Essays on wage share and productivity: the cases of Italy and Eurozone

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Author: Paolo Angelone

Tutor: Professor Rosaria Rita Canale

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Index:

Introduction

The initial research project was to investigate the issue of in-work poverty and the causes of declining wage share in Italy and Europe. Then – through more in-depth research – it emerged that the declining workers' compensation is not only a matter of poverty, but an issue compromising growth and productivity. The research has therefore taken a new path, in the attempt to understand how the low workers incomes have contributed to the dynamics of growth in Italy and in some Eurozone countries from 1960s to nowadays.

This thesis consists of three independent academic papers, each addressing in different way, through a macroeconomic and long-term perspective, the relationship between productivity and wage share in Italy and Eurozone. Taken together, the papers provide a comprehensive view that emphasizes how neoliberal labour policies discouraged - through lower wages to productive investment and organizational improvements, fostering the spread of low value-added production and ultimately undermining productivity, domestic demand, and the country's economic growth.

In the Italian production structure labour costs play a central role. Since the 1980s, Italian labour policies have consistently aimed at reducing labour costs - and thus gross wages - in order to fight inflation, enhance international competitiveness, boost employment, and stimulate economic growth. These objectives were first pursued through wage moderation policies from the 1980s to the early 1990s, and subsequently through labour market flexibilization. This type of policy reflects the marginalist and neoclassical economic view that, since the 1980s, have been dominating the academic debate. Furthermore the international phenomena of globalization, drove labour cost reductions and weakened the bargaining power of the working class.

The Italian case is not an isolated one; similar trends can generally be observed across Western European countries. Such policies are still recommended today by the European Commission (EC) and by major international institutions such as the Organisation for Economic Co-operation and Development (OECD) and the International Monetary Fund (IMF). However, given its specific economic characteristics, Italy shows some peculiarities and particular weaknesses. In fact, it is the only OECD country where real wages have not grown since the early 90s, and it has recorded a particularly negative performance in labour productivity, with a trend of substantial stagnation since the early 2000s.

This thesis is situated within the broad heterodox tradition that brings together Marxists, Sylos-Labini scholars, institutionalists, and post-Keynesians who, unlike the marginalists, do not consider marginal productivity to be the single factor determining wages. Instead, wages are also shaped by

social and institutional elements. Moreover, wages themselves are seen as having an effect on productivity, since the availability of a large pool of low-cost labour discourages productive improvements. Moreover, wage dynamics affect domestic demand, with consequences for the entire economy.

The first paper is entitled “Productivity, Growth and Labour Market Dynamics in Italy (1960–2023)”, co-authored with Professor Canale and Professor Ferreiro. It was published in the journal Panoeconomicus and examines the development of Italy’s productive structure and labour market since the 1960s from a purely historical perspective with a focus on wage and productivity dynamics.

The second paper is entitled “Italian Labour Productivity: a Wage-Led Decline”, co-authored with Professor Canale and published in Structural Change and Economic Dynamics. It develops the intuition of the previous paper from a quantitative and econometric perspective. It analyses the long-term relationship between the wage share at factor costs, which reflects labour costs, and labour productivity in Italy, using the autoregressive distributed lag (ARDL) cointegration technique. The estimates, which identify a unidirectional causality from the first to the latter, show that changes in the wage share affect the productivity growth rate in the same direction over the long run.

The third paper is entitled “Labour Costs and Productivity Dynamics in Europe: The Weakness of the Neoliberal Model”, co-authored with Professor Canale and Professor Ferreiro and currently under review. This work represents an extension and generalization of the second paper on European scale. The long-term relationship between the wage share and labour productivity is analysed for 11 Western European countries over the same period, using a dynamic panel approach with the pooled mean group (PMG) method. Once again, the estimates confirm what had already emerged in the second paper.

The findings highlight therefore that wage dynamics not only have an impact on poverty, but represent a challenge for the entire economic system.

1

Productivity, Growth and Labour Market Dynamics in Italy (1960-2023)

Paolo Angelone[1]
University of Naples "Parthenope", Department of Business and Economic Studies, Naples, Italy.

Rosaria Rita Canale[2]
University of Naples "Parthenope", Department of Business and Economic Studies, Naples, Italy.

Jesus Ferreiro[3]
University of the Basque Country UPV/EHU, Faculty of Economics and Business, Department of Public Policies and Economic History, Bilbao, Spain.

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Abstract: This article aims to examine the evolution of the Italian economy from the 1960s to the present focusing on wage and labour productivity dynamics. Throughout this period, the issue of containing labour costs emerged. On one hand, it provided a competitive advantage, but on the other exerted downward pressure on employment, aggregate demand, productivity, and economic growth. These contradictions and vulnerabilities began to emerge clearly since the 1980s with the intensification of the processes of economic tertiarization, international market integration and a general reduction in workers' bargaining power, further aggravated by the lack of policy manoeuvrability due to European constraints and austerity. Within a context characterized by small businesses, factors such as outsourcing, the adoption of a two-tier bargaining system, and increasing labour flexibility have been discouraging investments and productivity, thus locking Italy into a development model that risks further decline.

