

Is working enough to escape poverty? Evidence on low-paid workers in Italy

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ABSTRACT

We investigate the dynamics of incidence, intensity and persistence of low pay in Italy from 1990 to 2018 by exploiting a large administrative sample of employees in the private sector. We refer to relative and absolute low pay thresholds and assess workers' conditions according to annual earnings, weekly wages and full-time-equivalent (FTE) weekly wages, to depurate low pay dynamics from the influence of changes in worked weeks and hours. Regardless of the chosen threshold, we find that the incidence of low pay is high and steeply increased in the last decades when the focus is on annual earnings and weekly wages. A flat trend emerges instead when low pay is assessed according to FTE weekly wages, signalling that a major role in the low pay dynamics is played by the reduction in the number of hours worked by low-paid individuals because of the increasing spread of part-time contracts. Nevertheless, the share of low-paid workers is rather high even when the focus is on FTE weekly wages. Furthermore, low pay is a persistent status for a large and rising share of workers. These findings reveal a clear worsening of workers' conditions at the bottom of the earnings distribution in Italy.

1. Introduction

A large literature has documented a rise in earnings inequality in most developed countries over the last decades.¹ Apart from a growing pay dispersion, the rise in earnings inequality has been often associated with the increase in the number of low-paid workers, especially because of the surging spread of atypical contractual arrangements – as part-time and fixed-term contracts – eased by the labour market flexibilization process implemented in many European countries (Lucifora and Salverda, 2009; Boeri, 2011).

The spread of low pay is at odds with the shared idea that being employed is a sufficient condition to have adequate living standards. Considering that the economic literature points out that the individual economic wellbeing should be based on household income (Canberra Group, 2011), low-paid workers would have a low living standard if they had no other own resources (capital or transfer incomes) or did not have access to further adequate incomes earned by their family members. Henceforth, being employed is not a sufficient guarantee to escape poverty (Lucifora et al., 2005; Maitre et al., 2012; Hick and Marx, 2023).

Some authors overlap the low pay condition with a working poor (or in-work poor) status,² even if a shared definition of working poverty is absent in social sciences (Fraser et al., 2011; Crettaz, 2013; Barbieri et al., 2018; Filandri and Struffolino, 2019). Two main approaches to studying in-work poverty rely on different definitions, whose founding concepts should be analytically distinguished (Horemans and Marx, 2013): the first refers to the individual dimension and identifies the working poor as low-paid workers (i.e., those whose earnings are below a certain threshold); the second – consistent with the standard approach assessing poverty at the household level (Ravallion, 2016) – refers to household-related characteristics and identifies as working poor those individuals who live in households with a total (equivalised) income below a given threshold.

Following the second approach, the official in-work poverty (IWP) indicator adopted by the European Union (EU) defines as working poor those individuals aged 18–64 who: i) work more than half a year and ii) live in a household with an equivalised disposable income lower than 60 % of the national corresponding median income. The EU definition of IWP is a hybrid concept, as the population subgroup to be analysed is

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¹ See, among the others, OECD (2011), Salverda et al. (2014), Bourguignon (2017), Raitano (2019).

² The terms working poor and in-work poor are used as synonyms in this article.

assessed according to the individual's employment condition, while the poverty status of the worker only depends on household's income.

However, the importance attached to family conditions in determining whether the worker should be considered poor seems at odds with the idea that the conditions experienced by the workers are decisive in considering them poor or not. On the one hand, adequately paid individuals may be poor because of their family needs (e.g., when a single earner has to sustain a large number of household members). On the other hand, low-paid workers may not be poor if they can share further resources with their family members. For instance, some individuals might voluntarily choose to work few hours with low earnings since they have additional resources on their own (e.g., capital incomes) or the earnings of other family members are substantial. In other terms, workers' low pay might be due to individuals' preferences, also related to the household characteristics, inducing them to prefer a part-time job. The correlation between low wages and poverty is, then, less strong than one might simplistically expect, since low wages are only one of the factors contributing to household poverty, but it is, nevertheless, positive and high (Nolan and Marx, 2000; Brandolini et al., 2002; Andreß and Lohmann, 2008; Maitre et al., 2018; Garcia-Munoz Alhambra, 2023; Mussida and Sciulli, 2023).³

However, assessing household and in-work poverty by looking at household income only presents some limits and might also bias policy suggestions. An IWP indicator as that adopted by EU institutions wholly overlooks individuals' conditions in the labour market. Hence, any additional wage in a household, irrespective of the social acceptability of its level, should be welcomed since it brings to enlarge household resources. Accordingly, a simple policy suggestion emerges from looking at IWP only through the lenses of household income: to increase the quantity of work supplied by household members, disregarding the heaviness and the contractual and wage conditions of a job.⁴ Therefore, over its relationship with poverty, focusing on individuals' low pay is also crucial to understand how contemporary labour markets fare and to infer sound policy implications to effectively deal with low pay and bad working conditions.

Given this background, in this article we focus on individuals' low pay risks from 1990 to 2018 in Italy, a country characterised by structural changes in the workforce composition, a real wage stagnancy and a steep rise in earnings inequality in the last decades (Brandolini et al., 2018; Franzini and Raitano, 2019; Checchi et al., 2023) and an intense process of labour market deregulation (Boeri and Garibaldi, 2007; Raitano and Fana, 2019). Making use of a large administrative sample of employees in the private sector, and delving deeper into the issues investigated by Bavaro (2022), we contribute to the literature by investigating the dynamics of incidence and intensity of low pay along three decades. As a further contribution, we frame our findings in the

³ For instance, in Italy, the country covered by this article, in 2017 38.9% of those earning less than 60% of the median wage were living in a relatively poor household (i.e., with an equivalised disposable income lower than 60% of the national median), while 58.8% of working age individuals living in poor households had earnings lower than 60% of the median wage (Raitano et al., 2021). As expected, low-paid individuals in non-poor households are in most cases second-earners (e.g., women and youngsters) in households with more than an income recipient. The IWP risk is, indeed, strictly dependent on the number of income recipients within the household (Barbieri et al., 2018).

⁴ A lack of consideration of individual labour market outcomes when the focus is only on the household clearly emerges when male and female IWP risks are compared (Ponthieux, 2018): despite a large pay gap penalising women everywhere, IWP risks are usually lower for females than for males (for instance, according to Eurostat data, the incidence of IWP in Italy in 2022 was 13.2% and 9.3% among men and women, respectively). Indeed, employed females are often the second earner within the household and, because of the gap in employment rates between men and women, the share of households with a male single-earner is everywhere higher than the share of households with a woman as the only earner.

context of the debate surging in Italy about the policies to increase low wages and the need to introduce a national legal minimum wage.⁵

In more detail, in our baseline analyses we follow both a relative approach – identifying as a low-paid those workers earning less than 60 % of the median wage – and an absolute approach –where the low pay line is made equivalent to an hourly gross wage equal to 9 Euros. The latter amount was chosen since it is often considered as the decent 'living' wage in the current debate about the introduction of a legal minimum wage in Italy (Garnero et al., 2022; Eurofound, 2023).

Workers' living standards are usually captured by looking at annual earnings. However, to understand mechanisms driving low pay it has to be remarked that annual earnings are obtained by multiplying hourly wages by the number of worked hours in a week and the number of worked weeks in a year. Hence, apart from the amount of hourly wages, that is usually considered by labour economists as the best proxy of workers' productivity, annual earnings crucially depend on the 'quantity' of work in a year (i.e., the 'intensive margin'), that is affected by the spread of part-time and fixed-term arrangements. To capture possible different dynamics related to 'unitary' wages and quantity of work we consider three earnings variables: i) annual earnings; ii) 2 weekly wages, thus depurating from the influence of worked weeks; iii) full-time equivalent (FTE) weekly wages, thus depurating from the influence of both worked weeks and part-time arrangements.

Regardless of the chosen threshold, we find that the incidence of low pay is high and worrying. Mostly, we notice a steeply increasing trend of low pay incidence from the mid of 2000s when the focus is on annual earnings and weekly wages. A flatter dynamic emerges instead when the focus is on FTE weekly wages, signalling that the increasing spread of (usually involuntary) part-time contracts has been the major driver of the rise in workers' low pay in recent years. This result is crucial in light of the debate about the introduction of a legal minimum wage, which only focuses on establishing a floor on the amount of hourly wages, without accounting for issues related to the quantity of work. Nevertheless, the share of those earning less than a salary equivalent to 9 Euros per hour is particularly high even when the focus is on FTE weekly wages. Furthermore, low pay is a persistent status for a large and rising share of workers. Henceforth, our findings reveal a clear-cut worsening of workers' conditions at the bottom of the earnings distribution.

The remainder of the paper is structured as follows. Section 2 briefly reviews the recent economic literature about trends of earnings inequality in Italy and Section 3 discusses the Italian institutional labour market context. Section 4 presents the data and shows major structural changes occurred in the Italian private sector from 1990 to 2018. Section 5 shows main findings related to the trend of incidence and intensity of low pay (Sections 5.1 and 5.2, respectively), to the heterogeneity of low pay risks among workers with different characteristics (Section 5.3) and to the individuals' persistence in a low pay status over a ten-year period (Section 5.4). Section 6 concludes framing the results in light of the debate about the most proper measures to deal with low pay in Italy.

2. Literature review on trends of earnings inequality in Italy

As pointed out in the Introduction, the rise in earnings inequality may be considered as a stylized fact characterising most developed countries over the last decades. The literature has proposed various, and not alternative, mechanisms to explain this phenomenon⁶ a growing wage premium due to technological changes favouring more skilled

⁵ Italy is one of the few EU countries without a legal minimum wage. On the characteristics of the minimum wage setting in EU and major OECD countries see Picot (2023).

⁶ See, among the others, Katz and Murphy (1992), Acemoglu and Autor (2011), Autor et al. (2014), Piketty (2014), Atkinson (2015), Franzini and Pianta (2015), Franzini et al. (2016), Causa et al. (2016), Kleinknecht (2020); Bramucci et al. (2021); Coveri and Pianta (2022).

workers and those performing cognitive and non-routine tasks; the role played by globalization and offshoring in changing global value chains and the distribution of labour demand and supply across countries; non-competitive markets favouring rent appropriation by top earners and top managers; an increased power of capital over labour; labour market reforms which, in many European countries, brought to a deregulation process that weakened labour market institutions and the bargaining power of trade unions and fostered the fragmentation of contractual arrangements. Studies based on employer-employee linked datasets also point out that the bulk of the increase in earnings inequality emerges between – rather than within – sectors and firms (e.g., Card et al., 2013; Barth et al., 2016; Briskar et al., 2022).

