early 1930s (by 5 percentage Gini points) is possibly biased by the imperfect accounting of working hours, and also as a result of the 'work-sharing' policies imposed by the fascist government (Mattesini and Quintieri, 2006). After 1935, the regime partly "loosened the reins" of trade unions, making "some concessions to working classes" (arguably in an effort to strengthen the 'internal front') (Musso, 2016, pp. 276-279); this included some long-awaited wage adjustments for inflation, after years in which wage compression, according to Zamagni (1975, pp. 547-548), was "a deliberate economic policy", resulting in an

overall wage dynamic worse than that in Germany, the UK, the USA, France and Japan.[25]

The decline observed during WWII is the result of a strong generalised compression in living standards, starting from private consumption, with all dependent workers facing strong reductions in purchasing power due to inflation and the need to buy essential goods on the black market (Zamagni, 1997, pp. 23-25). Given the very low starting point of wages, according to the Bank of Italy, this overall compression led to the 'levelling of incomes both in terms of differences between the various categories of blue and white collars, as well as the average difference between wages and salaries, and between the incomes of dependent and independent workers', with the latter 'initially going to very low levels', but then 'more rapidly adjusting to the value of money' (BdI, 1947, pp. 100-101).

Figure 4 shows that, when including the female labour force in the sample, inequality levels increase. This is the result of both the lower average incomes received by female workers (disproportionally employed in low-pay sectors and occupations), and the gender pay gap with respect to their male counterparts when employed in similar sectors, which result in greater inequality levels. While the exclusion of women does not change the story of within-labour income dispersion in terms of trends, the absolute difference decreased over time — from 2.4 Gini points in 1901, to just 1.5 half a century later, when the distance from the overall series becomes negligible. Similarly, we observe that, while inequality trends remain when considering dependent workers only, levels tend to increase. This is consistent with the fact that the self-employed are genuinely a 'middling' group in terms of income, since their average is only marginally above that of the dependent workers in their sectors.

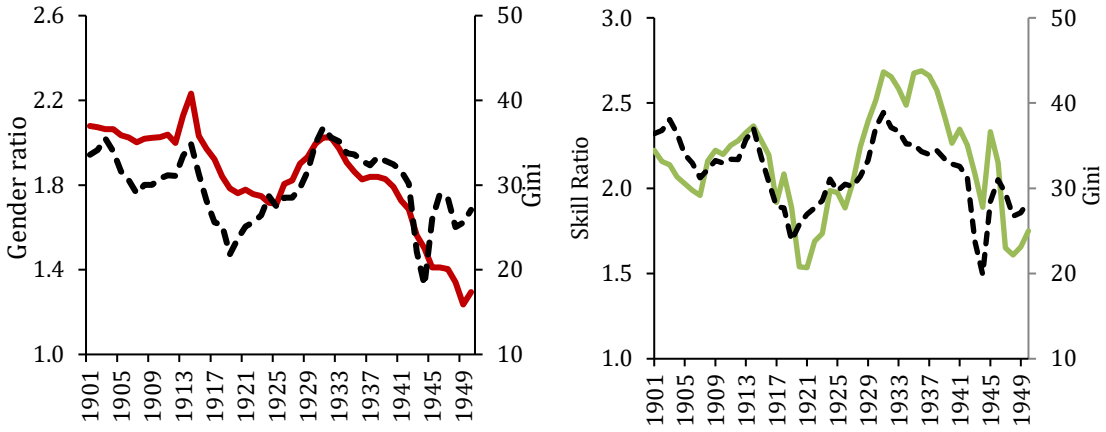
[25] It should still be noted that, despite the return to GDP growth, the reduction in inequality in these years went hand in hand with a decline in the overall labour share and, in fact, the living standards of the poorest continued to decrease, with a striking increase of malnutrition. See the various chapters of Vecchi (2017) and, for a recent survey focused on the Fascist period, Gabbuti (2020b, pp. 263-272).

Inequality Forces

In order to obtain a wider understanding of the mechanisms driving changes in inequality between workers, in Figure 5, we show the evolution of different 'inequality forces' along with inequality (Ginis). The first mechanism, the gender ratio (left figure), is the ratio between male and female incomes, and indicates variations in inequality resulting from changes in gender pay gaps. The second mechanism, the skill ratio (right figure), is the ratio between the incomes of salaried workers and wage workers and signals variations in inequality derived from differences in work status. To the extent that increasing skill and gender ratios contribute to a higher income dispersion among workers, analysing its evolution helps us to understand the origins of changes to inequality.

As shown in Figure 5, and in line with Bettio (1988), gender gaps emerge as one of the major "equality force" contributing to the Italian "Great Levelling" throughout the first half of the 20th century. Despite the source and methodological differences, our series, in the same way as Federico et al.'s (2021, p. 15), show an increase in the gender gap (also comparable in magnitude) during the first Italian industrialisation at the beginning of the century. In line with Bettio (1988), however, we observe that not only the war, but also the early 1920s, saw women benefitting in relative terms. In particular, the equalising effect of the Great War was strongest in heavy industry, but common to all sectors, including the various services. This 'positive' equalisation was reinforced by the reduction in wages, imposed on industrial workers in the first year of fascist government (Bettio, 1988). From 1925 to 1933 there is what looks like an effective attempt at reverting this declining trend: gender gaps then increased until 1933, contributing to the overall increase in within-labour inequality (between 1924 and 1930, the distance between the Gini series with and without women grows from 2.2 to 4.3 Gini points).

Figure 5 - Inequality Forces: Gender and "Skills" Ratios



Sources: authors' elaborations based on the sources listed in Online Appendix 1 and 2.

Notes: Solid lines (represented on the left y-axes) show annual development of different ratios. Dashed lines (represented on the right y-axes) show annual trends in within-labour inequality (Figure 4, All workers). inequality. The gender ratio is the weighted average of females vs. male incomes, it includes all sectors. The skill ratio is a weighted average of salary vs. wage earners, by sector; it excludes, therefore, workers in agriculture (for sectoral ratios, see Online Appendix 2, Fig. A.7), professionals, personal services and people without specified profession.Wage pay gaps will continue to decrease from this point on, mainly due to the changing composition of female workers, who were less and less employed in agriculture (De Grand, 1976), rather than from a reduction in gender pay inequalities. Despite the fascist's regime strong rhetoric against female employment, Italian women slowly, but constantly, increased their presence in the commerce, services and health care sectors in these years, as well as in heavy industry, and in the light industry (textile, and the like), female employment was linked to the economic cycle, rather than to the success of discriminatory policies (Pescarolo, 2019, p. 237). Contrary to the experience in the 1921-1931, however, the collective bargaining imposed by fascists did not bring more equality to women (Musso, 1992).[26] Only after WWII, with democracy and free trade unions, was equality established on a more positive basis, within general pay increases and economic growth – but then the female

[26] Actually, on top of sizeable and stable pay gaps, the regime imposed a discrimination by providing family allowances to male household heads only, introduced in 1934 (Giorgi and Pavan, 2021, pp. 100-105). This is, however, a kind of inequality we cannot integrate in our analysis, based on market incomes.

participation rate would collapse again, reaching its absolute historical minimum in 1961 (Mancini, 2018, p. 55). Compared internationally, while the reduction in gender ratios throughout the period is more substantial for Italy (which started at an intermediate level compared to Germany and Britain, respectively more and less equal), but the 1920s reversal is unique, given that these other countries experienced more gradual but constant declines.

The evolution of 'skill' ratios (right figure), also in line with Federico et al.'s (2021, pp. 13-16) recent estimates, show a declining trend in differences by work status from the mid-19th century until 1912. After an increase in the pre-war years, the equalising effect of the Great War on the incomes of dependent workers is also remarkable. This time, the compression continued into the *biennio rosso*, when the incomes of the unskilled increased more rapidly (Zamagni, 1991, p.141). While such a compression also partly occurred in Britain (Gómez-León and de Jong, 2019, p. 1088), Italy stands out in this case for the extent to which this ratio increased from 1922.