Key words: Wages, Labour productivity, Labour Market, Italy.

JEL: E02, E24, N34, O40.

The Italian economy has been experiencing an unprecedented slowdown in the last 20 years. According to annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs (AMECO) referring to 2023, real GDP has not yet returned to the 2007 level, the year the subprime crisis began; real labour productivity records a stagnation since 2001, and real gross wages are declining since the 1990s.[4]

[1] paolo.angelone001@studenti.uniparthenope.it
[2] rorita.canale@uniparthenope.it
[3] jesus.ferreiro@ehu.eus
[4] https://dashboard.tech.ec.europa.eu/qs_digit_dashboard_mt/public/sense/app/667e9fba-eea7-4d17-abf0-ef20f6994336/sheet/2f9f3ab7-09e9-4665-92d1-de9ead91fac7/state/analysis (accessed on 25/07/2024).

The most influential international institutions consider low productivity a key factor in the Italian economic slowdown. This issue is mainly attributed to inefficiencies in public administration and excessive regulation that discourage investments and competition, so they recommend that the country pursue reforms aimed at liberalization, privatization, and labour market flexibilization.

This article aims to trace the evolution of the Italian production structure and labour dynamics since 1960s until present times. Alternative dynamics, in respect to those highlighted by these institutions, emerge. The paper concentrates on the issue of containing labour costs, that has been since the beginning at the centre stage of the economic debate: the main conclusion is that, although it provided a competitive advantage in the first stages of development, however it affected negatively to employment, aggregate demand and productivity, leading to a lower economic growth. These contradictions and vulnerabilities have emerged with increasing clarity since the 1980s.

The paper is divided into 5 sections. The first section provides a review of the literature about wages, productivity and growth. Section 2 focuses on the development of the production structure in relation to the needs and dynamics connected to the international market. Section 3 focuses on the labour institutional dynamics. Section 4 reconstructs the dynamics of the macroeconomic components of growth in order to make explicit how the strategy of containing labour costs and the institutional changes occurred at international level have been influencing Italy's growth dynamics. The last section provides concluding remarks.

1. The connection between wages and productivity in the literature

The most influent international institutions, such as Organization for Economic Co-operation and Development (OECD), International Monetary Fund (IMF) and European Commission (EC), consider excessive low productivity a key factor in the Italian economic slowdown. This issue is mainly attributed to inefficiencies in public administration, an excessive regulation, and a high public debt that increase the tax burden and discourage investments and competition. It is recommended therefore, to reduce market entry barriers, to liberalize sectors still under public control or regulation (IMF 2020, OECD 2021, EC 2023), and to curb public spending and fiscal deficits (OECD 2021, EC 2023, IMF 2023). But, above all, in order to encourage private investments, it is necessary to make wages flexible, to reduce dismissal costs (OECD 2021) and to favour decentralized bargaining in the labour market (IMF 2020).

These arguments are in line with the neoclassical paradigm supporting neoliberal policy interventions, such as labour market flexibilization and labour costs reduction, to reduce

unemployment and boost the economy (Milton Friedman 1977, Richard Layard and Stephen Nickell 1986, OECD 1994, Robert M. Solow 1995, Edmund S. Phelps and Gylfi Zoega 1998). These recipes have been absorbed by the major labour market reforms occurred in Western Europe since the 1990s.

Labour market flexibilization supporters argue that the reduction of rigidities not only contributes to reduce unemployment rates but also help to relocate workers from less to more productive and dynamic sectors thus rising productivity (John P. Martin and Stefano Scarpetta 2012, John Haltiwanger, Stefano Scarpetta and Helena Schweiger 2014, Pierre Cahuc and Marco Palladino 2024). Furthermore, excessive rigidity in firing workers would make labour-saving innovations less attractive (Stefano Scarpetta and Thierry Tressel 2004, Cahuc and Palladino 2024).