As concerns Italy, in recent years, thanks to the increased availability of administrative data collected by the Italian National Social Security Institute, a growing number of studies have investigated the trend of earnings inequality in the last decades, usually focusing on the employees in the private sector (Franzini and Raitano, 2019; Briskar et al., 2022; Hoffmann et al., 2022; Subioli and Raitano, 2022; Depalo and Lattanzio, 2023; Checchi et al., 2023). All these studies clearly show that earnings inequality in the private sector impressively rose since the beginning of the 1990s and single out the labour market liberalization process (see Section 3 for details) as the main responsible of such increasing trend.⁷

As argued by Checchi et al. (2023), the reform process eased an increase in employment, but the new employment opportunities were created in sectors with low productivity growth and through atypical and low-paid contractual arrangements. In addition, as described in Section 3, an inequality-increasing role was played by the abolition of the peculiar automatic wage indexation mechanism that granted the same absolute wage increase to all employees in response to price changes, thus engendering a process of wage compression favouring those in the bottom tail of the earnings distribution (Manacorda, 2004).

In more detail, Hoffmann et al. (2022) point out that the labour market reforms introduced in the 1990s and 2000s induced a substantial rise in part-time and in fixed-term employment. The rise in part-time was the main driver of the growth of earnings inequality, while the increase in the spread of fixed-term arrangements brought about a rise in earnings volatility. Likewise, Subioli and Raitano (2022), comparing trends of intragenerational earnings mobility experienced from age 35 to age 45 by individuals born from 1940 to 1973, find that the rise in inequality was associated with a steep increase in permanent inequality and that this phenomenon was associated with a decline in earnings upward mobility over the career pattern and an increase in volatility, damaging especially the youngest cohorts. Carrying out decompositions by population subgroups, Franzini and Raitano (2019) find that the rise in earnings inequality is not attributable to growing skill premia, but to increasing earnings differences within groups of workers with the same education.

Among the possible drivers of rising earnings inequality listed above, studies about Italy thus agree that the labour market reforms of the last three decades – which brought about a high fragmentation of contractual arrangements among (relatively) more and less protected and paid workers, thus engendering a sort of ‘dual labour market’ – are the most plausible explanation of the increased earnings inequality. Accordingly, Depalo and Lattanzio (2023) show that the rise in inequality was driven by the number of weeks and hours worked per year, which varied heterogeneously across workers, as atypical contracts became widespread in the economy.

The studies about Italy mentioned in this section mostly look at the

entire workers population and do not explicitly focus on the bottom tail of the earnings distribution. A partial exception is the study by Depalo and Lattanzio (2023) who show the trend of the incidence of ‘relative’ low pay without, however, investigating in detail the characteristics of low-paid workers. This paper thus complements the existent literature by delving much deeper into the low pay phenomenon.

3. The Italian institutional labour market context

Since the middle of the 1990s Italy has been characterized by a large decrease in the rate of growth of labour productivity and by the introduction of a series of reforms which – following suggestions by OECD (1994) that pointed out the Italian labour market as too rigid and strictly regulated – have greatly increased labour market flexibility, first introducing various types of atypical contractual arrangements and easing the opportunities to hire temporary employees, and, more recently, weakening the employment protection legislation (EPL) of open-ended employees. Moreover, changes in the wage-setting rules were introduced at the beginning of the 1990s. Reforms concerning labour market regulation and wage-setting rules might have then affected the low pay dynamics in Italy, mostly influencing the ‘quantity’ of work and the ‘unitary’ wages, respectively.

The tendencies of productivity and labour market flexibilization are clearly confirmed by available data (Bloise et al., 2022). Regarding productivity, OECD data show that the mean annual growth rate of real GDP per worked hour reduced from 1.89 % in the 1980s to 1.42 % in the 1990s and to 0.05 % and 0.34 % from 2000 to 2009 and 2010 to 2019, respectively. As concerns indicators of labour market flexibility, in the 1990–2018 period the OECD EPL index for regular and for temporary workers decreased from 3.02 to 2.56 and from 4.88 to 1.63, respectively. Furthermore, as shown in Section 4, the share of individuals working through atypical arrangements rose impressively.

The idea of increasing the labour market flexibility and weakening the role of labour market institutions in order to raise employment rates has been at the centre of the Italian economic policy debate over the last three decades. A two-pronged strategy was advocated and concerned, on the one hand, the introduction of temporary and atypical contracts and, on the other hand, the reduction in firing costs in standard open-ended contracts.⁸

The rise in labour market flexibility first concerned ‘entry’ flexibility with the aim of easing individuals’ transitions into employment by offering to the employers a wide range of contractual arrangements (differing in terms of costs and job and welfare guarantees). Three subsequent reforms – ‘Treu package’ (Law n. 196) in 1997, the Legislative Decree n. 368 in 2001 and the ‘Biagi Law’ (Law n. 30) in 2003 – introduced temporary employment agencies and internship contracts, released many of the legal constraints to hire temporary employees, and introduced numerous types of atypical arrangements (e.g. ‘project collaborations’, ‘job on call’, ‘job sharing’), without modifying the EPL for permanent workers. These reforms contributed to set up a two-tier system where the diffusion of atypical employment greatly increased and both flexible and permanent contracts coexist (Boeri, 2011). Then, two reforms implemented in 2012 (Law n. 92) and 2015 (Law n. 183/2014, named the ‘Jobs Act’), reduced guarantees for open-ended employees, first limiting and then abolishing the worker’s right to reinstatement in the firm in case of unfair dismissal due to economic reasons in firms with more than 15 employees.

Changes also concerned the wage-setting rules. Wages, in Italy, are set by a centralised sectoral collective bargaining and there is not a legal national minimum wage scheme (minimum wages are only defined within the terms of the collective agreement). However, after the

⁷ The steep increasing trend of earnings inequality from the beginning of the 1990s up to the most recent years is also confirmed by Checchi et al. (2023) using data drawn from the Survey of Household Income and Wealth, a representative survey of the Italian population conducted by the Bank of Italy every two years.

⁸ Notice that part-time contracts were regulated in Italy starting from 1984. Before that date part-time contracts were permitted but not explicitly regulated by the law.

implementation of a settlement between the Government and the most representative social partners signed in July 1993 (the 23rd of July 1993 Protocol), a two-tier system was created: the collective agreement set between trade unions and employer organizations at the sectoral level may be indeed complemented by a decentralised agreement at the firm (or territorial) level. Sector-level bargaining should pursue the goal of keeping wages' purchasing power while firm-level bargaining – that has, however, a low spread, especially among small and medium firms – should aim at redistributing productivity gains. Also notice that the automatic indexation mechanism of nominal wages according to the inflation rate (so-called *scala mobile*) – that favoured wage compression by granting the same absolute wage increase to all employees in response to price changes – was weakened in 1984 and abolished in 1992. Subsequently, the 1993 Protocol established that the renewal of national collective contracts had to refer to the 'programmed' inflation rate. The reform of the bargaining procedures among social partners was successful in curbing the inflation rate but contributed to freezing the wage dynamics in the following years (Lucidi and Kleinknecht, 2010).

The Italian Constitutional Law does not set limits on trade unions and employers' association right to sign a collective agreement (e.g., according to the share of workers or firms in a sector enrolled in a certain association). As an effect, the total number of collective agreements currently registered at the National Council of Economics and Labour (CNEL) more than tripled between 2005 and 2021 (from fewer than 300 agreements to almost 1000). This rise was mostly due to the spread of the so called 'pirate' agreements signed by non-representative workers' unions or employers' associations (i.e., trade unions or employers' association with very few affiliates) with the aim of creating a lower cost threatening option advantaging firms during the bargaining with trade unions. Consistently, Lucifora and Vigani (2021) find that non-representative agreements are associated with large wage penalties. Moreover, Garnero (2018) shows that the non-compliance of collective agreements is not negligible in Italy: around 10 % of workers are paid more than 20 % less than the minimum wage established in their reference collective agreement.

4. Data and structural changes in the Italian private sector

4.1. Data characteristics

We use a large sample of administrative records on employees in the private sector (excluding domestic and agricultural workers) collected by the Italian National Social Security Institute (INPS). The source of information is the form that employers have to fill in order to pay social contributions to their employees. In detail, we use the LOSAI (Longitudinal Sample INPS) archive whose sampling is based on 24 birth dates of employees.⁹ Thus, the sample approximately covers 6.6 % of the universe of private employees. We track workers from 1990 (the first year when information about firms' characteristics is recorded) to 2018 (the latest available year).

For each worked spell in a year as a private employee, the dataset provides information on gross earnings (including overtime pay and all kind of pecuniary compensation giving right to social security contributions, gross of personal income taxes and of the social contributions paid by the employee), the duration (recorded in weeks), the contractual arrangement (full- versus part-time and, from 1998, open-ended versus fixed-term), a coarse occupation classification (distinguishing apprentices, blue-collar, white-collars, middle managers, executives). For those working through a part-time contract, FTE worked weeks (i.e., total

worked weeks in the job spell adjusted according to the difference between the contractual hours and the full-time working hours) are also recorded.¹⁰ Some basic demographic information is also recorded, namely, gender, year of birth (thus allowing to compute age in each year) and region of work. No information about worker's education, citizenship, marriage status and household characteristics is instead collected in the INPS archives we had at disposal. Furthermore, from 1990 employees' records may be matched to firms' archives, thus adding information on firm's class size and sector of activity (recorded through the 2-digit NACE Rev. 2 classification).

The INPS archive on private employees reports total remuneration in each job spell, while hourly wages are not recorded. By using FTE worked weeks for part-timers we may, however, depute wages from the impact due to the heterogeneity in worked hours when focusing on 'unitary' wages. As mentioned, we assess low pay by relying on three complementary labour income variables, all taken in real terms (converting nominal values through the consumer price index):

1. Total annual gross earnings – obtained summing all earnings from private employment received during a year – which are the main proxy of individuals' living standards related to the work activity;
2. Weekly wages – obtained by dividing the earnings in the highest paid working spell during the year by the corresponding weeks – to depute from the influence of the heterogeneity in the number of worked weeks in a year;
3. FTE weekly wages – obtained by dividing the earnings in the highest paid working spell during the year by the corresponding FTE weeks – to depute from the influence of both the heterogeneity in worked weeks and in the spread of part-time contracts. FTE weekly wages are thus the most reliable proxy of 'unitary' hourly wages which are not recorded in Italian administrative archives.

For each individual employed in a year, we take one record, summing earnings and weeks during the year and – in case of individuals with multiple contracts and working spells in a year – we retain time-varying information (e.g., the contractual arrangement, the sector of activity, the weekly wage) related to the highest paid working spell during the year. We keep in each year all individuals aged 15–65 with positive earnings in private employment.¹¹ On the whole, our dataset contains 31,825,095 individual observations from 1990 to 2018.

By definition, administrative data do not track informal job, that is highly diffused in Italy. Likewise, actual worked hours by part-timers might be underreported by the employers when a full-time worker is registered through a part-time arrangement and the remaining hours are 'informally' paid by the employer. However, administrative records have the major advantage of being not affected by unit or item non-response and, differently from surveys on individuals, are not affected by memory bias or imprecise earnings measurement, that are serious issues, especially when one aims to focus on short duration and low-paid working spells.