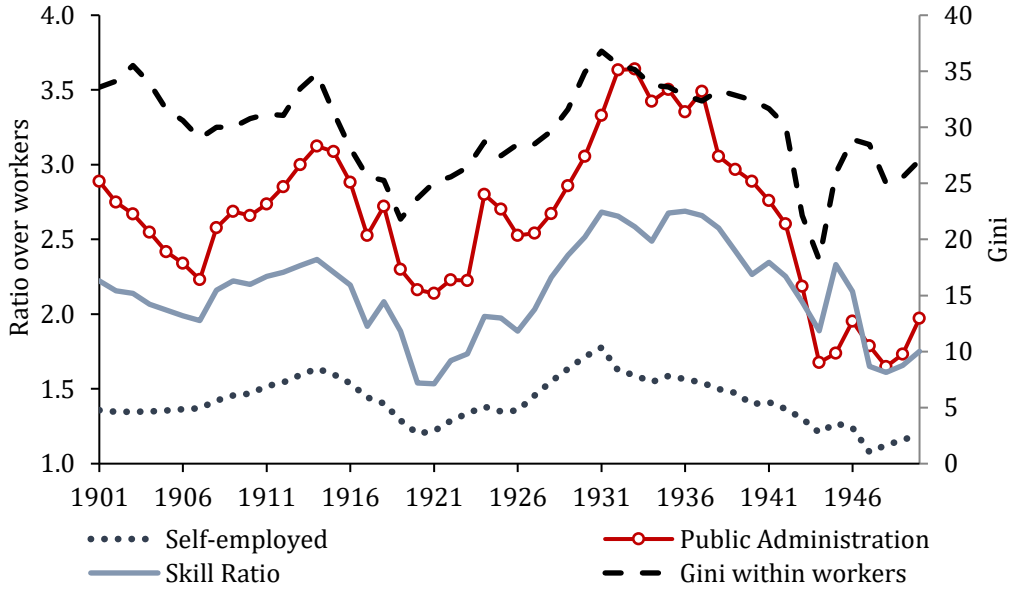
It is interesting to note that the initial increase in labour inequality, in 1919-1922, was 'positively' driven by growing blue collar wages, resulting from the increases gained in the red biennium, while from 1922 on, it is the difference between white and blue collars that explains the overall trend in Figure 4. Indeed, the 1920s represented a continual increase in the relative position of Italian white collars, contributing to the overall increase in labour income inequality. Together with the 'endogenous' forces and deliberate policy choices, it should be noted that this decade saw, as mentioned in the literature review, a strong restriction in the ability of Italian workers to migrate, which had contributed to the increase in unskilled wages in the Liberal period (Gomellini, Ó Gráda and Vecchi, 2017). The skill ratio peaked in the early 1930, and, consistently with the concessions to trade unions and blue collar workers, the relative position of blue collar workers started to improve; nonetheless, the ratio remained high, and close to the peak for most of the decade. The outbreak of WWII, as discussed above, led to a strong equalisation within labour, resulting in a quick fall of the skill ratio, almost back to the low level of 1920-21, before some increase in the late 1940s.

It is tempting to see the trend of this ratio as quantitative evidence for the effective way in which the fascist regime managed to constraint labour: from the mid-1920s, official, 'corporatist' trade unions were the only representatives of the workers, and in fact, usually acted as a transmission mechanism for government policy decisions (Musso, 2016, pp. 273-275; Mattesini and Quintieri, 2006, pp. 418-422). Interestingly, the dynamic social tables allow us to observe that this did not simply mean the compression of industrial wages, but more generally, a widening gap between waged and salaried workers, and moreover a reversal in the short-term reduction of labour income inequality resulting from the Great War.

Figure 6 shows the varying relative fortunes of both private and public employees, as well as those of the self-employed workers. The graph reveals that, whether the Italian urban middle classes experienced the 'red menace' or not (Acemoglu et al., 2022), they were probably feeling a relative impoverishment in the years of the so-called 'Crisis of Liberal Italy', in line with contemporary perceptions (Morris, 1996, p. 285). After a relative improvement in the first decade of the century, the years of 1914-1919 saw all these groups losing ground, in comparison with the waged workers, confirming and extending to more groups what contemporary observers had already denounced (Zamagni, 1981, p. 517-22). On the other hand, with some differences in both timing and magnitude, the later period was a 'restauration' of the previous differences, and even new maximum levels.

Interestingly, the deflationary shift of 1926 seems to be a turning point: in the years of deflation, when the working class saw falling wages and working hours, the Italian urban middle classes (both the wealthier white collars, and the more modest shopkeepers and artisans) seemed to prosper, at least relative to the waged workers. Establishing whether the move found its 'rationale' in the aim of consolidating the support of these groups goes beyond the scope of this quantitative reconstruction, but we can conclude that this result, whether intended or not, was achieved. On the other hand, fortunes seem to change from the late 1930s, when, also as a consequence of increased public expenditure, Italy was eventually forced to leave the Gold Standard (Toniolo, 1980, pp 287-294).

Figure 6 – The Relative Position of Italian Urban* Middle Classes, *1900-1950



Sources: authors' elaborations based on the sources listed in Online Appendix 1 and 2.
Notes: Skills ratio and Gini between workers as in Figure 5; public administration and self-employed ratios are obtained as the ratios of, respectively, salary earners in public administration, and the self-employed in industry and services, over the same denominator for the skills ratio.

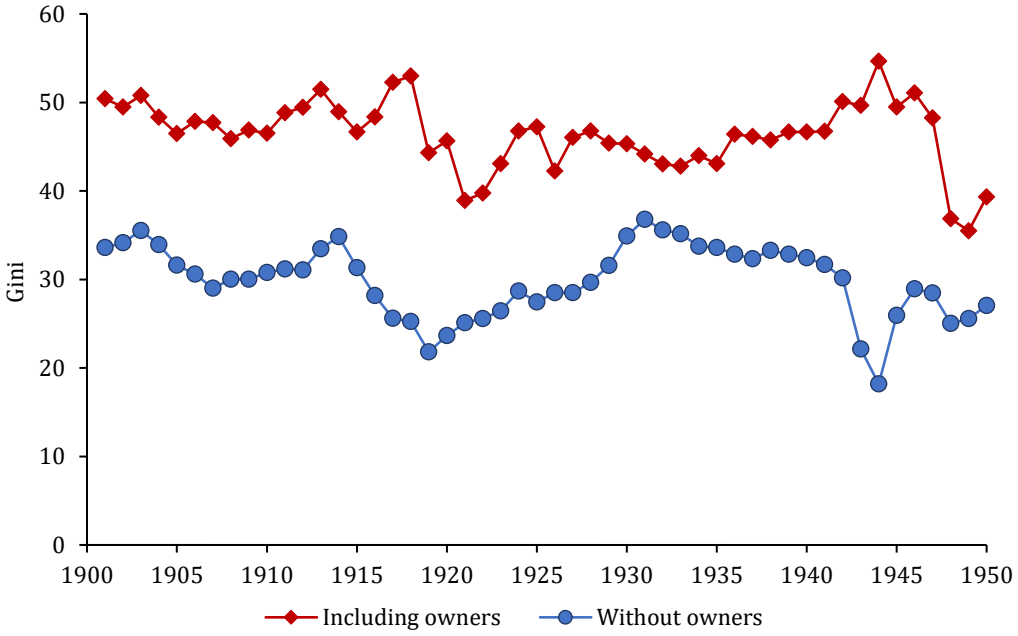
Overall Income Inequality

Income inequality is not limited to within-labour dynamics. Figure 7 shows the results for overall inequality, when we include the incomes of the owners. In line with what would have been theoretically predictable, the inclusion of individuals at the top part of the distribution affects the level of our inequality estimates, but also their trend.[27] The inclusion of owners' incomes makes the decline in overall inequality at the beginning of the century more clear, in line with Vecchi (2017), and then 'delays' the fall in inequality to the red biennium — actually, the Gini increases in 1917 and 1918, peaking at 53. While the extent of the 1920s reversal is somehow limited by the volatile progression of the owners ratio, the overall inequality series in Figure 7 also show a later increase in inequality throughout the whole *Ventennio*,

[27] Alternative figures, based on the 50% residuals and the tabulations of the *Ricchezza mobile*, also confirm these trends (possibly reinforcing the inequality increase in the 1920s); they are reported in Online Appendix 3, Figure A.10. Inequality trends are also confirmed when estimating alternative inequality indicators (Figure A.11); notably, the Theil index — which is more sensitive to income changes registered in the upper part of the distribution — reports steeper rises in both WWI and WWII, as a result of the abrupt increase of the ratios in those years.

peaking in the troubled years of WWII, before there is a sizeable reduction in the first years of the Italian Republic.[28]

Figure 7 – Inequality in Italy, With and Without Owners, 1900-1950



Source: authors' elaborations based on the sources listed in Online Appendix 1 and 2.
Notes: Gini without owners as in Figure 4; series including owners are computed in the same way, but also include owners in agriculture, industry and services.

It is clear that, despite the 'British' fall in within-labour inequality, the Great War resulted in a great increase in capital incomes for owners in industry, as already evident from Figure 3; in this sense, Italy shows a 'German' side, whose net effect causes inequality to increase. Indeed, while new taxes covered only 8% of the war expenditures, compared to figures between 10 and 25% in France, Germany, UK and US (Frascani, 1975, p. 31), Italy opted for an authoritarian management of the war effort (Procacci, 2013).[29] In the troubled post-WW1, the last liberal governments effectively managed to expand the Italian welfare state, extending it to rural workers for the first time (Giorgi an Pavan 2021). In the same years, although less effectively, these governments had also tried to progressively transform taxation (Gabbuti and

[28] A better understanding of this dynamic comes from looking at the owners ratios, resulting from the residual VA: they are reported, separately for agriculture, industry and private services, in Online Appendix 2, Figure A.8.
[29] As stressed by Giorgi and Pavan (2021, p. 57), by assigning the mobilisation management to a military, General Alfredo Dallolio, Italy had distanced itself from its allies, who had appointed civilian reformers, such as Albert Thomas in France and David Lloyd George in Britain.

Settis, forthcoming): together with the aforementioned labour mobilisation, and the 1920-21 international recession, this muted political environment can explain the fall in capital incomes, and thus the reduction of overall inequality, in the years between the end of the Great War and the March on Rome.