In stark contrast, some scholars argue that the flexibilization of the labour market reduces the need to save on labour costs. This, in turn, pushes entrepreneurs to invest less in innovation, ultimately leading to a decline in productivity (Paolo Sylos Labini 1984, Giulio Guarini 2007, Leonello Tronti 2009, Robert Vergeer and Alfred Kleinknecht 2010, 2014, Servaas Storm and C.W.M. Naastepad 2011, Alfred Kleinknecht, Flore N. van Schaik, and Haibo Zhou 2014, Domenico Lisi and Miguel A. Malo 2017, Valeria Cirillo and Andrea Ricci 2019, Cem Oyvat 2023, Nauro F. Campos, Paul De Grauwe and Yuemei Ji 2025). As will be discussed more in-depth in the following sections, the issue of reducing labour costs is central for Italian economic history (Augusto Graziani 1992, 2000, Walter Paternesi Meloni and Antonella Stirati 2023). Many authors link this necessity to the development model focused on exports of low value-added manufactured products gaining wide markets through competitive price advantages (Charles P. Kindleberger 1967, Robert Mitchell Stern 1967, Graziani 1992, 2000, Andrea Boltho 2011, Augusto Ninni 2021, Paternesi Meloni and Stirati 2023). The high level of unemployment was a necessary tool to assure wage restrain (Michał Kalecki 1943, Michele Salvati 1975, Graziani 1992, 2000). In turn, low wages together with high unemployment - as argued by the so-called wage-led growth theories - exerted negative effects on aggregate demand and economic growth, (Storm and C.W.M. Naastepad 2011, Oyvat 2023). Moreover, the Kaldor-Verdoorn law posits that the growth of aggregate demand leads to productivity growth due to specialization and economies of scale in the manufacturing sector (Nicholas Kaldor 1966, Guglielmo Forges Davanzati, Rosario Patalano and Guido Traficante 2019), so that lower aggregate demand would have a negative impact on productivity growth.

For the OECD the main reason behind the decline of labour productivity is that labour market flexibilization and labour costs reduction have increased the number of jobs that would not have been viable in a situation of excessive rigidity. Thus, the observed reduction in productivity would be a side effect of the increase in employment not compromising economic growth (OECD 2003). In the same vein, it can be argued that the reduction of labour costs allows low-productivity firms to survive,

which would otherwise fail (Yılmaz Kılıçaslan and Erol Taymaz 2008). These effects may benefit employment in the short term, but they would make the production system less dynamic in the long term (Vergeer and Kleinknecht 2014).

Further factors contributing to the decline in productivity are the phenomena of tertiarization and financialization of economies. Regarding tertiarization, the so-called Baumol's law states that the shift of workers from the secondary sector to the tertiary sector – occurred in all advanced economies - lead to a drop in productivity since the former is inherently less productive than the latter (Vergeer and Kleinknecht 2010, 2014, Ivan D. Trofimov 2023). As for financialization, it diverts resources from the real economy, thereby reducing investments and productivity (Ricardo Barradas 2019, Riccardo Pariboni and Pasquale Tridico 2019).

Finally, it is widely accepted that a high number of small-size firms, a typical feature of the Italian industrial landscape, negatively impacts productivity. Smaller firms generally have lower economies of scale and reduced profit margins as well as less access to credit, which in turn allow for fewer investments in innovation (Alessandro Arrighetti and Gilberto Seravalli 1997, Pinuccia Calia and Silvia Pacei 2017, Andrea Garnero 2018). The increase of the number of small size enterprises and the progressive decentralization of production that occurred in Italy during the 70s are interpreted by many authors as the wrong reply to the increasing conflict in the labour market. (Fabrizio Barca and Marco Magnani 1989, Graziani 1992, 2000, Forges Davanzati, Patalano and Traficante 2019, Pier Giorgio Ardeni and Mauro Gallegati 2024).

2. International Markets and the Production Structure

Since the end of World War II, the Italian economy experienced a progressive and intense process of integration with the international market, and the industrial production structure began to shape accordingly. The lack of energy resources made necessary to increase exports to allow for their import without compromising the balance of payments. Furthermore, there was a political will to integrate, following liberal principles, with the Western European economies as an anti-Soviet strategy (Augusto Graziani 1992).

The birth of the European Coal and Steel Community (ECSC) in 1952, - composed of France, Luxembourg, Belgium, Netherlands, West Germany, and Italy - which in 1957 evolved into the European Economic Community (EEC), was a crucial factor in this regard: Italy was integrated into a free trade area, with easy access to the rich European markets while enjoying a competitive advantage in terms of wages and labour costs (Boltho 2011).[5]

[5] It is specified that in this paper, wages and compensations per employee are used as synonyms and refer to total gross wages, including employer social security contributions.

According to a widespread historiographical interpretation, this dynamic and the consequent take-off of exports - driven by concentrated industry in the northwest of the country - represent one of the pillars on which the Italian economic miracle rests, approximately identifiable in the decade starting from 1955 (Kindleberger 1967, Stern 1967, Graziani 2000).