4.2. Low pay lines and indexes

To capture the dynamics of low pay we make use of two low pay lines. We consider both a relative line, expressed as 60 % of the annual median of the corresponding earnings variable (i.e., annual earnings, weekly and FTE weekly wages), and an absolute line based on an hourly

⁹ Specifically, those born on the 1st and 9th of each month and year are included in the sample.

¹⁰ FTE worked weeks of part-timers are then lower than the actual worked weeks. For instance, a part-time worker employed full-year at the 50% of the standard working hour has 26 FTE worked weeks.

¹¹ Therefore, we do not consider 'zero earners', without thus taking into account the influence of the 'extensive' margin of the employment in our analyses. Also note that, relying on administrative records, we do not trim bottom and top earnings.

gross wage amounting, in real terms, to 9 Euros, that, as mentioned in the Introduction, is considered as the ‘living wage’ in the current proposals aimed at introducing a legal minimum wage in Italy put forward by the opposition Centre and Left-Wing parties in the Parliament (Eurofound, 2023). Assuming 38 worked hours per week, this threshold amounts to 17,784 and 342 Euros per year and week, respectively. The 60 % of the median line has instead a lower value and amounts, e.g., in 2018 to 11,460 Euros as concerns annual earnings and to 247 and 267 Euros as concerns weekly wages and FTE weekly wages, respectively. For comparison, notice that – assuming full-time full-year workers – such relative low pay line is equivalent to a gross hourly wage approximately equal to 7 Euros when the focus is on FTE weekly wages, while the value decreases to 5.8 and 6.5 Euros when the focus is on annual earnings or weekly wages, respectively. Hence, in hourly terms, the relative low pay line is significantly lower than the amount of the legal minimum wage proposed by the opposition parties in the current debate.¹²

We analyse trends of incidence and intensity of low pay. Incidence is computed through the headcount index, measuring the share of employees lying below a certain line in a year. Intensity is captured by the poverty gap index that measures the mean of the relative distance from the line also including in the computation with a zero value those who lie on or beyond the low pay line.¹³

Finally, we also investigate persistence in the low pay status observing how many individuals remain in that status over a 10-year period. To this aim, we limit the analysis to those aged 30–45 in the starting year of the 10-year period. When assessing low pay persistence it has to be noted that the individuals may be absent in INPS archives on private employees in a certain year and the absence may be due to unemployment, inactivity, migration abroad or (in a lower number of cases) transitions towards public employment or self-employment (we get rid of retirement censoring the age limit in the analysis about the persistence in low pay). Having not at disposal information on individual statuses in the years spent by the individual out of the private employment, as standard in the analyses on Italian administrative data on private employees (e.g., Citino and Linarello, 2022; Depalo and Lattanzio, 2023), we assume that those years are spent in unemployment/inactivity (i.e., with zero earnings), thus engendering a possible overestimation of the persistence in low pay in case of individuals transiting to working spells out of private employment or moving to work abroad.

4.3. Major trends in private employment in Italy

The Italian labour market experienced major structural changes in the period analysed in this article. First, employment rates rose, especially thanks to the rising female labour market participation. According to Eurostat data (referring to the whole workforce instead of private employment only), total employment rate in the age class 15–64 rose from 50.8 % to 58.5 % from 1995 to 2018 and such increase – entirely

occurred before the economic crisis started in 2008 – almost exclusively concerned women (in 1995–2018 the male employment rate rose from 66.4 % to 67.6 % whereas female employment rate rose from 35.5 % to 49.5 %).¹⁴ Consistently, restraining the attention to private employment, the number of individuals with at least a working spell as an employee in the private sector increased in our dataset, especially for women, from the end of 1990s up to the 2008 crisis outbreak, and then remained fairly constant, apart from a further peak in 2017–2018 (Fig. A1 in the Appendix). In detail, the yearly number of individuals with positive earnings as a private employee in our dataset went from approximately 875,000 to approximately 1,090,000 in the 1990–2018 period. Trends of low pay incidence shown in Section 5 should then be assessed accounting for the rise in the annual stock of employees.

The internal composition of private employment also changed (Fig. A2 in the Appendix). The share of female employees rose by approximately 5 percentage points (p.p.) in the observed period. Contextually, the workforce composition greyed, as the share of employees aged below 30 steeply decreased along the whole observation period (firstly, because of demographic factors and a higher participation in tertiary education by the younger cohorts), while the share of those aged at least 50 increased from approximately 15 % to 30 % from the end of the first decade of 2000s because of the tight rise in retirement age established by a set of pension reforms (Jessoula and Raitano, 2017). A further structural change of the Italian employment concerned a strengthened role played by the service sector: the share of employees in services increased by 20 p.p. along the observed period (Fig. A2). As another major change – not captured by our data – the share of workers without the Italian citizenship largely grew up: according to figures in Bavaro (2022), the share of private employees without the Italian citizenship rose from around 2 % to almost 17 % from 1990 to 2017.

Clear-cut structural trends also regard the spread of atypical – part-time and fixed-term – contractual arrangements (Fig. 1) which, as discussed in previous sections, was driven by the implementation of the labour reform process that eased the chances to hire employees through various types of atypical (and usually less paid) arrangements. The share of private employees experiencing the most paid working spell in a year through a part-time arrangement impressively – and almost linearly – rose from 4.1 % to 30.2 % from 1990 to 2018 (19.1 % and 46.4 % among men and women in 2018, respectively). The share of fixed-term employees, fostered by the reforms described in Section 3, also highly rose,

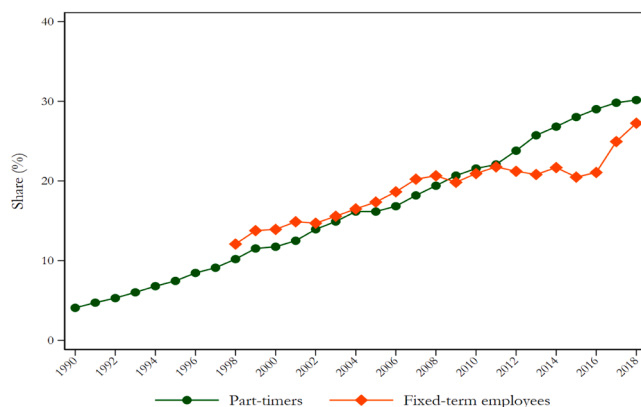


Fig. 1. Share of employees in the private sector working through a part-time or a fixed-term arrangement

Source: elaborations on INPS-LOSAI data.

¹² In additional analyses (available in the Appendix) we also refer to the two official poverty lines for a single-member household adopted in Italy in 2018, namely: i) the at-risk-of-poverty (AROP) line which, according to the EU definition of monetary poverty, identifies as poor those with an equivalised disposable income lower than 60% of the national median (Atkinson et al. 2002), and ii) the absolute poverty line that – grounded on a reference budget approach – is based on the cost of a minimum basket of goods that every individual should afford (Cuttillo et al., 2022). Assessing low pay by relying on official poverty lines (based on household conditions) for a single-member household allows us to measure how many workers would be counted as a poor if they had no other income sources over their earnings and had no other individuals with whom to share economic resources.

¹³ The poverty gap index is given by the product between the headcount and the income gap ratio (i.e., the mean distance from the threshold of the poor, without considering in the analyses non-poor individuals; see Ravallion, 2016).

¹⁴ Eurostat figures mentioned in Section 4.3 are available at <https://ec.europa.eu/eurostat/data/database>.

even if with a non-linear trend from 12.1 % in 1998 to 27.3 % in 2018. In more detail, the trend in the share of part-timers became even steeper after the sovereign debt crisis that led to a reduction in the number of worked hours in Italy. The dynamics of the spread of fixed-term contracts was, instead, rather constant during the 2008–2013 crisis period – due to the higher unemployment risk suffered by those working through temporary arrangements during recessions – but highly sped up at the end of the observation period, despite the willingness of the Government to foster the use of open-ended contracts by reducing, with the 2015 Jobs Act reform, the guarantees provided to workers hired with permanent contracts.

The rise in the spread of part-time arrangements is particularly worrying since a large share of part-timers seems ‘involuntarily’ employed through this arrangement being not able to find a contract with a higher number of hours and, then, a higher wage. According to Eurostat Labour Force Survey figures, referring to the whole employment (and, then, also to the public sector where part-time arrangements are usually voluntarily chosen by employees to balance family burden and work), the share of part-timers declaring an ‘involuntary’ status was 65.7 % in 2018 in Italy (80.3 % among men and 60.8 % among women), a value dramatically higher than that recorded in the Euro area (27.8 %) and much higher than the value (39.2 %) characterising Italy in 1990 where part-time contracts were much less diffused. Therefore, the reduction in worked hours for a large share of employees associated with the increased spread of part-time contracts is not related to a voluntary choice of the individuals with, likely, further adequate household resources, but emerges as a constrained status suffered by individuals (both men and women) who would like to work and earn more.¹⁵

A further effect of the increase in the spread of part-time arrangements emerges when looking at the mean number of worked weeks in a year (Fig. 2). Despite the rise in the spread of fixed-term contracts (apart from a slight reduction after the 2008 recession), mean worked weeks remained rather constant, whereas the number of mean FTE worked weeks steeply reduced from 42.1 to 37.8 in the observed period. An augmented fragmentation of the work career – associated with the rise in the spread of fixed-term arrangements – is also documented by the non-negligible rise in the number of working spells (in the same firm

because of subsequent temporary contracts or with different employers) that private employees experience on average in a year (Fig. A3 in the Appendix).

These structural changes clearly affected the earnings distribution (Fig. 3). When the focus is on annual earnings and weekly wages, real median earnings dramatically reduced by approximately 10 p.p. with respect to the levels achieved before the recession that hit Italy in 1992–1993. The reduction in median earnings was particularly evident from 1998 to 2002 and from 2010 to 2012 (the latter emerged as a consequence of the combined effect of the financial crisis and the sovereign debt crisis). Interestingly, trends of annual earnings and weekly wages are similar, signalling that the drop in median earnings may not be merely attributed to a reduction in the number of worked weeks by lower paid workers, since, as remarked, the series of weekly wages depurates from the heterogeneity in worked weeks in a year. Conversely, a different trend concerns FTE weekly wages, whose dynamics, starting from 2003, diverges from the trend of the other two income variables becoming slightly increasing: on the whole, real median FTE weekly wages increased by approximately 4 p.p. from 2003 to 2018. Henceforth, considering FTE weekly wages as a proxy of hourly wages, median ‘unitary’ wages were slightly on the rise since the mid of the 2000s.

The diverging trends between FTE and non-FTE labour income variables signal that, over the slow growth of ‘unitary’ wages, the decreasing dynamics of annual earnings was due to the decrease in the quantity of worked hours engendered by the higher spread of part-time contracts. Consistently with the trend of median earnings, the Gini coefficient of annual earnings and weekly wages steeply rose in the observed period while it remained rather constant, especially from 2003 onwards, when one focuses on ‘unitary’ wages, i.e., on FTE weekly wages (Fig. A4 in the Appendix).