Industrial owners recovered strongly in the early 1920s, when the laissez-faire policies of Minister De Stefani — including some of the first privatisation policies in history (Bel, 2011) and a reversal in the expansion of welfare and in the progressivity of taxation (most notably, with the unexpected abolition of inheritance taxation) (Gabbuti, 2021b) — combined with labour repression, explicitly aimed at making Italy attractive to Italian and foreign capitalists, and to boost investment (Marcoaldi, 1986, pp. 12-13).

Industry also seemed to drive the changing trend in the mid-1920s: notably, both the alternative Gini series included in the Online Appendix 3 — not only that resulting from tabulations, but also the 'conservative' one, in which we attribute only 50 per cent of the residual to the owners — show a much smoother, constant increase in overall inequality, from 1921 to 1931. In all specifications, including owners' incomes compensates for the fall in within-labour dispersion, resulting into a 'plateau' of overall inequality (around 43), in line with the increase in top income shares detected by Gabbuti (2020a) between 1925 and the mid-1930s. As discussed by the author, however, that indicator (and more generally, the fiscal sources, given the fall of assessed incomes as a share of GDP) fails to capture the evolution of the incomes of the wealthy in the late 1930s. On the contrary, our series reveals how the position of the richest continued to improve even in that new phase. When the rhetoric of the regime became more anti-capitalistic, and the Fascists claimed to be "going towards the people", the owners ratios increased, and even skyrocketed during the war years, meaning that inequality reached a maximum peak of 55 in 1944.

Interestingly, taking the long-run perspective, the last years of our series show a sustained fall in inequality, bringing the Gini at 35 in 1949, from a level close to 50 in 1901. This 'levelling' is even more sustained once we take owners' incomes into account, but it takes place almost entirely in the immediate aftermath of the war, during the "Reconstruction" years. The final year of our series also reveals a

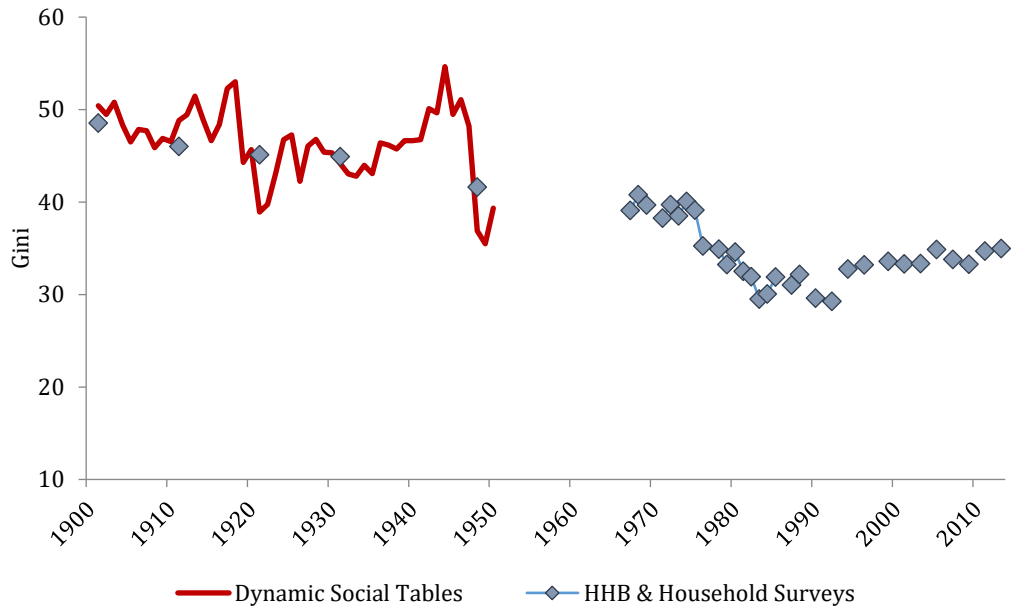
small increase, both in within labour and overall inequality, just before the start of the so-called 'Economic Miracle': a period of sustained industrialisation and structural change, in which the Italian economy and society were radically transformed. But how do they compare to the existing evidence of Italian income inequality in this period, and in the long-term?

The Long-term Perspective

In Figure 8 we compare the new inequality series based on dynamic social tables with those based on historical household budgets (1901-1931) and modern household budget surveys (1948, and then regularly from the late-1960s). The comparison is only partially meaningful, given the different definitions (households vs. market income) and sources: while dynamic social tables are, due to their construction, able to reflect all the year by year variation between sectors and genders, and also takes into account trends in capital incomes, they inevitably miss all the variation within each of our groups. That said, a positive aspect of the inclusion of owners' incomes, under the reasonable assumption adopted as our baseline, is that it moves the level of our estimates very close to those presented in Vecchi (2017), further reassuring us on the reliability of our estimates.

Indeed, despite the great year-to-year variation, our estimates almost perfectly 'fit' the decadal estimates obtained by means of the household budgets. While not altering the long-term picture of declining income inequality, dynamic social tables revealed sizeable short-term distributive episodes, such as the Great War, and the marked regressive nature of the fascist regime, which managed to partially revert this trend. The discussion of inequality forces revealed some of the driving factors behind both the long-term equalisation, and the short-term reversal, such as the skill and gender ratios. Even though it poses difficult methodological issues to solve, it would be ideal to find a way to combine the macro structure of the dynamic social tables with the micro-level evidence from historical household budgets, to fully capture between and within inequality; in any case, Figure 8 reveals how dynamic social tables can improve our understanding of short-term distributive dynamics, even in countries such as Italy, for which we can already rely on solid evidence of historical long-term inequality.

Figure 8 – Inequality in 20th Century Italy: The Long and the Short-Run



Sources: Gini estimates obtained from household surveys are from Amendola and Vecchi (2017); those obtained from dynamic social tables are authors' elaborations, as in Figure 7.
Notes: Ginis are expressed in percentages.

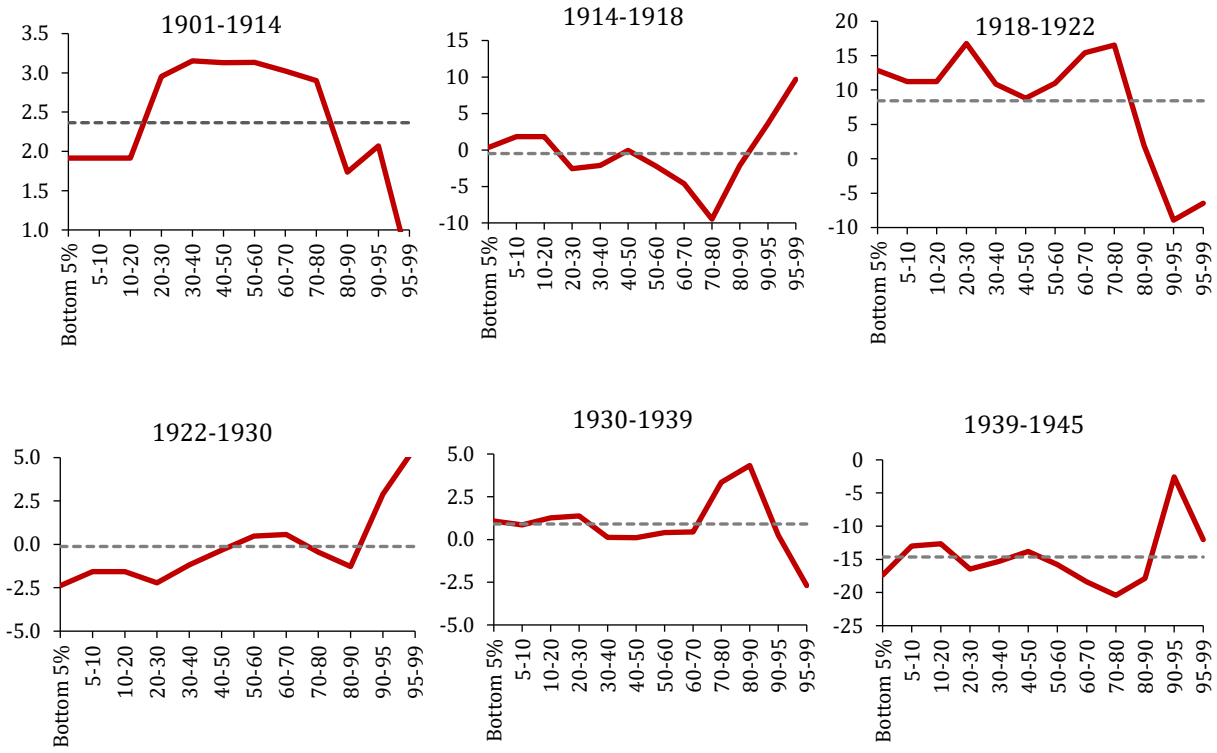
Income Growth Distribution

Another way of appreciating the consistency between our 'macro' exercise, and the household budget analysis by Vecchi (2017) and co-author's, as well as the greater short-run detail allowed by dynamic social tables, are the so-called growth incidences curves (GICs henceforth). GICs display compound growth rates in average incomes for particular segments of the distribution between two benchmark years (signalling most relevant short-term episodes), and allow us to identify how different segments of the workforce were affected during periods of economic expansion or economic downturn.[30] An upward trend indicates that the richest segments of the workforce benefited relatively more during a specific period, suggesting an increase in inequality; a downward trend suggests the reverse. Figure 9 reports the GICs obtained from our dynamic social table for Italy at different periods. Our GICs are consistent with those computed by Amendola and Vecchi (2017, p. 323) whenever the two overlap, that is, the pre-WWI years and the 1920s.