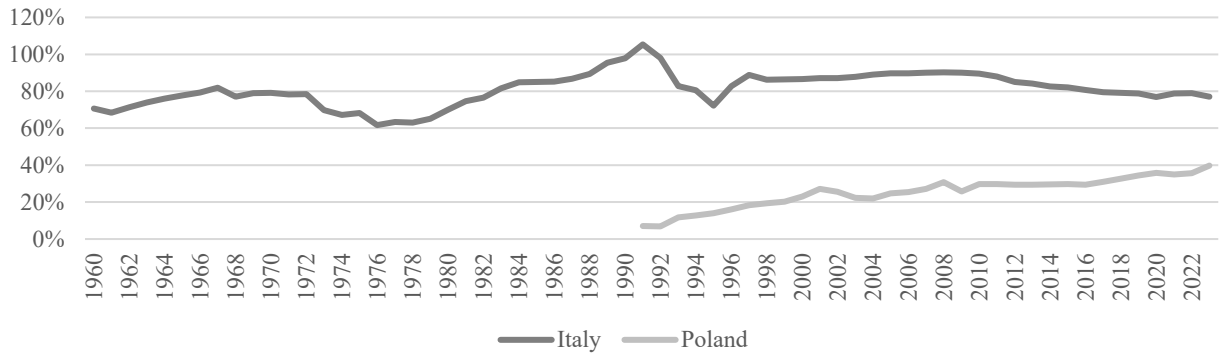
Given the comparative advantage in terms of wage levels, and, because Italy simultaneously lacked an industry with technological levels on par with other European partners, Italian exports focused on durable manufactured goods with medium/low value-added (Graziani 1992, Paternesi Meloni and Stirati 2023). This model is still alive, as in 2023, both imports and exports amount to approximately one-third of GDP, respectively.[6] In terms of value with reference to 2022, over 60% of both exports and imports are destined to and originate from European countries. The main destinations for exports are Germany (12%), USA (10%), and France (10%), while the main origins of imports are Germany (13%), France (8%), and China (8%). Regarding products, the main categories are machinery (23%) for exports and energy resources (22%) for imports.[7]

The necessity to keep wages lower than those of the European partners to ensure the competitiveness of this kind of exports is a structural element in the country's history (Graziani 2000). This type of production system has proven particularly vulnerable to globalization and the enlargement of the European Union to the Eastern countries (Dario Judzik and Hector Sala 2013). In 1990s, the neoliberal process of dismantling controls, constraints, regulations, and protectionist market mechanisms globally integrated the production of goods and capital movements. In 1992, neoliberal principles were adopted by the Maastricht Treaty on which the European Union and the European Monetary Union are based (Özgün Sarimehmet Duman 2019). New actors entered the single European market competing on prices with a model leveraging significantly lower wages (Boltho 2011, Paternesi Meloni and Stirati 2023). Companies had the opportunity to relocate production processes where wages were lower (OECD 2012, Alexander Guschanski and Özlem Onaran 2022). Furthermore, offshoring posed a threat to workers, especially in the medium-to-low value-added manufacturing sector, which is more vulnerable to this type of competition (Paternesi Meloni and Stirati 2023). Figure 1 shows the average nominal labour cost in Italy as a ratio of its historically major economic partners, namely the average between Germany and France. It is evident that the Italian value has been chronically lower. To illustrate how the eastward expansion of the European Union posed a challenge for the Italian production system, the value of this variable for Poland is also shown.

[6] AMECO data. https://dashboard.tech.ec.europa.eu/qs_digit_dashboard_mt/public/sense/app/667e9fba-eea7-4d17-abf0-ef20f6994336/sheet/f38b3b42-402c-44a8-9264-9d422233add2/state/analysis (accessed on 27/06/2024)

[7] Observatory of Economic Complexity (OEC) data, https://oec.world/en/profile/country/ita?yearlyTradeFlowSelector=flow0&subnationalTimeSelector=timeYear (accessed on 27/06/2024)

Figure 1 Nominal compensation per employee in Euro as a ratio of the mean value of Germany and France.

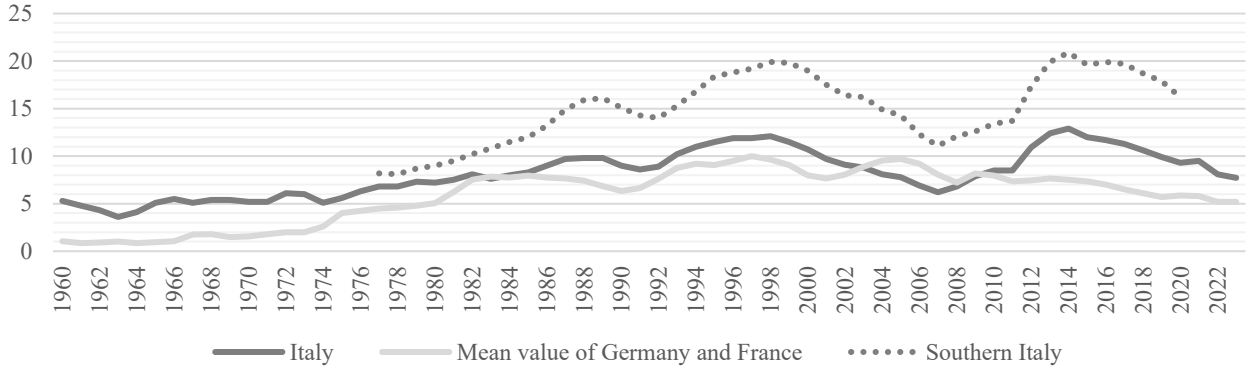


Notes: German data before 1991 refers to West Germany.