As a consequence of the trend of median earnings, the relative low pay threshold based on 60 % of median earnings reduced in real terms in Italy along the observed period when the focus is on annual earnings or weekly wages, while it slightly rose in the last 15 years as concerns FTE weekly wages.

5. Main evidence about the dynamics of low pay in Italy

5.1. Low pay incidence

We first show the incidence of ‘relative’ low pay where the low pay line is set at 60 % of the median of the corresponding labour income variable (Fig. 4). When the focus is on annual earnings – i.e., on the proxy of living standards of an individual without further own or family

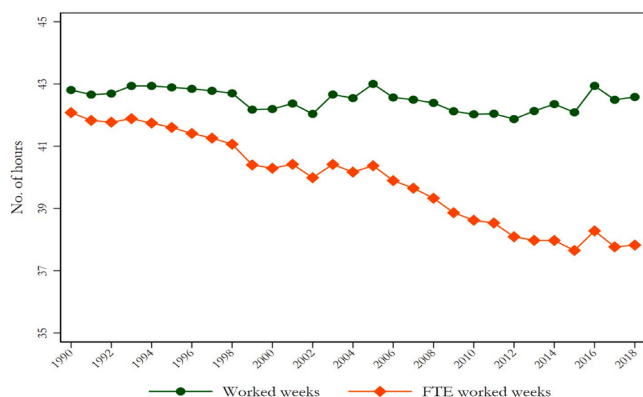


Fig. 2. Mean number of worked weeks as a private employee in the year
Source: elaborations on INPS-LOSAI data.

¹⁵ As mentioned, the increase in the spread of part-time contracts might also partially mask an increasingly attitude by firms in underreporting working hours to avoid taxes on labour and reduce labour costs, thus formally recording workers for a lower number of hours than the true worked hours. Consistently, the share of individuals who report to work with a reduced number of working hours in the Eurostat Labour Force Survey (risen from 4.7% to 18.4% from 1995 to 2018) is largely lower than the value emerging from administrative records.

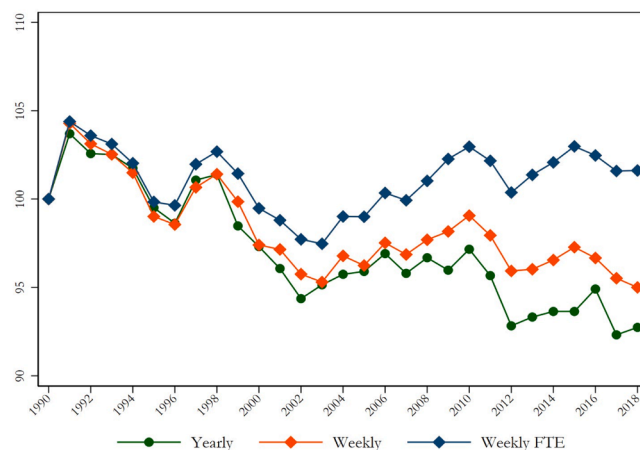


Fig. 3. Trend of median earnings of employees in the private sector. Index number: 1990=100
Source: elaborations on INPS-LOSAI data.

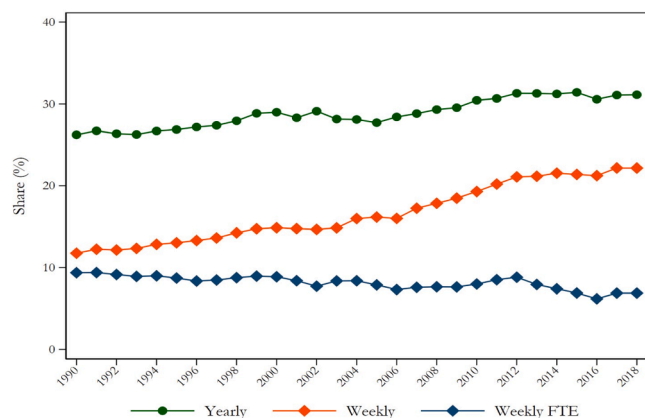


Fig. 4. Share of employees in the private sector earning less than 60 % of the median wage
Source: elaborations on INPS-LOSAI data.

resources – the incidence of low pay is considerably high (always over 26 %) along the whole observed period and its trend is steeply increasing, especially from 2005 onwards. In detail, the share of those with annual earnings lower than 60 % of the median value rose from 26.2 % in 1990 to 31.1 % in 2018 (the maximum value, 31.4 %, was achieved in 2015).¹⁶ This trend is particularly worrying, considering that, as noticed from Fig. 3, the real value of the low pay line substantially reduced over time (from almost 14,000 Euros until 1993 to approximately 12,800 Euros at the end of the observation period). In more detail, the incidence of low pay started to rise in 1993, after the reform of the wage indexation mechanism and the strong 1992–1993 recession, and the rising trend lasted until 2002, following the labour market reform waves. Hence, the low pay incidence slightly decreased in the following years and started again to rise from 2006 onwards and, in particular, from the occurrence of the Great Recession.

The trend of the incidence of relative low-pay according to annual gross earnings is, as expected, highly correlated with the spread of atypical contracts. Focusing on the 1998–2018 period (where the use of both part-time and fixed-term contracts is recorded in INPS archives), the value of the correlation coefficient between low pay incidence and the spread of fixed-term contracts is +0.77, while the correlation coefficient between low pay incidence and the share of employees working part-time amounts to 0.88 (0.95 when it is computed along the whole 1990–2018 period).¹⁷

It has to be also noted that the trend of low pay according to annual earnings does not depend on our choice of including in the analysis all individuals with at least a positive wage in private employment in the year, independently of the duration of the working spell. Indeed, when we restrain the sample deleting those working fewer weeks the low pay

incidence, as expected, reduces but the increasing trend over the 1990–2018 period is confirmed (Fig. A5 in the Appendix).

The headcount of low pay largely reduces if weekly wages are considered, thus signalling that a non-negligible share of workers receive limited earnings because of a modest number of worked weeks in the year. However, focusing on weekly wages the trend is even steeper than that related to annual earnings (from almost 12 % in 1990 to a bit more than 22 % in 2018), thus suggesting that the rise in low pay incidence cannot be merely attributed to a drop in the number of worked weeks of those lying at the bottom of the earnings distribution.

A completely different trend emerges instead when the focus is on FTE weekly wages, i.e., when the income variable is depurated from the influence of both worked weeks and hours. The incidence of low pay based on ‘unitary’ wages reduced indeed along the observed period, from 9.4 % in 1990 to 6.9 % in 2018 (and a 6.2 % minimum value in 2016). In other terms, when assessed in terms of FTE weekly wages – that, as remarked, are the best available proxy of hourly wages – the share of low-paid workers is definitively high, but it has decreased over time. The comparison between the low pay incidence trends depicted in Fig. 4 thus signals that the major driver of the rise in the share of low-paid workers is attributable to the reduction in worked hours associated with the highly increasing spread of part-time contracts.

The role played by the ‘quantity’ of work in affecting individuals’ low pay risks is confirmed when looking at the relationship between the number of workers weeks in 2018 and the share of employees lying below the relative low pay line (Fig. 5). As expected, low pay risks highly reduce when worked weeks rise. However, the share of full-year employed individuals below the relative low pay line is rather high (8.8 % in 2018), because of the great number of part-timers with limited annual earnings even if employed full year. The incidence of low pay becomes instead almost negligible (0.6 % in 2018) when full-time full-year workers are considered (i.e., when those with 52 FTE worked weeks are considered).

Considering that according to INPS figures (INPS, 2020) approxi-

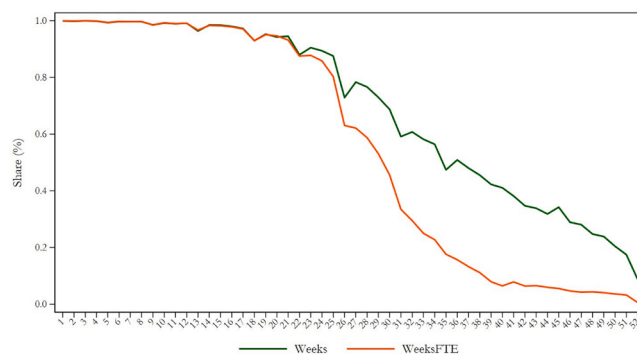


Fig. 5. Share of employees in the private sector with yearly earnings lower than 60 % of median yearly earnings in 2018, by number of worked weeks in the year
Source: elaborations on INPS-LOSAI data.

mately 15.3 million individuals had a job spell as a private employee in 2018 (excluding domestic and agricultural workers), we can point out that approximately 4.7 million employees can be considered ‘relative’ low-paid according to annual earnings, while the corresponding figures reduce to approximately 3.4 and 1.1 million when the focus is on weekly

¹⁶ According to figures provided in Bavaro (2022), the share of individuals earnings less than 60% of the median annual labour income rises to 32.2% in 2017 (approximately 5.1 million workers) when also parasubordinate workers – i.e., individuals legally self-employed and working on a free-lance basis or with a collaboration arrangement but often economically dependent on a single client (Raitano, 2018) – are considered.

¹⁷ It has to be noted that no specific policy measures directly affecting gross earnings (e.g. the introduction of a legal minimum wage) were introduced in Italy in the observed period (Raitano et al., 2019). Actually, main policy interventions affected net earnings through the tax system (mostly through the so-called ‘80-Euros bonus’ paid, on a monthly basis, from 2014 to employees with annual earnings comprised between 8,174 and 26,600 euros), firms’ labour costs (i.e. through social contributions reliefs paid to firms hiring some workers’ categories, as youngsters and females), or household disposable income (e.g. through unemployment benefit reforms and providing, from 2018, a national minimum income scheme).

wages and FTE weekly wages, respectively.¹⁸

The diverging trends between low pay incidence assessed according to non-FTE or FTE income variables emerge also when the low pay lines are set equivalent to a gross hourly wage equal to 9 Euros that, as remarked, is considered as a sort of a floor for a decent living wage by a wide audience in the Italian current debate about the introduction of a legal minimum wage (Fig. 6).

However, when low pay is assessed with respect to this threshold, dramatic figures emerge. We get that in 2018 47.4 % of private employees – approximately 7.1 million workers – earned less than a value corresponding to earnings of an individual paid 9 Euros per hour and employed for 52 weeks and 38 worked hours per week. When the focus is on weekly wages – thus depurating from the heterogeneity in worked weeks – the incidence of low-paid workers reduces to 36.3 % (approximately 5.5 million workers). Finally, when the focus is on FTE weekly wages – the best proxy of hourly wage, that is the variable affected by the minimum wage setting – we find that in 2018 19.8 % of private employees received less than the amount corresponding to 9 euros per worked hour (assuming a 38 hour per week FTE time schedule). Therefore, even if we focus on FTE weekly wages, thus without taking into account further individuals' disadvantages in terms of low worked weeks or hours, we find that approximately 3 million private employees earn less than an amount equivalent to the 9 Euros 'living wage'. Furthermore, also limiting the glance at those employed for 52 weeks in 2018 the share of low-paid workers according to the '9 Euros per hour line' is high (Fig. A8 in the Appendix): 22.8 % when non-FTE weeks are considered (thus, without correcting for lower working hours by part-timers) and 5.1 % when the focus is on those working full-time full-year (i.e., have 52 FTE worked weeks).