[30] While we cannot follow individual occupations throughout time, we observe that, in general, occupational groups placed in particular fractiles of the distribution remain in place at different benchmark years.

While the first period shows relative higher gains within the 'middling strata' (with a real income growth rates of 3 per cent annually) the 1920s show high positive gains for the richest 90 per cent (up to 5 per cent annually) to the detriment of the bottom 50, which instead registered negative gains.[31]

Figure 9 – Growth Incidences Curves in Italy, 1901-1950



Sources: authors' elaborations.

Notes: The y-axes show the average annual compound growth rates of real incomes (expressed in %) at different fractiles of the distribution (drawn on the X-axes) between two benchmark years. Solid lines show average annual growth for different segments of the distribution. The straight dashed lines show overall average annual growth. Series were deflated with the CPI (1913 = 100) provided by Istat (2011), tab. 21.5.What these GICs are able to reveal, however, in line with the discussion of this and previous sections, is the opposing trends of 1914-1918, when the highest incomes thrived and registered positive gains (above the average); and 1918-1922, when, on the contrary, the richest 10 per cent worsened with respect to the middle and the lower strata, and even exhibited negative growth rates in average

[31] Amendola and Vecchi (2017) show this result for the whole 1861-1911 period.

real incomes. Notably, the regressive picture of the Great War, which have collapsed during the red biennium, turned again between Mussolini's seizure of power and the Great Depression, when wage workers (at the bottom 40%) were relatively more affected than the "middle classes" (the percentiles between 50 and 90) by the introduction of deflationary policies in 1926 (Cohen, 1972; Giordano and Giugliano, 2015), and major industrialists in strategic sectors were protected and compensated for their losses (Castronovo 1977; La Francesca, 1972).

Between the Great Depression and the World War II, the flat GIC shows a period of general stagnation, when all classes experienced negative growth rates in real incomes, with the exception of what we could define as the "higher middle classes" (percentiles between 70 and 90, represented by self-employed in industry and commerce, professionals, and salaried employees in industry, transports, commerce and public administration). This group seems to have been, however, the worst affected during the war. Indeed, in this period, according to the Bank of Italy (BdI, 1947, pp. 97-99), the "middle classes" were the major losers in the contraction of real incomes, and the "redistribution within both labour and capital", induced by inflation. Precisely as it had occurred during the Great War, these years saw a compression of within-labour inequality, signaling that both self-employed and salaried workers of the middle class were less able than then working class to defend the real value of their incomes, while capital incomes continued to increase, bringing inequality up. The situation was eventually reversed after the end of the war, when the top 10 per cent registered the lowest gains.[32]

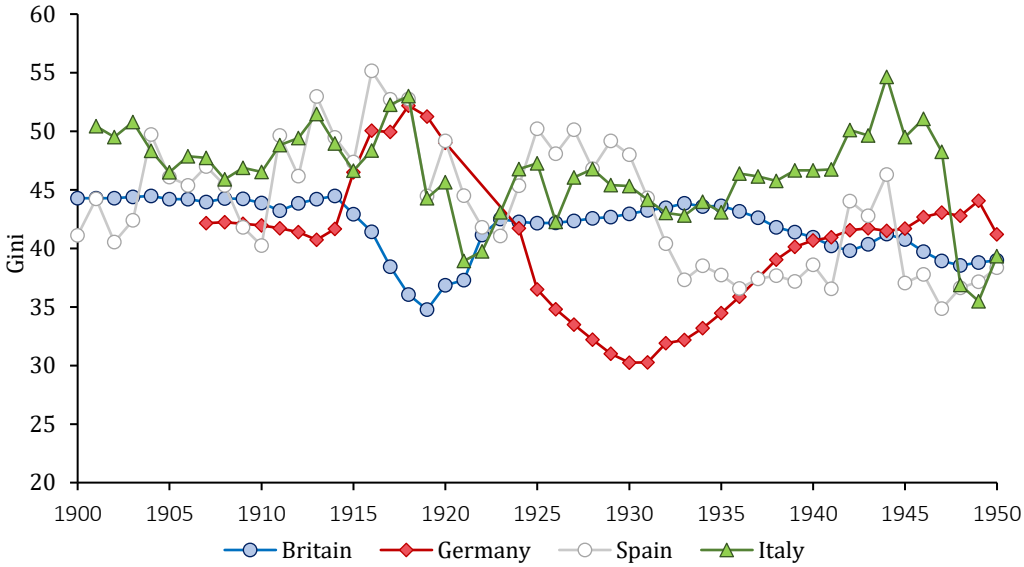
Income Distribution in Interwar Europe

Finally, we show our new inequality series for Italy from an international perspective in Figure 10. A first interesting result is that the levels of inequality do not seem to differ greatly; in fact, Italy and Spain — despite being at a more premature stage of development — were marginally more unequal than Britain and Germany. The figure supports, more consistently, the comparison made by Hauner, Milanovic and Naidu (2020, pp. 14-16), according to which Italy emerged as having

[32] See Online Appendix 3, Figure A9.

relatively high-inequality on the eve of WWI. Secondly, in line with previous evidence, the results for Italy also confirm, once again, the long-term decreasing trend in inequality witnessed by Western European countries during the first half of the twentieth century. Yet, in line with the cases of Germany, Britain (Gómez-León and de Jong, 2019), and Spain (Prados de la Escosura, 2008), our results show that this decline was also not uninterrupted for Italy.

Figure 10 - Inequality in Europe, 1900-1950



Sources: estimates for Italy are described in this paper; series for Britain, Germany and Spain as in Figure 1.

While the impact of the Great War in Italy was overall similar to that in Germany, Italy managed, as did Britain, to avoid a substantial reduction in inequality in the following years; and indeed, as in Germany, would reach new peaks of inequality in the World War II. In this sense, while we cannot address any causality between Fascist policies and inequality, our data somehow address Milanovic's (2016, pp. 77-78) question, reported in the introduction, by revealing substantial increases in inequality, both in the early 1920s and in the late 1930s.[33] Similarly, in Spain, the sustained reduction in inequality during the interwar period was interrupted by the Civil War and sharply reversed under Franco's dictatorship, when inequality peaked in 1953 (Prados de la Escosura, 2008). In their own way,

[33] Notably, both these periods, but especially the first, were characterised by strong growth (Baffigi, 2015): as a result, the 1920s is the only known period where there is a positive correlation between per capita GDP growth and inequality in Italy's distributive modern history.

therefore, the fascist dictatorships of the interwar period show regressive outcomes in terms of the distribution of income. The experiences of these countries suggest that a reduction in inequality driven by 'malign' shocks, such as wars, might have short-lived effects, where pro-rich policies gained some ground and offset them. Indeed, the reduction in inequality achieved in the red biennium in Italy, the Weimar Republic in Germany and the Second Republic in Spain was eventually reverted. It was only at the end of World War II that inequality began to decrease again, and a new, partly unwritten history was to begin.

Conclusions

Using dynamic social tables, this paper presented new, yearly series of income inequality for Italy in the first half of the 20th century, which substantially revises the distributive history of these crucial decades. Results confirm the long-term decline in income inequality (Vecchi, 2017), and reveal serious, so far overlooked periods of short-term turbulence. After an initial decline, both within-labour and overall inequality increased during the most intense phase of the first Italian industrialisation. The Great War was a substantial, overlooked distributive shock: in line with the evidence on labour shares (Gabbuti, 2021a), capital incomes increased, but there was a strong reduction of within-labour inequality. This compression further continued in the 1918-22 period, but this time, in a context of wage increases for rural and industrial workers, and of timid progressive reforms in terms of taxation and welfare. The March on Rome was a further watershed: within-labour inequality sharply increased throughout the whole decade, driven by gender and skills ratios, as well as the increased gaps between middle classes and workers. The inclusion of owners incomes partly complicates the picture, especially in the years in which residuals more clearly underestimate their evolution, but makes it clear that the partial compression of within-labour inequality in the 1930s did not lead to overall inequality reduction. This inclusion allowed us also to highlight the similarities between the two World Wars: despite the very different management (and outcome), also in 1939-45 we observed a reduction of within-labour inequality, with the middle classes (the backbone of Fascist support) disproportionately hit by inflation, and capital incomes driving inequality up. While

gender gaps emerge as one of the driving forces behind the Italian 'Great Levelling', the fascist decades stand out as a period of substantial reversal.

Notwithstanding the limitations, our new estimates obtained from dynamic social tables made it also possible to consistently compare income inequality in Italy with that of Britain, Germany and Spain over the same period. Despite different stages of development, this revealed a comparable level of inequality across the four countries, as well as the common regressive impact of fascist regimes. The interwar decades teach us that 'malign' shocks do not necessarily lead to long-lasting reductions in inequality, where 'egalitarian' effects are offset by pro-rich policies, as happened in Germany, Italy, and Spain. It was only at the end of World War II that inequality substantially fell in Italy. The following 'Golden Age' remains, however, uncharted territory in terms of income and wealth distribution. Indeed, longer estimates could help to bridge the gap in Italian household budget data between 1948 and 1967; similar series would also make possible to discuss longer-run factors behind the Italian 'Great levelling', such as demographic forces or structural changes. Series for more countries, on the other hand, would make it possible to generalise this first comparison, and even to investigate whether changes in inequality (and particularly, abrupt reductions, substantially altering the relative position of the richest echelons of society) could contribute to explaining, together with economic growth, the rise of right-wing dictatorship in interwar Europe (De Bromhead, Eichengreen and O'Rourke, 2013).