Source: own elaboration on AMECO data.

To maintain low wages, the Italian productive system had the structural need to counter wage claims and reduce workers' bargaining power through high levels of unemployment[8] (Figure 2). Therefore, unemployment on one hand represented a longstanding issue undermining growth and, sometimes, the stability of the country, while on the other hand, it was an indispensable tool for this development model to keep wages low. (Kalecki 1943, Salvati 1975, Graziani 1992). Although the industries were concentrated in the North of the country, the role of the South was functional: the extremely high unemployment despite a huge phenomenon of emigration assured low cost of labour and dampened wage claims.

Figure 2 Unemployment rate



Notes: Before 1991, German data refers to West Germany. Southern Italy includes the following regions: Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicilia and Sardegna.

Source: Istat data for Southern Italy, own elaboration on AMECO data for others data

[8] The Unemployment rate in Italy is not stationary according to Augmented Dickey-Fuller (ADF) (David A. Dickey and Wayne A. Fuller 1979) stationarity tests (data available upon request).

However unemployment rate rose sharply with the end of the negative migratory balance abroad, namely in 1972.

The migration phenomenon had enormous territorial differences. Between 1951 and 1961, about 2 million people from the South and half a million from the Northeast emigrated, about half of them to the Northwest and half abroad, while the balance in the Centre of Italy remained neutral. In the decade from 1961 to 1971, the national migratory balance continued to be negative but only due to the emigration from the South, where another 2 million citizens emigrated, with three-quarters of whom moving to Centre-North and one-quarter abroad (Graziani 1992). Starting in 1972, the national migratory balance became neutral, with entries and exits balancing each other out for about two decades. Starting from the 1990s, the balance became positive, reaching a peak in 2007.[9] Throughout this period, however, migrations from the South to the North remain significant. In the last decade, from 2014 to 2023, about half a million southerners have moved to the Center-North (Istat 2024).

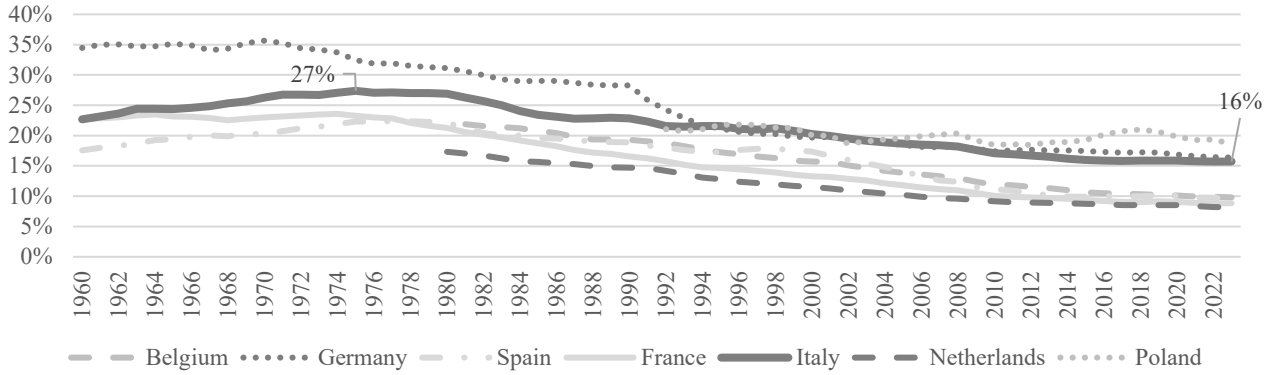
The Italian production system has been characterized by a large manufacturing sector, generally larger than that of other Western European countries. In the 1960s, the sector was expanding, and by the early 1970s, it reached a peak, employing 27% of total workforce. In the 1970s, the phase of outsourcing began, and the sector remained stable overall (Barca and Magnani 1989, Forges Davanzati, Patalano and Traficante 2019, Ardeni and Gallegati 2024). From the early 1980s onwards, the phenomenon of economic tertiarization, globalization and offshoring have been occurring.

Figure 3 illustrates the significance and the decline of the Italian manufacturing sector[10]. In the same graphs, it can be observed that Poland, which records significantly lower nominal wages compared to other countries in the sample, is the only country with a proportion of workers in the manufacturing sector higher than Italy. Moreover, Poland is the only country where this proportion has not declined over the last 20 years.

Figure 3 Percentage of manufacturing employment on total employment.

[9] Istat data, https://www.istat.it/60annidieuropa/popolazione.html (accessed on 09/07/2024)

[10] The share of manufacturing employment on total employment in Italy is not stationary according ADF stationarity tests. Data available upon request



Notes:.