Henceforth, when we assess low pay by referring to the '9 Euros per hour' line, the number of those with severely low 'unitary' wages is high. However, also by referring to this further low pay line it is confirmed

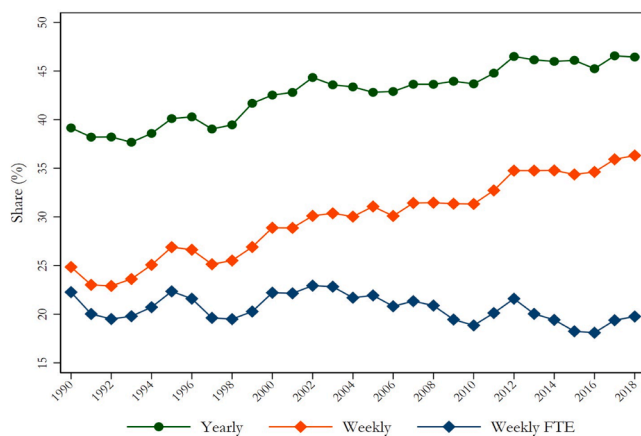


Fig. 6. Share of employees in the private sector earning less than an amount equivalent to 9 euros per hour
Source: elaborations on INPS-LOSAI data.

¹⁸ The trends of incidence of low pay are confirmed when we identify low-paid workers basing on the official relative and absolute poverty lines for a single-member household (Figs. A6 and A7 in the Appendix). The size of the incidence reduces when referring to these lines, being their amount lower than 60% of median earnings. In detail, the incidences of low pay in 2018 according to annual earnings were 27.8% and 24.7% when the AROP or the absolute poverty line are used to identify low-paid workers, respectively. These figures then signal that in 2018 approximately 4.3 and 3.8 million employees in the private sector would have been poor, according to the official relative or absolute poverty lines respectively, if they had to live relying on their earnings only.

that the increasing trend of low pay incidence is entirely due to the dramatic increasing spread of part-time contracts which has contributed to fatten the bottom tail of the Italian earnings distribution. Indeed, the low pay incidence based on FTE weekly wages slightly decreased in the 1990–2018 period (Fig. 6).

5.2. Low pay intensity

The intensity of low pay is assessed through the poverty gap ratio, i. e., by measuring the mean distance from the low pay line as a proportion of the line, for all workers and counting those above the line as having a zero gap (Ravallion, 2016). The poverty gap thus measures the amount – expressed as a share of total resources (in our case, the gross wage bill from private employment) – that should be given to those lying below the poverty threshold in order to bring them up to the threshold.

Consistently with the trends shown in Section 5.1, we find that, irrespective from the chosen low pay line, the intensity of low pay has increased over time as concerns both yearly earnings and weekly wages, while it has remained rather constant along the observed period when the focus is on FTE weekly wages (see Fig. A9 and A10 in the Appendix, based on the 60 % of median wage and on the 9 Euros per hour thresholds, respectively).¹⁹

According to our computations, basing on 2018 values of the poverty gap we find that bringing all low-paid private employees up to the 9 Euros threshold would cost 4.7 % of the total gross wage bill if one aimed at wiping out low pay defined in terms of 'unitary' FTE weekly wages. This amount roughly expresses the increase in gross labour costs that would burden firms if they had to pay their employees at least 9 Euros per worked hour. Considering that the total gross wage bill from private employment amounts to approximately 300 billion Euros in Italy, our estimate corresponds to a rise in gross labour cost approximately equal to 14 billion Euros per year.²⁰

The amount of resources needed to delete low pay defined in terms of annual earnings according to the 9 Euros threshold would rise to 24.7 % of the total gross wage bill (approximately 74 billion euros) because of the remarked high spread of fixed-term and part-time contracts. The costs of dealing with low pay would only limitedly reduce if one focused on the 60 % of the median line: the intensity of low pay would indeed amount to 22.5 % and 4.3 % when the focus is on annual earnings or FTE weekly wages, respectively.

5.3. Heterogeneity in low pay risk

Low pay risks differ according to the demographic characteristics of the employee (gender, age and geographical macro-area of residence), the contractual arrangement (full- versus part-time and open-ended versus fixed-term) and the features of the firm where one is employed (size and sector of activity).

Figs. A11–A12 in the Appendix show that low pay risks are substantially higher for those employees with less advantaged work relationships – i.e., working part-time, through a fixed-term arrangement and employed in small firms, which usually pay substantially lower

¹⁹ A rather flat trend – irrespective from the chosen low pay line and the income variable – emerges when the low pay intensity is assessed through the income gap ratio, i.e., by computing the mean distance from the threshold without considering those who lie beyond the threshold. This means that the trend in the poverty gap ratio is due to the increase in the number of low-paid workers. Detailed results are available upon request by the authors.

²⁰ Note that this estimate is rather rough since, on the one hand, these costs do not include the increase in social contributions paid by the firm on behalf of low-paid workers and, on the other hand, does not consider the lower taxes that firms will pay when labour costs (and hence the related tax deductions) increase. Also note that an increase in low wages would rise public revenues from personal income taxes.

wages and have a higher use of atypical arrangements.²¹ As expected, women are much more frequently low paid than men – also because of a higher probability to work part-time – as well as younger workers and those living in the South experience a higher risk of lying below the low pay line.²² Nevertheless, low pay risks in terms of annual earnings have increased from 1990 to 2018 for all individuals' subgroups.

Assessed in terms of annual earnings, low pay risks highly differ across sectors and are substantially higher in the construction sector and in some service sectors, namely hotels/restaurants and the 'other services' sector (including, e.g., jobs in communications, surveillance, personal services, long-term care, call centres), while they are significantly lower in energy and financial sectors (Figs. A13 and A14 in the Appendix, based on the 60 % of the median wage and the 9 Euros thresholds, respectively). Apart from a possible different composition of the workforce in terms of skills and qualifications, the differences in low pay risks across sectors of activity mainly depend on the collective agreement adopted – which influences 'unitary' wages – and on the distribution of non-standard contractual arrangements – which affects the 'quantity' of work within a sector. Nevertheless, we interestingly find the same rankings in low pay incidence across sectors also when we focus on FTE weekly wages, thus signalling that construction, hotels/restaurants and other services are the sectors characterised by the highest spread of low 'unitary' wages, while energy and finance are those with the lowest share of individuals receiving low 'unitary' wages.

Bivariate comparisons in the incidence of low pay are affected by the correlation between a certain characteristic and the other features (e.g., gender gaps are affected by a different exposition of men and women to part-time contracts). To account for this issue, as standard in the multivariate analyses on correlates of poverty (Haughton and Khandker, 2009), we carried out a probit regression where the dependent variable is a dummy on individuals' low pay status (defined according to the three labour income variables and relating to the 60 % of the median line) and the employee's gender, age class, area of residence, contractual arrangement (in terms of working hour and contract duration), firm's size and sector of activity are the covariates. Table 1 presents the predicted probabilities obtained from the estimated coefficients for each modality of the covariates.²³

Even when controlling for all covariates observable in our dataset, we find that – regardless from the labour income variable considered – low pay risks are significantly higher for women, for workers aged below 30, for those residing in Southern regions, and for those employed in small firms than in medium or in large firms.²⁴ Interestingly, and consistently with the bivariate evidence in Fig. A11 in the Appendix, the low pay risk is lower for part-timers than for full-timers when such risk is computed according to FTE weekly wages. This signals that – being constant the other characteristics – the share of employees with low 'unitary' wages is relatively higher among full-timers than among part-timers. This might also depend on a relatively high 'unitary' wage of

Table 1

Predicted probabilities from a probit estimate of being a low-paid private employee in 2018 (i.e., having a labour income lower than 60 % of the median of the corresponding income variable).

		Yearly Earnings	Weekly Wages	FTE Weekly Wages
Sex	Male	30.0 %	21.3 %	6.1 %
	Female	32.1 %	22.8 %	7.8 %
Age	15–29	40.0 %	28.2 %	12.0 %
	30–49	28.5 %	20.4 %	5.3 %
	50–65	28.6 %	20.2 %	5.1 %
Area of residence	North	27.7 %	19.7 %	5.8 %
	Centre	30.9 %	22.4 %	7.0 %
	South	37.1 %	26.0 %	8.5 %
Working hour	Full-time	21.4 %	7.6 %	8.6 %
	Part-time	50.5 %	49.6 %	4.2 %
Contract duration	Open-ended	21.8 %	19.1 %	4.5 %
	Fixed-term	53.0 %	28.2 %	11.4 %
Firm size	1–15	38.3 %	27.0 %	8.9 %
	16–100	29.3 %	21.1 %	7.0 %
	>100	24.3 %	16.9 %	4.9 %
Industry	Manufacturing	26.8 %	18.8 %	4.2 %
	Energy	22.5 %	14.0 %	2.7 %
	Construction	34.5 %	18.4 %	5.5 %
	Trade	24.6 %	16.5 %	3.7 %
	Transportation	28.1 %	18.4 %	5.0 %
	Hotel/ Restaurants	39.8 %	28.7 %	9.7 %
	Finance	17.1 %	9.2 %	1.4 %
	Other Services	33.8 %	25.4 %	9.7 %

Notes: The dependent variable is a dummy where 1 identifies those below the low pay line. The covariates are those shown in the table. Source: elaborations on INPS-LOSAI data.

those voluntarily employed through a part-time contract. Conversely, the low pay risk is higher for fixed-term employees than for open-ended employees also when the focus is on FTE or non-FTE weekly wages. Irrespective from the income variable, the highest spread of low pay workers emerges in the two aforementioned service sectors – hotels/restaurants and other services – also when multivariate regressions are run, thus signalling that these sectors are characterised by a particularly high diffusion of low wages, maybe also because of less generous collective contractual agreements.

5.4. Persistence in low pay

Observing individuals' low pay status at a certain point in time does not inform exhaustively on the seriousness of this status over the individual life. As well as poverty, low pay is not a fixed condition, but it is affected by many mechanisms developing over time. The normative judgements and the policy implications associated with a certain incidence of low pay are then affected by the features of the time persistence of this status. Paraphrasing what Jenkins (2011) and OECD (2018) pointed out with respect to income mobility, a labour market where there is a high mobility in and out of the low pay status (for instance, according to individuals' work experience, when low pay is a frequent condition only during the entry phase of their career) faces different challenges than one with the same yearly incidence of low pay but where some less advantaged individuals are stuck in their low wage position during the whole working life.