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Appendix 1 - Structure of the Sample

Table A1. Structure of the sample by work status and gender

Total Active Population						
	Sample		Occupied		Unoccupied	
Census benchmark years	(in thousands)	% of total population*	Males (%)	Females (%)	Males (%)	Females (%)
1901	17,134	0.52	0.65	0.35	0.63	0.37
1911	18,653	0.51	0.65	0.35	0.64	0.36
1921	20,139	0.53	0.67	0.33	0.76	0.24
1931	20,869	0.51	0.68	0.32	0.65	0.35
1936	22,674	0.53	0.67	0.33	0.55	0.45
1951	24,185	0.51	0.72	0.28	0.62	0.38

Sources: MAIC (1902,1914, 1927) and ISTAT (1933, 1937, 1954). For percentages of total population we use: total population reported in Istat (2011), Table 2.

Table A2. Number/ structure of occupational groups and classes

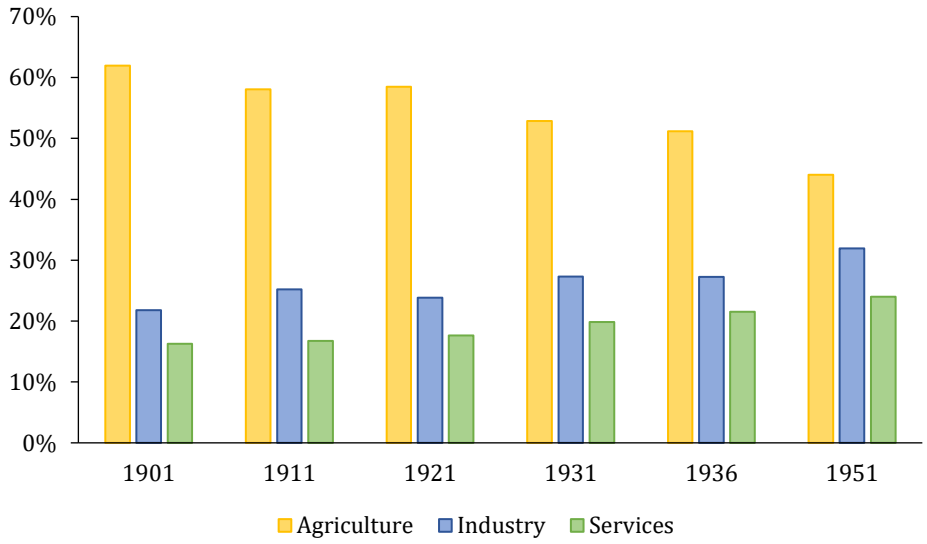
Sectors	**Work categories**					**Gender categories**	**Total classes**
	Owners	Self-employed	Salary-earners	Wage-earners	SUM	Males/females	**SUM**
Agriculture	1	1		1	**3**	All *2	**6**
Industry	1	1	1	12	**15**		**30**
Commerce & Transport		2	2	2	**6**		**12**
Public Administration			1	1	**2**		**4**
Personal Services			1	1	**2**		**4**
Liberal Professions			1		**1**		**2**
Without occupation				1	1		**2**
Total	**2**	**4**	**6**	**18**	**30**		**60**

Table A.3. Structure of the samples by work categories

Census benchmark years	Work categories (% of the total active population)				
	Owners	Self-employed	Salaried employees	Wage earners	Unoccupied
1901	0.11	0.26	0.04	0.56	0.03
1911	0.08	0.21	0.05	0.63	0.03
1921	0.13	0.21	0.05	0.57	0.05
1931	0.14	0.25	0.08	0.48	0.05
1936	0.11	0.26	0.08	0.45	0.09
1951	0.08	0.25	0.09	0.42	0.16

Source: See main paper, section "Sources and Data".

Figure A.1. Structure of the sample by sector



Source: See main paper, section "Sources and Data".

Appendix 2 - Reconstruction of Income Series

Income Sources

Table A4. Sources of income data for Italy (1900-1950)

Source	Period	Data	Type	Sectors and sub-sectors
Zamagni (1984)	**1900-14**	Daily wages *transformed into annual (270 days)	Workers	**Industry** Bricks Chemical Gas Mining Leather Paper Tobacco
Zamagni (1995)	**1900-39**	Daily wages *transformed into annual (270 days in industry)	Workers	**Agriculture** **Industry** Building Metal engineering Mining Textile Total industry
Zamagni (1976)	**1928-39**	Hourly wages *Transformed into daily then into annual (270 days in industry)	Workers	**Industry** Bricks Chemical Mining Paper Wood
Zamagni (1980)	**1910; 1925-38; 1929-37**	Annual income from employment	Salaried employees and Workers	**Commerce & Hotels** (clerical and operational staff) **Education** **Public Administration** (clerical and operational staff) **Railways**
Rey and Vitali (1991)	**1900-50**	Annual income from employment	Salaried employees	**Public Administration** Directors, managers and clerical staff
Italy's Statistical Abstract (1953)	**1911-50**	Daily wages *transformed into annual (270 days in industry)	Workers	**Agriculture** **Industry**
		Annual income from employment	Salaried employees	**Central Government** Directors, managers and clerical staff

Table A5. Source of estimations of income by sector and work status

Sector	1900-1913	1914-1927	1928-1939	1940-1950
Metal engineering	**Zamagni (1995)**			1939 estimation projected forwards using the evolution of average wages industry in **Italy's Statistical Abstract (1953)**
Building	**Zamagni (1995)**			1939 estimation projected forwards using the evolution of average wages industry in **Italy's Statistical Abstract (1953)**
Textile and Dress	**Zamagni (1995)**			1939 estimation projected forwards using the evolution of average wages industry in **Italy's Statistical Abstract (1953)**
Building	**Zamagni (1995)**			1939 estimation projected forwards using the evolution of average wages industry in **Italy's Statistical Abstract (1953)**
Mining	**Zamagni (1984)**	Extrapolated from Metal		1939 estimation projected forwards using the evolution of average wages industry in **Italy's Statistical Abstract (1953)**
Chemical	**Zamagni (1984)**	Extrapolated from Metal	**Zamagni (1976)**	1939 estimation projected forwards using the evolution of average wages industry in **Italy's Statistical Abstract (1953)**
Bricks, pottery, glass	**Zamagni (1984)**	Extrapolated from Building	**Zamagni (1976)**	1939 estimation projected forwards using the evolution of wages industry in Building
Wood, furniture	1913 estimation projected backwards using the evolution of wages in Building	**Zamagni (1984)**	**Zamagni (1976)**	1939 estimation projected forwards using the evolution of average wages industry in Building
Food, drinks and tobacco	**Zamagni (1984)**	1913 estimation projected forwards using the evolution of wages in Textile		
Paper, printing	**Zamagni (1984)**	Extrapolation based on Lasorsa (1931)	**Zamagni (1976)**	1939 estimation projected forwards using the evolution of average wages industry in **Italy's Statistical Abstract (1953)**
Leather	**Zamagni (1984)**	11913 estimation projected forwards using the evolution of average wages industry in **Italy's Statistical Abstract (1953)**		
Agriculture	1911 estimation projected backwards using the evolution of unskilled wages in Fenoaltea (2002)	**1911-1950 Italy's Statistical Abstract (1953)**		

Table A5. Source of estimations of income by sector and work status (cont)