Source: Own elaboration on Ameco data

This decline in the manufacturing sector comes with a growth of the tertiary sector that currently employs approximately three-quarters of the workforce.

Summing up, this model of production, which formed the basis of Italy's most robust economic growth, contains elements, contradictions, dualisms, and vulnerabilities that have been characterizing the Italian production structure up to the present day. Firstly, it resulted in a strong dualism in the Italian production structure and labour market: on one side, large-scale industries concentrated in the North with higher productivity competing in international markets, where unionized workers with higher wages were concentrated; on the other side, a vast network of small, often family-run enterprises with low productivity, non-unionized workers, low wages, and widespread use of irregular labour, focusing on the local market (Vera Lutz 1962, Arrighetti and Seravalli 1997, Graziani 2000). Secondly, the political willingness to support this model meant that public efforts and investments in the first two decades after World War II were concentrated where the industry was already present and competitive in international markets, thus contributing to enlarge the existing development gap between the North and the South of Italy (Graziani 2000). Finally, this model was based on an international competitiveness plan that has proven highly vulnerable to the integration of new global market players (Paternesi Meloni and Stirati 2023) and structurally determined the necessity of wage containment with negative repercussions on unemployment and domestic demand (Kalecki 1943, Salvati 1975, Graziani 1992).

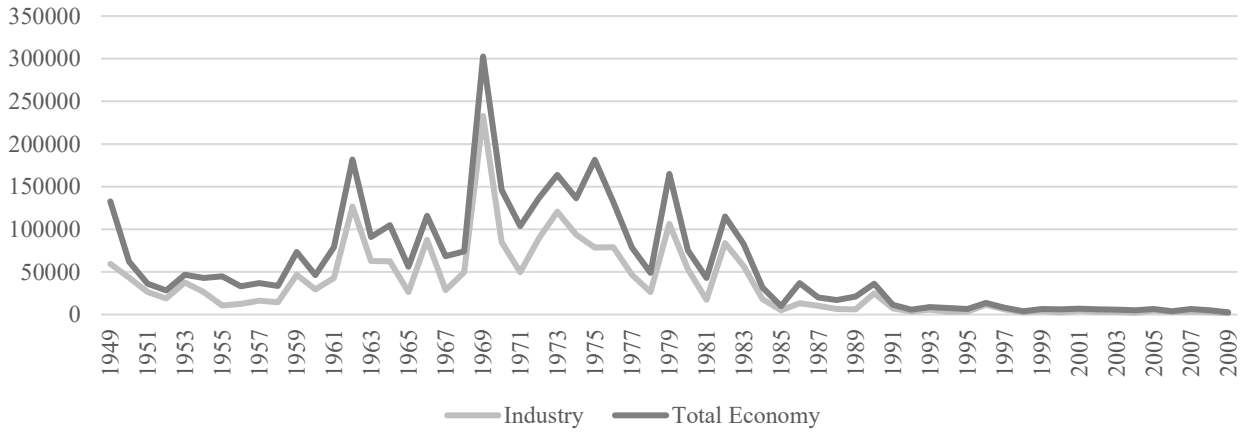
3. Wages and conflicts in the labour market

The manufacturing sector has been leading the Italian worker’s movement since its birth. Because of its size, culture, high unionization rate, company dimensions, productivity, and wage levels, this sector was better organized and more impactful (Enrico Sergio Levrero and Antonella Stirati 2004, Paternesi Meloni and Stirati 2023). Nowadays, the main metalworking sector collective agreement

involves the largest number of workers, about 11% of the total in private sector, following the main one of tertiary and distribution sectors.[11]

Since the late 1950s, labour organizations have been strengthening, but the pivotal year was 1962 (Figure 4). That year marked virtually full employment and saw a significant mobilization that initiated a period of major labour strikes lasting about two decades. The changing atmosphere was also reflected politically with the era of large-scale nationalizations (Graziani 2000).

Figure 4 Thousands of hours of work lost due to strikes in Italy



Source: Istat data

Under the pressure from the labour movement, significant wage and regulatory achievements were recorded: purely instrumental outsourcing was prohibited, and the principle of the employer's actual responsibility was established; the indiscriminate use of fixed-term contracts was banned, and defined cases where they were admitted were strictly listed; the national metalworking collective agreement signed in 1963 recognized the 40-hour workweek, setting a precedent for other sectors (Stefano Musso 2019).

In 1969 there was an absolute peak of labour conflicts. Following this new wave of strikes, there were numerous regulatory and wage achievements. In 1969 an inter-confederation agreement abolished the “Gabbie salariali” system, a mechanism whereby the contractual wage was differentiated by geographical area (wages in the South were lower than in the North. In 1970 the Workers’ Statute recognized a wide range of workplace rights (Musso 2019).

Conflict remained high throughout the following decade. In 1975 a general agreement between the parties recognized a mechanism known as “Scala Mobile” for full and automatic wage indexation to inflation.