Therefore, to provide an exhaustive picture of the extent of low pay in the Italian labour market we also investigated how many years private employees spend in a low pay status over a ten-year period. As clarified in Section 4.2, we focus on three sub-periods – 1990–1999, 2000–2009 and 2009–2018 – and restrain the analysis to those aged 30–45 in the starting year of the 10-year period in order to keep individuals which were likely active along the whole decade. We refer to annual earnings, the preferred income variable to assess low pay persistence, and compute the distribution of employees according to the number of years

²¹ Figs. A11 and A12 show results related to the 60% of the median wage line, but the differences in low pay risks across different subgroups are confirmed when different low pay lines are used. Detailed results are available by the authors upon request.

²² Bavaro (2022) notices that, as expected, the incidence of low pay (based on the 60% of the median line) is much higher among those without the Italian citizenship (51.6% in 2017) than among Italian citizens (28.3%).

²³ In detail, we get statistics calculated from predictions of the previously fit probit model at fixed values of the various covariates (which are all dummy variables) and averaging over the remaining covariates.

²⁴ Thanks to the large sample size, 95% confidence intervals of the estimated coefficients shown in Table 1 are very narrow and, thus, the differences among the predicted probabilities of the various categories of the covariates are always statistically significant at such confidence level. The only exception regards the comparison between low pay risks of those aged 30–49 and those aged over 50, whose confidence intervals overlap. Detailed results of the estimated models are available upon request by the authors.

spent over the 10-year period with yearly earnings lower than 60 % of median annual earnings (Fig. 7).²⁵

We find that receiving low annual earnings is in many cases not a transitory state that penalizes individuals only in few years. Low pay is indeed characterised by a rather strong persistence, signalling the possible existence of an ‘involuntary’ low pay trap. Actually, 46.2 % of private employees received a low wage for at least 6 out of 10 years in the 2009–2018 period, and the persistence in low pay has increased over the last decades (the share of those low paid for at least 6 out of 10 years was 43.5 % in 2000–2009 and 39.9 % in 1990–1999).

The share of those always low-paid in the 10-year period also rose from 19.7 % in 1990–1999, to 20.5 % in 2000–2009 and to 23.5 % in 2009–2018. Focusing on the subsample of those observed between 2009 and 2018, we notice that the extremely disadvantaged group of those always low-paid along the whole decade – amounting to 23.5 % of our sample – is composed mostly by females (52.8% vs 42.1 % in the whole subsample) and by individuals living in the South (36.6% vs 26.5 % in the whole subsample).

However, it has to be noted that, as mentioned in Section 4.2, in the analyses about low pay persistence we also include individuals who are absent in INPS archives on private employees in a certain year, thus assuming that, as standard in the analyses on Italian administrative data on private employees (e.g., Citino and Linarello, 2022; Depalo and Lattanzio, 2023), that the absence is due to unemployment and, then, the individuals have involuntarily zero earnings in that year. Restraining instead the sample to those continuously working as a private employee in the 2009–2018 period – where this subsample includes 46.0 % of the individuals in the original sample –, we find that the share of those never low-paid becomes 69.3 %, while the share of those who receive a wage below the low-pay line for at least 6 out of 10 years amounts to 7.8 %. The subgroup of those always employed but low-paid for at least 6 years in the decade is composed by a relatively much higher share of females (69.3% vs 40.1 % in the subsample of those always employed) and

residents in the South (33.4% vs 19.4 % in the subsample of those always employed).

Finally, referring to the same subsamples analysed in Fig. 7 and adopting the 60 % of median annual earnings as the low pay line, we investigated through a multivariate probit regression the main correlates of the risk of being persistently low-paid (Table 2). The dependent variable is a dummy about the risk of being low-paid basing on annual earnings for at least 6 out of 10 years and, as covariates, we include the gender and the value at the first year of the 10-year period of time varying variables, i.e., age class (at most or higher than 37), area of residence, part-time status, firm’s size and sector of activity.²⁶ We run three separate regressions for the three sub-periods.

Table 2 shows the predicted probabilities obtained from the estimated coefficients for each modality of the covariates. Interestingly, comparing Tables 1 and 2, we find that the same characteristics associated with a higher low pay risk in a certain year are also associated with a higher persistence of low pay and this association emerges in all the three considered subperiods. Women, younger workers, residents in Southern regions and those who worked in the first year of the observed period as a part-timer, in a small firm and in certain sectors of activity (especially, construction, hotels and restaurants and ‘other services’) are indeed more at risk of being low-paid in a certain year and of remaining in a low pay status for at least 6 years along the 10-year period.²⁷

6. Conclusions and policy implications

By exploiting a large administrative sample of employees in the private sector managed by the Italian National Social Security Institute,

Table 2

Predicted probabilities from a probit estimate of being low-paid (i.e., having annual earnings than 60 % of the median annual earnings) for at least 6 years over a 10-year period.

		1990–1999	2000–2009	2009–2018
Sex	Male	34.0 %	39.3 %	45.1 %
	Female	47.3 %	48.0 %	47.1 %
Age	30–37	41.4 %	47.8 %	48.6 %
	38–45	36.4 %	37.8 %	42.8 %
Area of residence	North	34.4 %	39.4 %	41.2 %
	Centre	37.9 %	42.7 %	45.3 %
	South	47.4 %	49.9 %	55.9 %
Working hour	Full-time	37.1 %	38.5 %	39.7 %
	Part-time	63.8 %	61.7 %	63.7 %
Firm size	1–15	53.7 %	49.9 %	54.5 %
	16–100	43.3 %	41.8 %	44.7 %
	>100	25.6 %	34.9 %	36.4 %
Industry	Manufacturing	30.9 %	32.0 %	35.5 %
	Energy	20.2 %	22.5 %	25.5 %
	Construction	50.9 %	53.1 %	56.1 %
	Trade	27.7 %	31.6 %	35.1 %
	Transportation	39.8 %	48.9 %	38.9 %
	Hotel/ Restaurants	53.9 %	58.5 %	63.2 %
	Finance	18.4 %	14.3 %	15.6 %
	Other Services	50.5 %	53.2 %	55.7 %

Notes: The dependent variable is a dummy where 1 identifies those below the low pay line for at least 6 out of 10 years. The covariates are those shown in the table. Source: elaborations on INPS-LOSAI data.

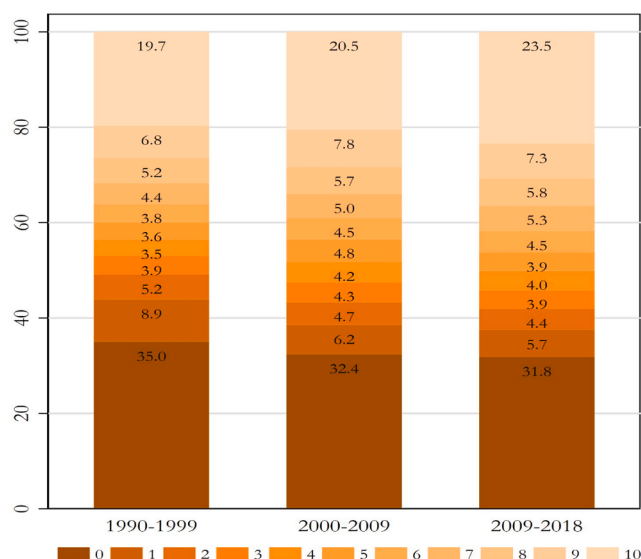


Fig. 7. Distribution of employees in the private sector by the number of years spent with yearly earnings lower than 60 % of median earnings over a 10-year period

Source: elaborations on INPS-LOSAI data.

²⁵ The picture about the trend of low pay persistence does not change if we identify low-paid workers by relying on different thresholds or referring to weekly wages and FTE weekly wages as the income variable. Detailed results are available upon request by the authors.

²⁶ We do not include the dummy about fixed-term arrangements among the covariates since this information is available only starting from 1998 in INPS archives.

²⁷ The differences among the estimated predicted probabilities of the various categories of the covariates are always statistically significant at the 95% confidence level (apart from the difference between construction and other services). Detailed results of the estimated models are available upon request by the authors.

this article investigated the dynamics of incidence, intensity and persistence of low pay from 1990 to 2018 in Italy, a country characterised in the last decades by structural changes in the workforce composition, a real wage stagnancy, a steep rise in earnings inequality and an intense process of labour market deregulation.

Referring to various thresholds to identify low pay, we found that the incidence of low pay was never negligible along the whole period. Furthermore, the share of low-paid workers steeply rose in the last decades when low pay is assessed basing on weekly wages and annual earnings (the best proxy of individuals' living standards related to labour market outcomes). In particular, the share of individuals with annual earnings lower than 60 % of median earnings increased from 26.7 % to 31.1 % in the 1990–2018 period.

A flat trend emerges instead when low pay is assessed according to FTE weekly wages (the best proxy of hourly 'unitary' wages), signalling that a major role in the low pay dynamics was played by the reduction in the number of hours worked by low-paid individuals because of the highly increasing spread of part-time contracts. Nevertheless, we reported the presence of a high number of employees earning low 'unitary' wages. The number of low-paid workers is indeed substantial even when the focus is on FTE 'unitary' weekly wages: the share of employees with 'unitary' wages below 60 % of the median was 6.9 % in 2018 and rises to 19.8 % when the low pay line is made equivalent to a 9 Euros per hour gross wage, that is the amount often considered as a sort of living wage to be guaranteed to all workers in the current debate about the introduction of a legal minimum wage in Italy (Garnero et al., 2022; Eurofound, 2023).

Low pay risks also highly differ according to employees' and firms' characteristics, being higher for females, younger workers, those living in the South, those hired through atypical contracts, those working in small firms and employed in sectors as construction, hotels/restaurant and in the 'other services' sector. Furthermore, low pay emerges as a persistent status for a rather large and rising share of workers.

Our findings thus reveal a clear-cut worsening of workers' conditions at the bottom of the earnings distribution and that the Italian labour market has become a major driver of increasing vulnerability among workers that might also bring to a rise in household poverty. These trends emerged contextually to the implementation of an intense process of labour market flexibilization. This process, on the one hand, surely contributed to increase the number of workers employed with atypical arrangements and, on the other hand, as noted, among the others, by Raitano and Fana (2019) and Kleinknecht (2020), might have driven wage moderation because of the weakening of workers' and trade unions' bargaining power in a two-tier labour market, with negative effects primarily on the bottom tail of the earnings distribution.

Hence, our main conclusion is that the dynamics of the Italian labour market and the steep increase in low pay risk have worsened the living standards of a high share of employees, making it more difficult for them to escape poverty if they have to live relying on their earnings only, i.e. unless they can benefit from other income sources or other economic resources within the household.