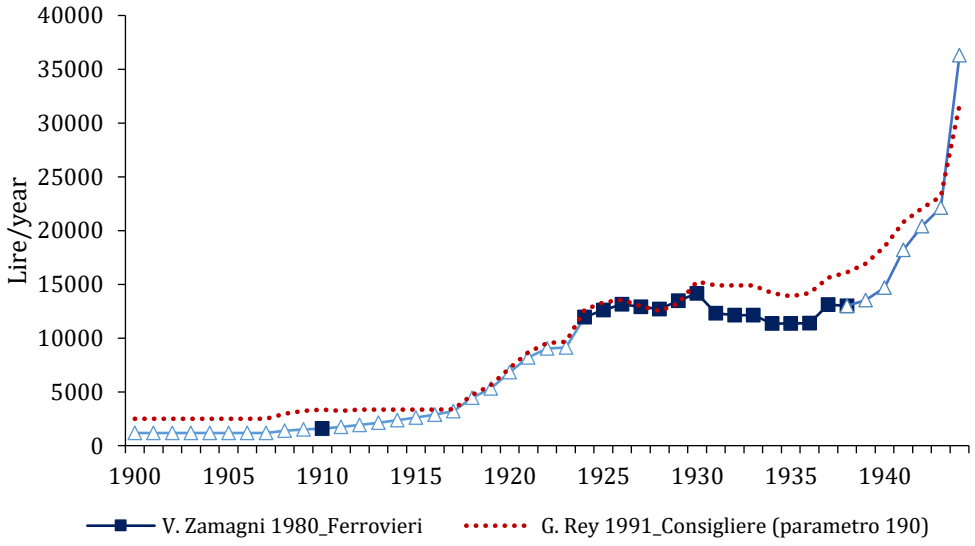
Sector	Work status	1900-1910	1910	1911-25	1925-1938	1938-1950
Industry	Salaried-employee	=Associated to salaries of the highest category of clerical personnel in the Central Government (*capo commesso*) in Rey and Vitali (1991), which are equivalent to the salary for employees in industry reported in Zamagni 1980 p. 38				
Transport	Salaried-employee	1910 estimation projected backwards based on the evolution of *Consigliere Parametro 190*, the lowest category of directive personnel in Rey and Vitali (1991)	Associated to *Ferrovieri* in Zamagni (1980)	Data interpolated	Associated to *Ferrovieri* in Zamagni (1980)	1939 estimation projected forwards based on the evolution of *capo commesso*, the highest category of auxiliary personnel in Rey and Vitali (1991)
	Worker	1910 estimation projected backwards based on the evolution of *Commesso Parametro 100*, the lowest category of auxiliary personnel in Rey and Vitali (1991)	Associated to *Operai* in Zamagni (1980)	Data interpolated	Associated to *Operai* in Zamagni (1980)	1939 estimation projected forwards based on the evolution of *Coadiutore parametro 133*, the intermediate category of managerial personnel in Rey and Vitali (1991)
Public Administration	Salaried-employee	1910 estimation projected backwards based on the evolution of *Consigliere Parametro 190*, the lowest category of directive personnel in Rey and Vitali (1991)	Associated to Civil servant of the State (*Impiegati Civile*) in Zamagni (1980)	Data interpolated	Associated to Civil servant of the State (*Impiegati Civile*) in Zamagni (1980)	1939 estimation projected forwards based on the evolution of *Consigliere Parametro 190*, the lowest category of directive personnel in Rey and Vitali (1991)
	Worker	1910 estimation projected backwards based on the evolution of *Capo Commesso*, the highest category of auxiliary personnel in Rey and Vitali (1991)	Associated to other employees of the State (*Dipend. altre)* in Zamagni (1980)	Data interpolated	Associated to other employees of the State (*Dipend. altre)* in Zamagni (1980)	1939 estimation projected forwards based on the evolution of *Coadiutore parametro 133*, the intermediate category of managerial personnel in Rey and Vitali (1991)
Professionals	Salaried-employee	1910 estimation projected backwards based on the evolution of *Commesso Parametro 115*, an intermediate category of auxiliary personnel in Rey and Vitali (1991)	Associated to *Insegnanti* in Zamagni (1980)	Data interpolated	Associated to *Insegnanti* in Zamagni (1980	1939 estimation projected forwards based on the evolution of *Commesso Parametro 115*, an intermediate category of auxiliary personnel in Rey and Vitali (1991)
Hotel, Catering and Pers. Services	Salaried-employee	1925 estimation projected backwards based on the evolution of *Usher*, in Italy's Statistical Abstract (1953)			Associated to "personale amm" of "commercio e settore alberghiero" in Zamagni (1980)	1939 estimation projected forwards based on the evolution of *Usher*, in Italy's Statistical Abstract (1953)
	Worker	1925 estimation projected backwards based on the evolution of *Usher*, in Italy's Statistical Abstract (1953)			Associated to "*albergui"* in Zamagni (1980)	1939 estimation projected forwards based on the evolution of *Usher*, in Italy's Statistical Abstract (1953)
Unoccupied	=the poorest category (unskilled workers in agriculture)					

Table A6. Sources and estimations of income differences by gender and sector

Sectors	**Estimated incomes:**	Source
Agriculture	1911-1951 actual data on female wages	Italy's Statistical Abstract (1953)
Heavy industry	1901, 1910, 1914, 1918, 1925, 1930, 1938, 1950 =43, 47, 46, 65, 65, 52, 50, 71% (respectively) of men	Annuario Statistico Italiano (1900, 1905-07, 1911, 1913, 1917-1918) , Bettio (1988), Lasorsa (1931),
Light industry	1901, 1910, 1914, 1925, 1930, 1938, 1950 =56, 64, 64, 77, 48, 50, 71% (respectively) of men	Annuario Statistico Italiano (1900, 1905-07, 1911, 1913, 1917-1918) , Bettio (1988), Lasorsa (1931),
Railway	1901, 1911, 1938= 45, 50, 55%(respectively) of men	Felice (2005)
Commerce	1901, 1911, 1938= 53, 55, 60% (respectively) of men	Felice (2005)
Credits	1901, 1911, 1938= 38, 40, 60% (respectively) of men	Felice (2005)
Various serv.	1901, 1911, 1938=55, 55, 60% (respectively) of men	Felice (2005)
Public Administration	1901, 1911, 1938=45, 50, 60% (respectively) of men	Felice (2005)
Liberal Professions	1901, 1911, 1938=50, 55, 60% (respectively) of men	Felice (2005)
Personal services	1911, 1938=70, 75% (respectively) of men	Felice (2005)
Salaried employees	1911, 1938=55, 60% (respectively) of men	Felice (2005)

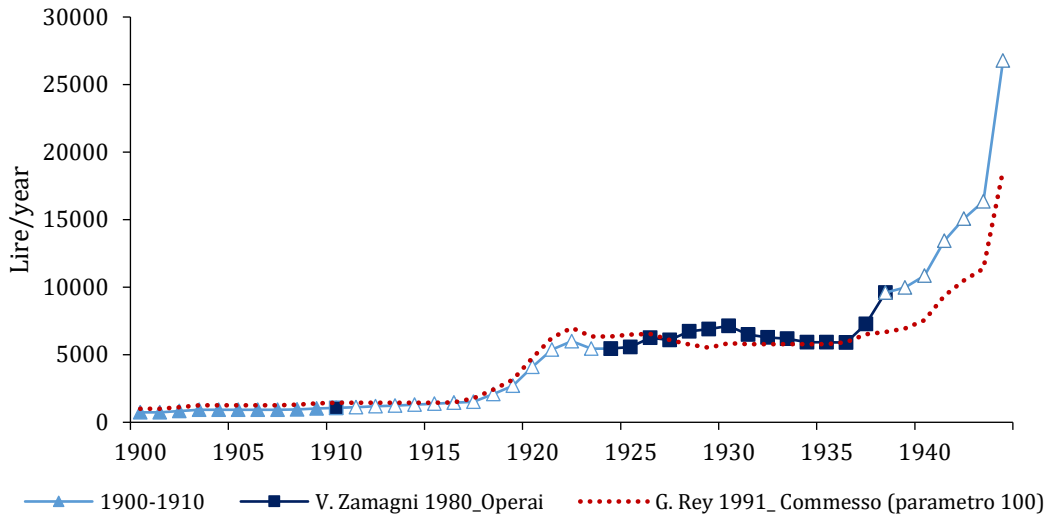
Reconstructing Incomes Wage and Salary-Earners

Figure A.2. Example: re-construction of incomes of salary-earners in transport (1900-1950)



Sources: See main paper, section "Sources and Data". and tables A3 and A4.

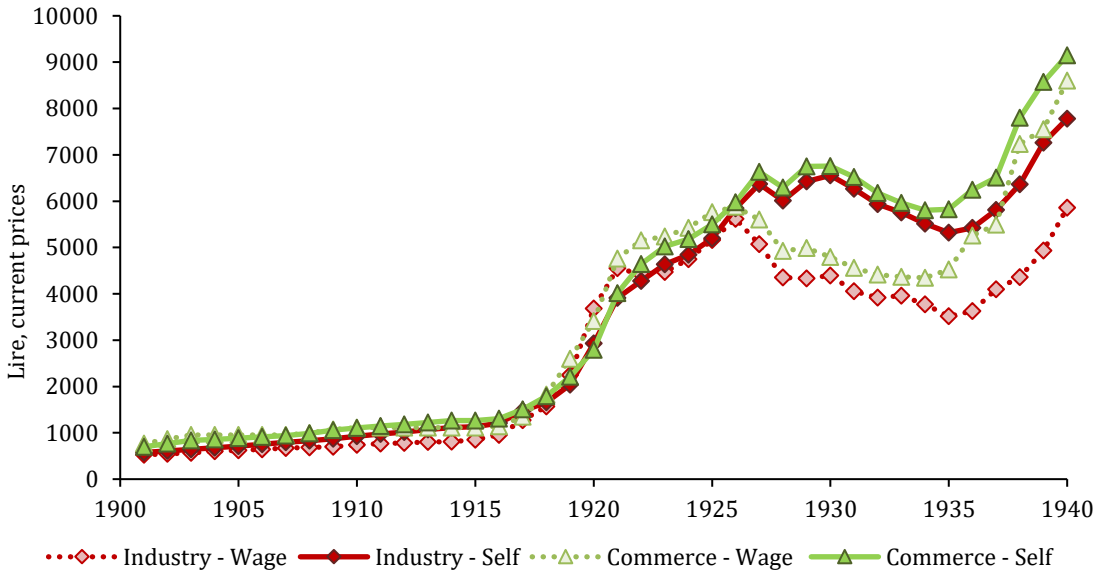
Figure A.3 Example: re-construction of incomes of wage-earners in transport (1900-1950)



Sources: See main paper, section "Sources and Data". and tables A3 and A4.