[11]Consiglio Nazionale Economia e Lavoro (CNEL) data https://www.cnel.it/Archivio-Contratti-Collettivi/Archivio-Nazionale-dei-contratti-e-degli-accordi-collettivi-di-lavoro (accessed on 27/06/2024)

In response to wage claims during the 1962/1963 biennium, employers faced difficulties. Wage increases could partly be offset by higher prices in the expanding domestic market, absorbing them without severe repercussions on sales. However, competition in international markets, especially in sectors where Italian production was specialized, did not tolerate price increases without significant sales reductions. Thus, unable to adjust prices abroad, this dynamic inevitably eroded profits (Graziani 2000).

Concerns about rising inflation due to wage and domestic demand increases, pressure from employers to counteract the workers' claims, and deteriorating balance of payments dynamics pushed authorities to implement monetary austerity measures. Tightening credit led to a collapse in investments that in 1964 and 1965 declined 20% annually, this led to a rapid increase in unemployment and emigration which reduced labour conflicts for a few years (Graziani 2000, Ninni 2021).

The reaction of the entrepreneurial class to the worker's mobilization in subsequent period was different. The significant outflow of migrants that absorbed unemployment and ensured social stability in 1962 was diminishing. It became clear that this phenomenon was not merely temporary, as labour markets in Europe began to saturate, exacerbated by immigrants from other countries (Graziani 2000). Furthermore, the social stability of the country was already severely tested by the increase in violence following the Piazza Fontana bombing in 1969, marking the beginning of the "Years of Lead" and the strategy of tension.

In this context, the primary strategy implemented by firms from 1969 through the 1970s to break the unity of the labour movement and make the production process more flexible, was the outsourcing. It kept central or final phases in the main factory while shifted other phases to third-party companies, which were either controlled to varying degrees or completely autonomous (Barca and Magnani 1989, Forges Davanzati, Patalano and Traficante 2019, Ardeni and Gallegati 2024).

This process exacerbated another significant weakness inherent in the Italian industrial structure: the small size of companies, particularly in the manufacturing sector, where returns to scale play a crucial role. Smaller companies generally have lower returns to scale and productivity levels, less access to credit, lower profit margins that restrict substantial investments in production or in R&D. Additionally, smaller firms tend to be less regulated, more prone to tax evasion and irregular labour practices, and often pay lower wages (Arrighetti and Seravalli 1997, Calia and Pacei 2017, Garnero 2018).

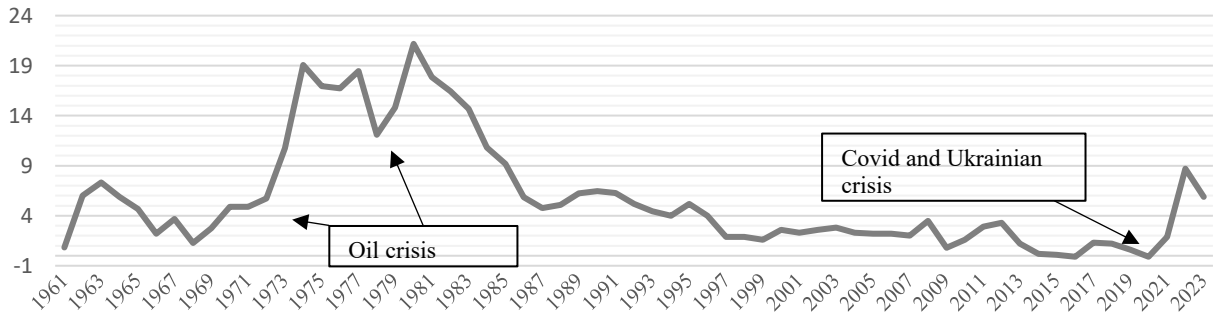
Currently, the size of Italian enterprises is smaller than in other European countries, with two-thirds of workers being employed in companies with fewer than 50 employees, and nearly half in micro-enterprises with fewer than 10 employees. The same dynamic occurs in the manufacturing

sector: 54% of workers are employed in firms with fewer than 50 employees, whereas in other countries with strong manufacturing sectors like Germany and Poland, these figures are 21% and 29%, respectively.[12]

Another strategy implemented by political authorities during the 1970s to counteract wage increases and boost exports was competitive devaluation. Until 1971, an international fixed exchange rate agreement known as the Bretton Woods system existed. Only after its collapse in 1973 the Lira was allowed to float freely. Therefore, prior to 1973, it was not possible to offset wage increases leading to a increase in prices with a devaluation of the currency to maintain price competitiveness in other currencies and thus safeguard exports. Competitive devaluations began only from 1973 onwards (Graziani 2000).

Competitive devaluations, together with wage increases driven by labour mobilizations and by the mechanism of indexation, coupled with the oil crises that characterized the 1970s, led to significant inflationary pressures (see Figure 5). The rise in prices became increasingly concerning and central for the political debate (Leonello Tronti 2009).