However, we are aware of some limitations of our analysis that, as standard in the empirical literature based on administrative data, refers only to employees in the private sector, does not observe informal workers and the unemployed (without then providing information on the 'extensive' margin in the labour market) and does not link individuals' labour market outcomes to the characteristics of the household where the worker lives. The exclusion of other atypical contractual arrangements not included in private employment archives (as domestic and agricultural workers, parasubordinate or occasional collaborations or 'bogus' self-employed, i.e., individuals contracted by their single client firm as a self-employed to save labour costs even if they work as an employee) underestimates the spread of low pay jobs in Italy (Bavaro, 2022). Nevertheless, the extremely high reliability and details of data available in INPS administrative archives for private employees allowed us to depurate individuals earnings from the 'quantity' of work (i.e.,

worked weeks and hours) and, then, to exhaustively investigate the trend of low pay in Italy along the last three decades in private employment, which is by far the workforce segment that employs the large majority of workers in Italy.

We then get a particularly worrying picture about the extent and the trend of low pay in Italy, and the concerns are raised by the evidence that the rise in fixed-term and part-time contracts, whose increasing spread fostered the incidence of low pay according to annual earnings, is associated with a steep increase in the share of workers involuntarily hired through these atypical arrangements. The statement that many part-timers might earn more than recorded in administrative records because the employers informally pay additional worked hours does not alleviate our concerns, considering that, because of the weak bargaining power of informal workers, extra-hours are in most cases paid at particularly low salaries and, furthermore, the informal worked hours are not covered by welfare guarantees.²⁸

At the same time, a further issue should be acknowledged. One may argue that the higher low pay incidence is an unavoidable outcome of the increase in employment rates experienced by Italy since the end of 1990s up to the occurrence of the 2008 economic crisis. In other words, according to this narrative, such increase would have brought in activity 'marginal' and low-productive workers and this would have fattened the bottom tail of the earnings distribution. In our opinion, this line of reasoning has clear flaws. First, the time trend of the increase in the number of individuals experiencing job spells as a private employee, which mostly occurred at the end of the 20th and at the beginning of the 21st century, is inconsistent with the rise in low pay incidence, which only occurred from the middle of 2000s onwards and fastened from the occurrence of the 2008 economic crisis. Second, the increase in employment rates mostly concerned women and occurred because of cohort effects (i.e., a higher propensity to work of women belonging to the younger cohorts with respect to the older cohort exiting from the active population) rather than because of an increase in participation rates of low skilled workers. Third, in Italy new entrants are, on average, more skilled than those leaving the workforce, and low pay risks concern also tertiary graduates, especially at the beginning of their career (Naticchioni et al., 2016). This latter evidence rebuts the idea that the dynamics of the earnings distribution was driven by a growth in 'low quality' labour supply that, without the labour market flexibilization process, would have remained unemployment (hence, with zero earnings). We might instead argue that the labour demand was not able to match a moderate increase in labour supply with good quality and adequately paid jobs. Finally, as mentioned, the idea of 'marginal' workers voluntarily accepting part-time low-paid jobs also to balance work and family needs clashes with the aforementioned extremely high diffusion of 'involuntary' atypical arrangements.

Our findings are also crucial to inform the current Italian debate about the measures to deal with working poverty and the opportunity to introduce a legal minimum wage. As a matter of fact, the minimum wage debate only focuses on establishing a binding floor on the amount of hourly wages, disregarding issues related to the quantity of work, and, especially, to the dramatic rise of 'involuntary' part-time jobs, which, as pointed out in this article, are major – and likely the most important – drivers of levels and tendencies of low pay in Italy.

We can surely state that a rise in bottom 'unitary' wages – to be obtained through a legal minimum wage or strengthening trade unions bargaining power, for instance through new rules on the representativeness of trade unions – is a necessary condition to improve living standards of low-paid workers. However, minimum wage alone is not a sufficient measure to deal with low annual earnings. As a matter of fact, if hourly minimum wage is not included in a more comprehensive

²⁸ Actually, the amount of unemployment benefits, short-term work compensation, sickness and maternity allowances and future pensions are based only on formal wages recorded in administrative archives.

strategy aimed at least at reducing the spread of involuntary atypical arrangements and strengthening the role of labour market institutions, it does not address the problem of the low quantity of work, which primarily engenders low earnings. Moreover, without strengthening the bargaining power of workers and trade unions, there is a concrete risk that firms would offset the costs related to the implementation of a minimum wage by reducing the number of hours (formally) worked by the employees. Thus, dealing with low pay cannot be based on a single tool, however relevant and symbolic as the minimum wage is. A comprehensive and consistent predistributive policy strategy affecting labour market outcomes (Franzini, 2022) – coupled with effective redistributive measures and macroeconomic and industrial policies aimed at improving the ‘quality’ of the labour demand – should then be implemented to effectively tackle low pay and to reduce earnings inequality in Italy.

CRediT authorship contribution statement

Michele Bavaro: Writing – original draft. **Michele Raitano:** Writing – original draft.

Declaration of competing interest

As concerns the submission to Structural Change and Economic Dynamics of the article entitled “Is working enough to escape poverty? Evidence on low-paid workers in Italy”, Michele Bavaro and Michele Raitano declare that they have nothing to disclose, and they have no relevant or material financial interests that relate to the research described in this article.

Data availability

Data will be made available on request.

Appendix

Further evidence on the evolution of the characteristics of the Italian private sector

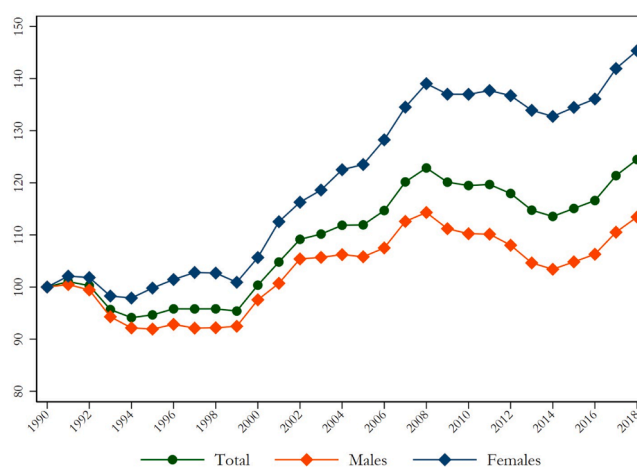


Fig. A1. Number of individuals with at least a working spell as a private employee in the year. Index number: 1985=100. Source: elaborations on INPS-LOSAI data.

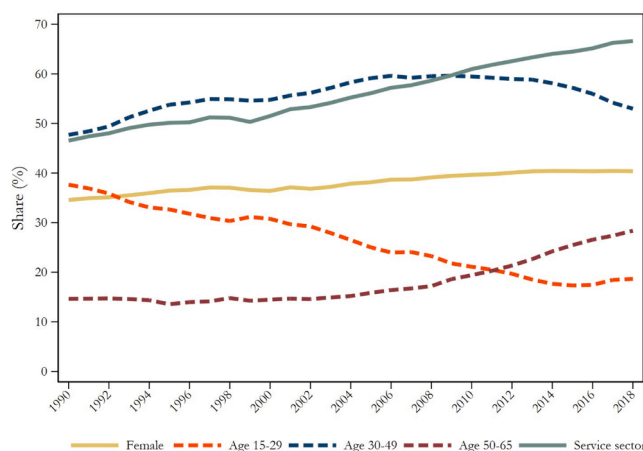


Fig. A2. Share of employees in the private sector by gender, age class and sector of activity. Source: elaborations on INPS-LOSAI data.

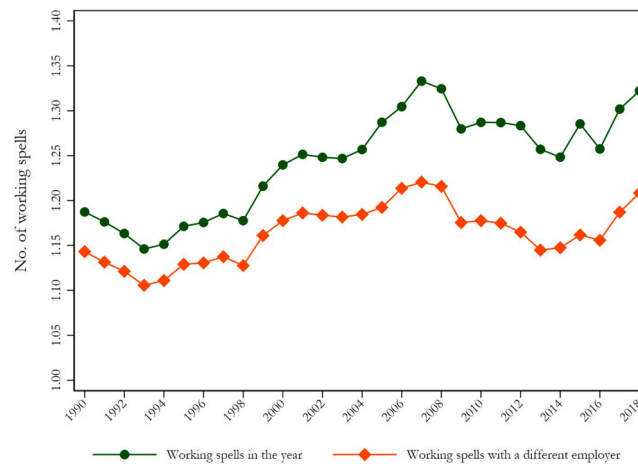


Fig. A3. Mean number of working spells as a private employee experienced in the year.

Source: elaborations on INPS-LOSAI data.

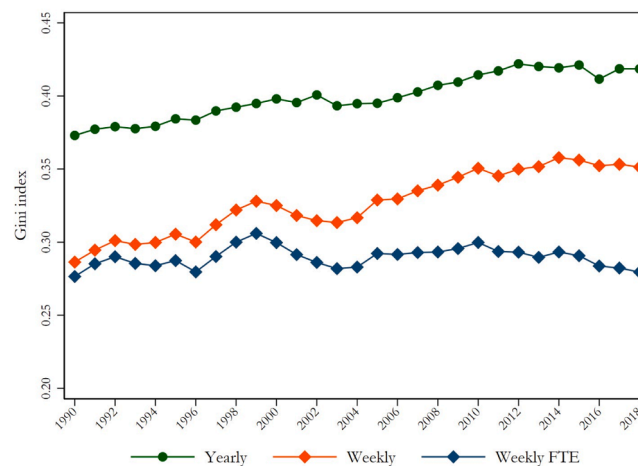


Fig. A4. Trend of the Gini index of earnings inequality among employees in the private sector.

Source: elaborations on INPS-LOSAI data.

Low pay incidence: alternative definitions of workers

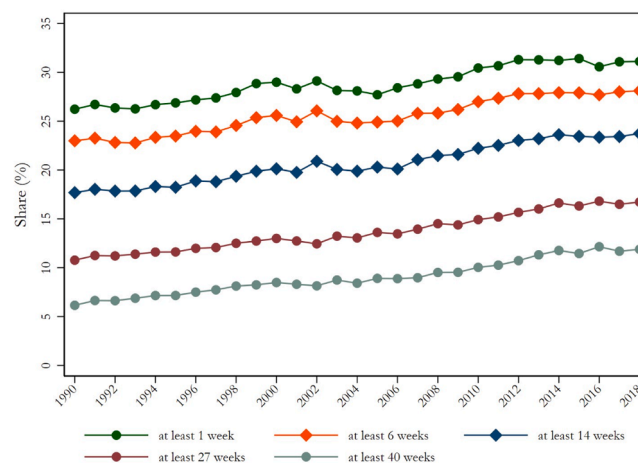


Fig. A5. Trend of the share of employees in the private sector with yearly earnings lower than 60 % of median yearly earnings, by restraining the sample according to the number of worked weeks in the year.

Source: elaborations on INPS-LOSAI data.

Low pay incidence: alternative low pay lines

In additional analyses we also referred to the two official poverty lines for a single-member household adopted in Italy in 2018, namely: i) the at-risk-of-poverty (AROP) line which, according to the EU definition of relative monetary poverty, identifies as poor those with an equivalised disposable income lower than 60 % of the national median and ii) the absolute poverty line that is based on the cost of a minimum basket of goods that every individual should afford.