Incomes of Self-Employed, 1900-1940

Figure A.4 – Self-employed incomes: alternative estimates



The graph reports the series for self-employed workers in Industry and commerce; they are obtained, as described in main paper, section "Sources and Data", by taking the mean of the average wage in the corresponding sector (also reported in the graph), and the average income declared by private taxpayers for the Schedule B of the *Imposta di ricchezza mobile*, scaled up by a third to account for evasion and tax exceptions. An analogous procedure has been followed for the self-employed in transport. The figures on declared tax incomes have been compiled from Manestra (2010) and MEF (1901, 1903, 1905, 1915, 1926, 1932, 1950, 1951a, 1951b, 1952, 1953).

Incomes of Owners

Figure A.5 – Owners ratios in industry and private services: alternative estimates

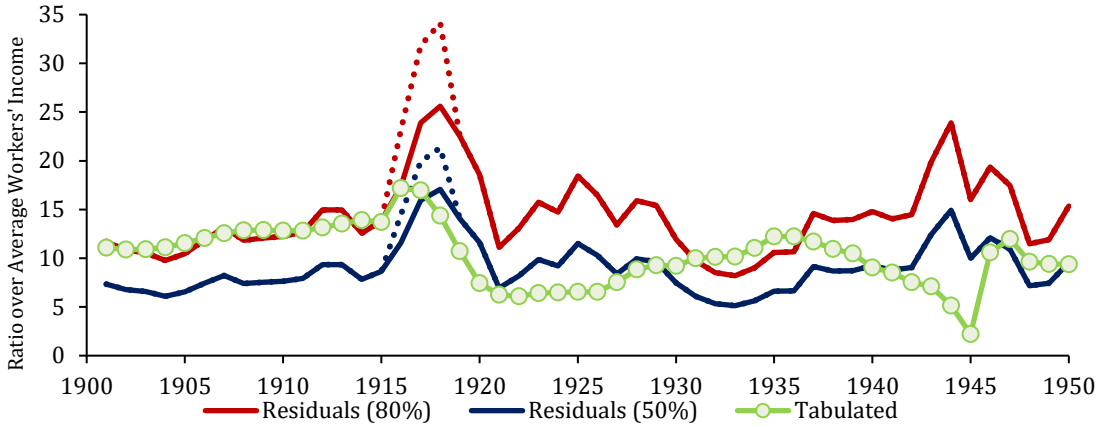
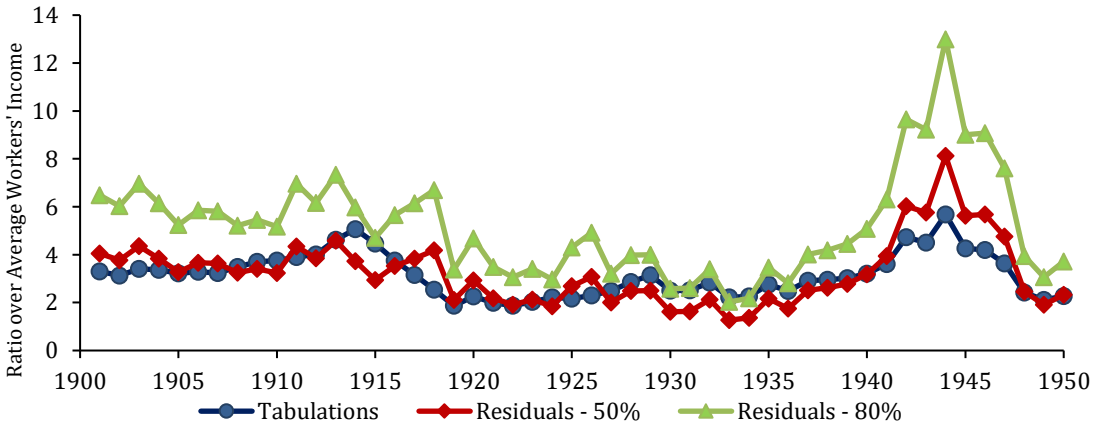


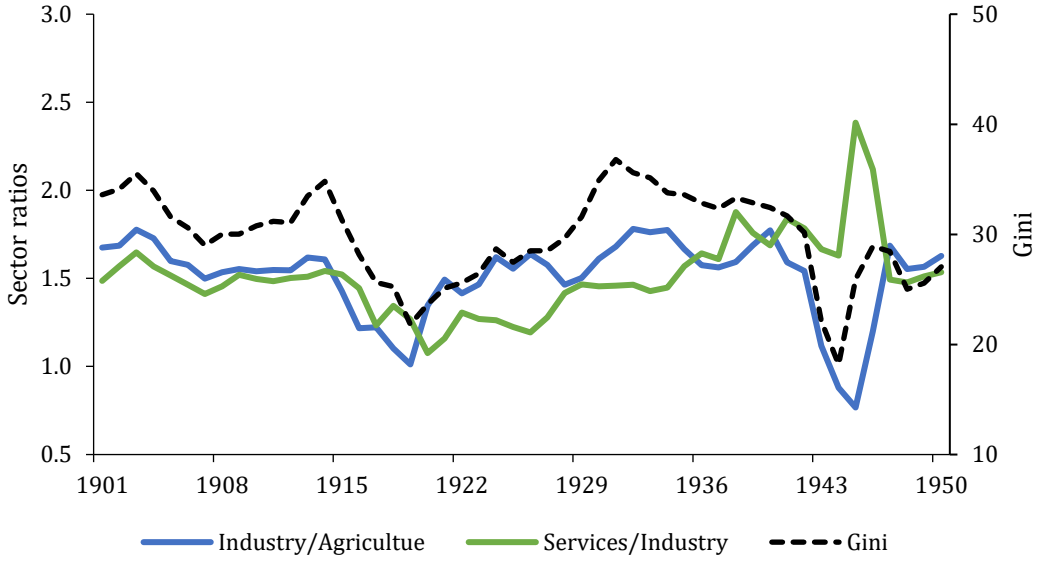
Figure A.6 – Owners ratios in agriculture: alternative estimates



As discussed in the main paper, section "Sources and Data", the main estimates of owners incomes in the paper are obtained by computing the residual value added, separately for agriculture, industry and private services (excluding miscellaneous services and location of buildings), after subtracting the total labour of these sectors, obtained by summing up all the incomes of both self and dependent workers, with the exclusion of professionals (the resulting labour shares are reproduced in Figure 3). In order to avoid an overestimation of owners' incomes, we adopted 80% of this residual, for both sectors in our baseline estimates. As shown in Figure A.5, the years 1916-1918 show a sharp, enormous increase in owners incomes for industry; in light of the precarious evidence for these years, we preferred to further scale down the residuals for these years, to 60% and 40% respectively; in this way, the WWI ratio remains slightly above the level reached in 1944. A third series was then constructed, starting from the tabulations of Imposta di Ricchezza Mobile, disaggregated by main sector, reported in MEF (1904) and Orlandi (1933, 1934) for the years 1902, 1922 and 1929, and MEF (1953). From these tabulations, and specifically for agriculture and industrial and services incomes, we computed the average income of the top 10% taxpayers. The values were then interpolated following, for agriculture, the trend of the value added sector from Baffigi (2015); for industry, following the trend in the average return on equity computed from the IMITA.db by Giannetti and Vasta (2006), and for the WWII years, when this RoE is not available, following the average B income from MEF (1951a). During both World Wars, simply projecting these values is insufficient to take into account the changing value of money: for this reason, in 1916-18 and in 1946 we adjusted the values by the CPI, made available by Istat. As discussed in the main text, the tabulated values for 1902, and the subsequent period, are in line with the 80% of residuals; the turbulent

dynamics of the following period (for which we lack sufficient data point) bring it more in line with the 50% ratio.

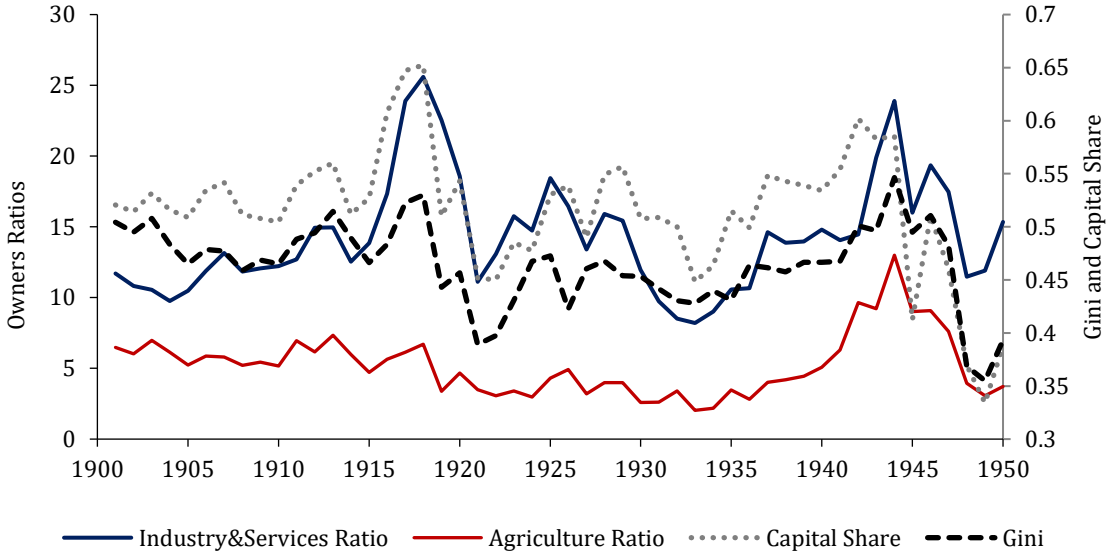
Figure A.7 – Sectoral ratios and Inequality in Italy, 1900-1950



Source: authors' elaborations.