The AROP line amounted in 2018 to 10,106 Euros on an annual basis (194.34 Euros on a weekly basis), while the absolute poverty line varies according to the geographical area of residence and the size of the municipality. Having not at disposal information on the municipality where the individual resides, we considered the lines related to large cities whose monthly values were in 2018 equal to 834.66, 802.48 and 622.11 in the North, in the Centre and in the South of Italy, respectively. Converting these values in hourly wages of full-year individuals employed 38 h per week, the AROP line is equivalent to an hourly wage equal to 5.12 Euros, while the three absolute lines are equal to 5.1, 4.9 and 3.8 Euros per worked hours in the North, the Centre and the South, respectively.

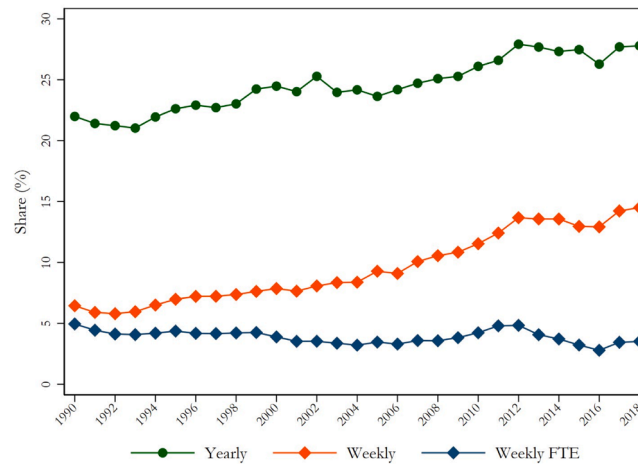


Fig. A6. Share of employees in the private sector earning less than the AROP line for a single individual.

Source: elaborations on INPS-LOSAI data.

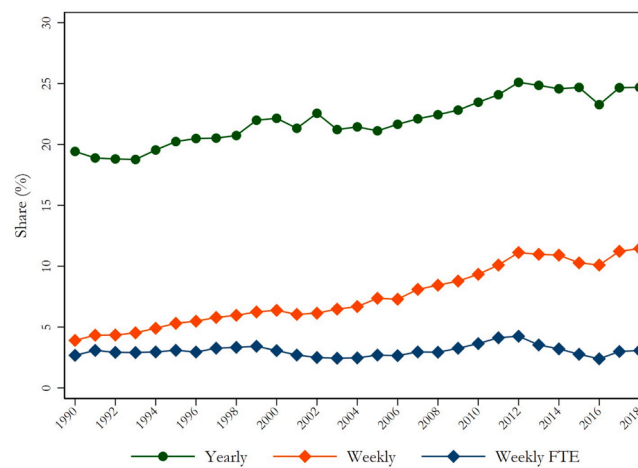


Fig. A7. Share of employees in the private sector earning less than an amount equivalent to the 2018 absolute poverty line for a single individual.

Source: elaborations on INPS-LOSAI data.

Low pay incidence: additional results

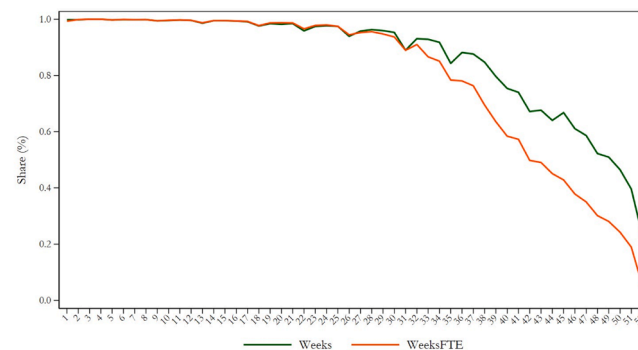


Fig. A8. Share of employees in the private sector with yearly earnings lower than a yearly amount equivalent to 9 euros per worked hour in 2018, by number of worked weeks in the year.

Source: elaborations on INPS-LOSAI data.

Low pay intensity: main evidence

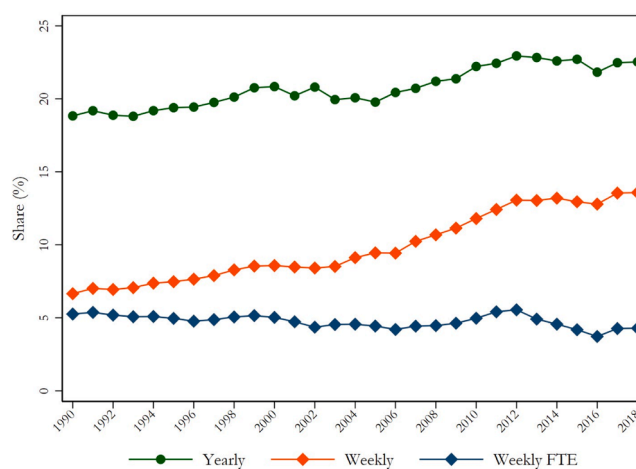


Fig. A9. Intensity of 'relative low pay' among the employees in the private sector. Poverty gap ratio.

Source: elaborations on INPS-LOSAI data.

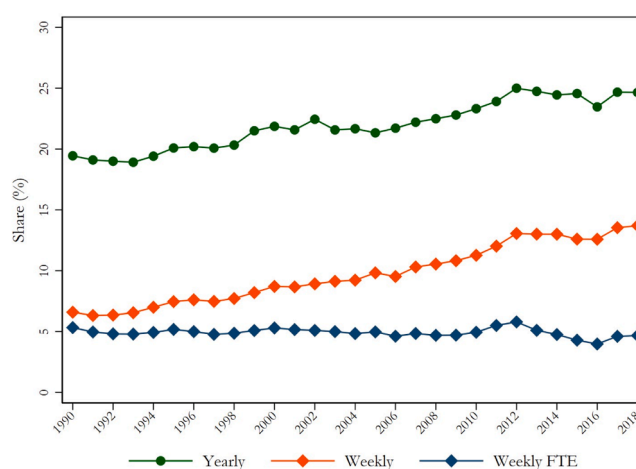


Fig. A10. Intensity of 'absolute low pay' among the employees in the private sector. Low pay line equivalent to 9 euros per hour. Poverty gap ratio.

Source: elaborations on INPS-LOSAI data.

Heterogeneity in size and the dynamics of low pay incidence

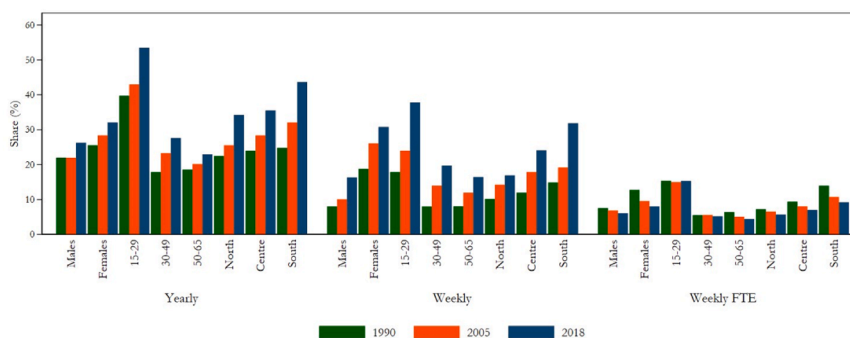


Fig. A11. Share of employees in the private sector earning less than 60 % of the median wage, by demographic characteristics.

Source: elaborations on INPS-LOSAI data.

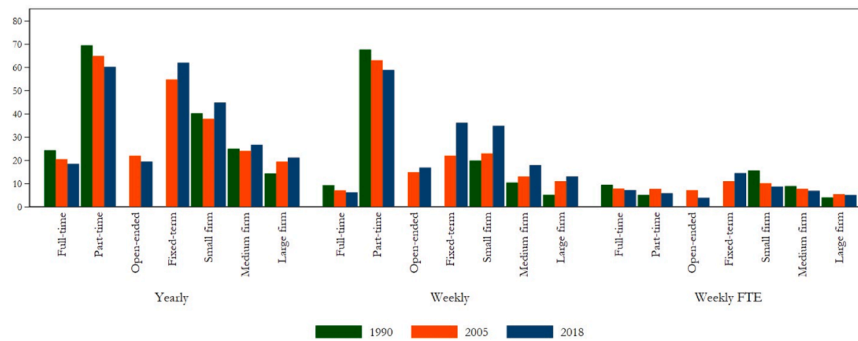


Fig. A12. Share of employees in the private sector earning less than 60 % of the median wage, by contractual arrangement and firm size. Source: elaborations on INPS-LOSAI data.

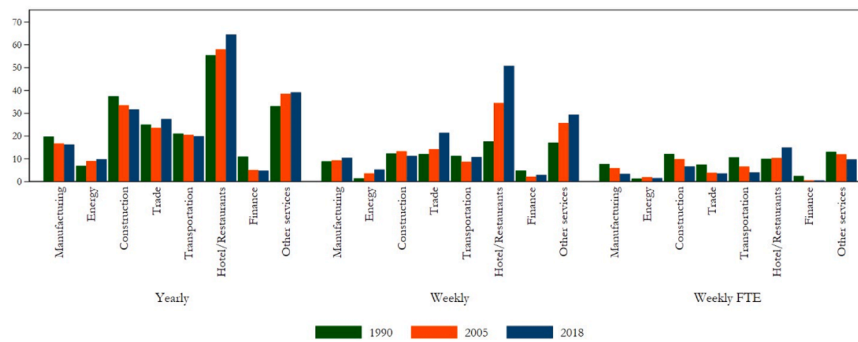


Fig. A13. Share of employees in the private sector earning less than 60 % of the median wage, by sector of activity. Source: elaborations on INPS-LOSAI data.

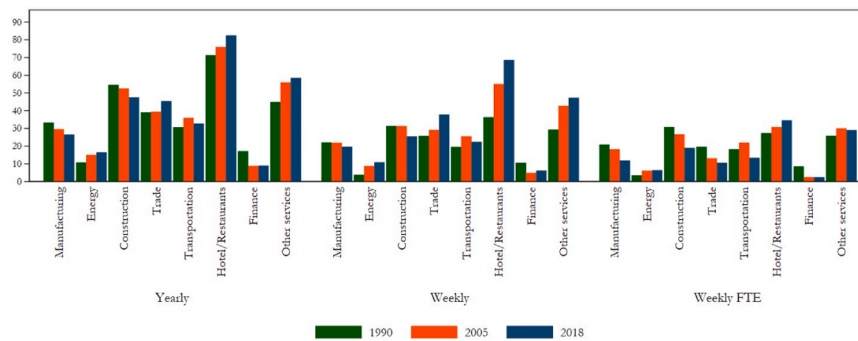


Fig. A14. Share of employees in the private sector earning less than an amount equivalent to 9 euros per hour, by sector of activity. Source: elaborations on INPS-LOSAI data.

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