Figure A-7 shows sectoral ratios, computed as the ratio between the average income earned by male workers in industry vs. agriculture, and in services vs. industry.

Figure A.8 – Owners Ratios, Capital Shares and Inequality in Italy, 1900-1950

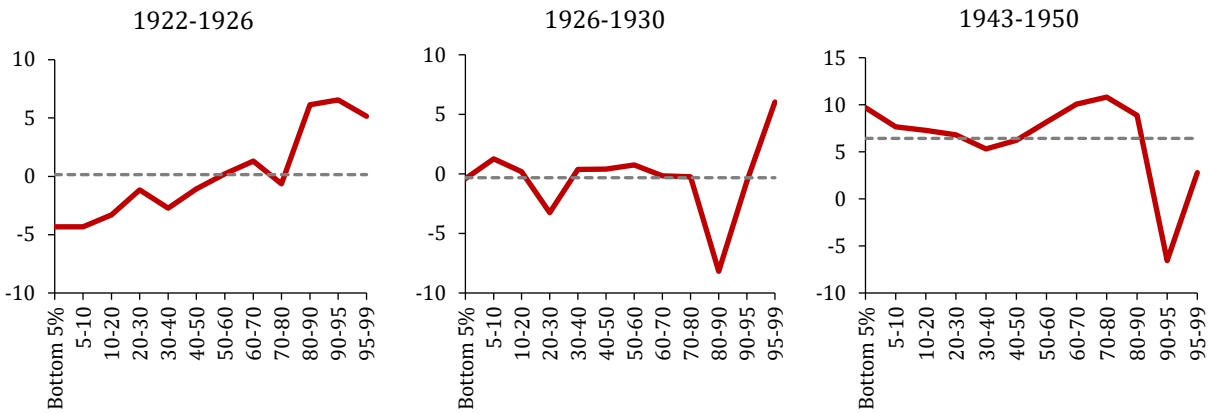


Source: authors' elaborations.

Figure A.8. shows the owners ratios - defined as the ratio between owners and workers average incomes - that result when estimating owners incomes from the 80% VA residual. Owners ratios are reported, separately, for agriculture, industry and private services, alongside the overall Gini and the capital share from Gabbuti (2021a). While clearly driving the results, it is interesting to note that the industry and services ratio is very similar, not only to the dynamics of capital share, but

also those of the return on equity estimated by Giannetti and Vasta (2006, p. 160), by means of micro-level data on firms balance sheets.

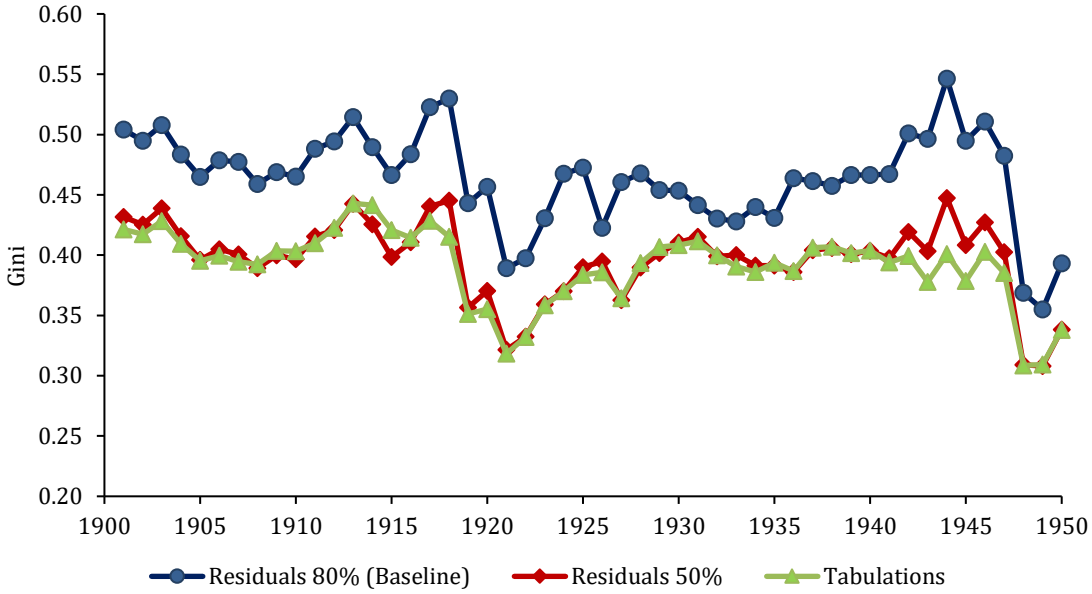
Figure A.9 – Growth Incidences Curves for 1922-26, 1926-30 and 1943-1950



Source: authors' elaborations (see Figure 9 of the main text).

Appendix 3 - Alternative Gini Estimates

Figure A.10 – Overall Gini: Alternative Series



In this figure, we reproduce the baseline Gini for overall inequality (as reproduced in the main text, Figure 7), alongside with the two alternatives, based on the different owners incomes shown in Figures A.5-6. Apart from owners series, all Gini series are based on the same incomes and population series (Tables A1-A4), and computed with the same methodology, described in, section "Sources and Data", and in Figures 5 and 7, of the main text. As mentioned in the main text, the baseline estimate leads to a higher level of the overall Gini – compared to the 50% version, a difference of seven Gini points on average, as well as in 1901, but with a minimum of three in 1931-1933, and a peak of 10 in 1924, and again in 1944, before declining to 5 in 1950. Notably, the levels of both the tabulations and 50% residuals are very similar: for Figures A.5-6, this signals that it is more the agriculture owners ratio than the industry and service that drives the level. For the rest, the trend is very similar, also adopting the tabulations, apart for the WWI and WWII years, and a smoother increasing trend in the 1920s, with a one-year turbulence in the year of the revaluation of the Lira (1927). As discussed in the main text, we also opted for the baseline series for the appealing ability to reach the same levels of overall inequality as Amendola and Vecchi (2017), but overall, the alternative supports the findings.

Figure A.11: Overall inequality: Alternative indicators.

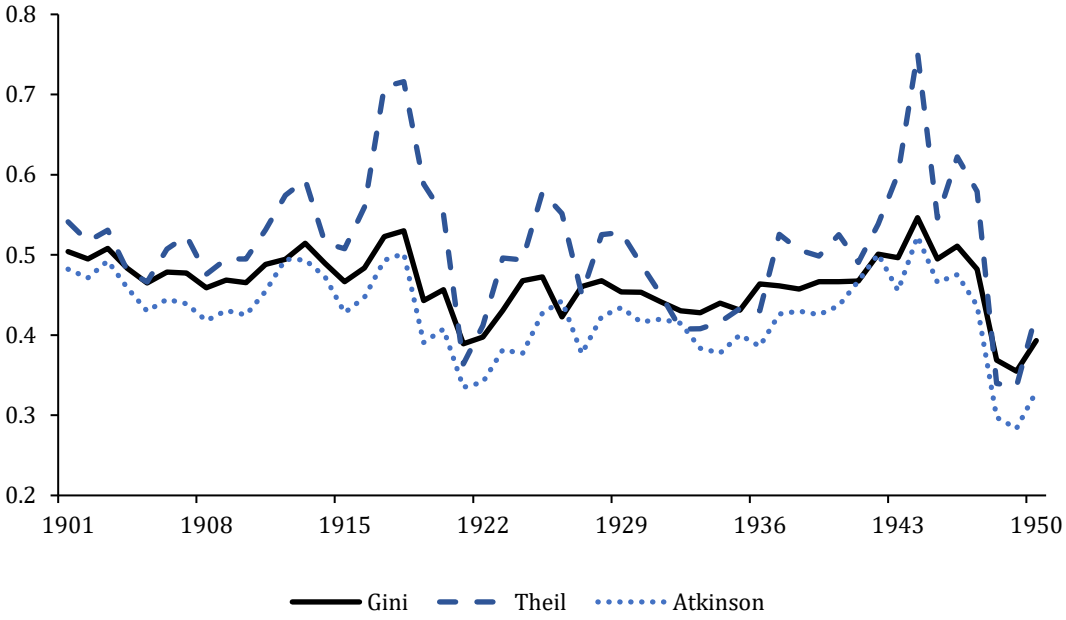


Figure A.11 reports overall inequality when using alternative inequality measures, such as the Gini index, Theil's index and the Atkinson index. Inequality trends are robust to the use of different inequality indicators, but Theil's index -more sensitive to income transfers in the upper part of the distribution- suggest greater increases during the Great War and the Second World War.

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