Figure 5 Annual inflation rate in Italy



Source: Istat data till 1995, Since 1996 Eurostat data

In 1979 Italy adhered to the European Monetary System (EMS). This system established that European currencies maintained stability within a narrow fluctuation band. It represents, therefore, the end of competitive devaluations, placing greater importance on limiting monetary financing of public deficits and trying to moderate wage claims (Lucio Baccaro and Massimo D'Antoni 2022). During this phase, major trade unions chose a conciliatory approach and did not oppose restructuring efforts to overcome the crisis period (Musso 2019, Matteo Deleidi, Davide Romaniello and Luigi Salvati 2022).

[12] Eurostat data https://ec.europa.eu/eurostat/databrowser/view/sbs_sc_sca_r2/default/table?lang=en&category=bsd.sbs.sbs_h.sbs_na_h. (accessed on 27/06/2024).

From the late 1970s through the 1980s, the widespread phenomenon of stagflation (simultaneous stagnation and inflation) challenged Keynesian economic theory. Monetarist theories began to gain prominence, laying the theoretical groundwork for the spread of neoliberalism. These theories viewed markets as capable of self-regulation and considered state intervention as a source of distortions and inefficiencies (Robert Chernomas and Ian Hudson 2017, Sarimehmet Duman 2019).

The paradigm shift was also marked by the separation of the Treasury and the Bank of Italy in 1981. To safeguard against inflation and increasing debt, the Bank of Italy was no longer obliged to purchase unsold government bonds on the market. Market mechanisms were expected to absorb these bonds through adjustments in interest rates, which saw a significant increase during the 1980s (Rosaria Rita Canale and Rita De Siano. 2024).

The "scala mobile", which triggered wage-price spirals, was unanimously considered one of the main causes of inflation. This, combined with the rise of neoliberal ideology, the collapse of the Soviet Union, and the general weakening of the labour front, led to a restructuring of industrial relations.

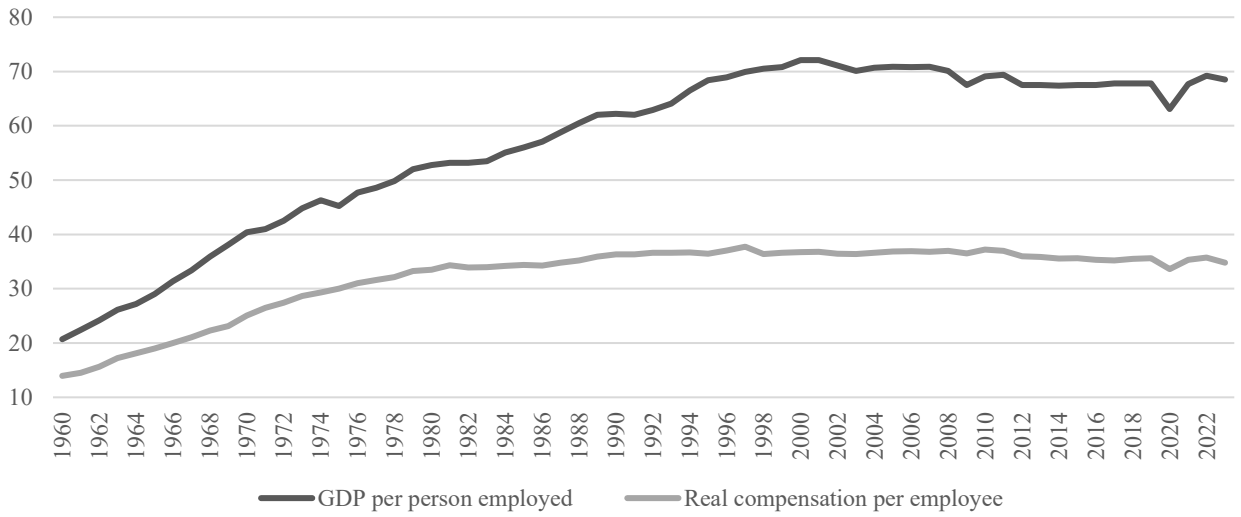
Indexation under the "scala mobile" was gradually reduced starting from 1983-84, with the Lodo Scotti (Agreement between Government and social parties signed on 22/01/1983) and the San Valentino Decree under the Craxi Government (D.L. 10/1984). The mechanism was completely abolished in 1992. The financial crisis within the EMS in that year forced Italy to temporarily abandon the system and devaluate the Lira. The inflationary pressures during that period began to erode real wages, for the first time without any automatic protection mechanism.

The general agreements between government, employers' organizations, and trade unions in 1992/1993 (Agreements on 31/07/1992 and 23/07/1993) established a new collective bargaining mechanism oriented towards decentralization and wage flexibilization. The system was designed with two levels: a national bargaining that aimed to maintain workers' purchasing power by linking wages to the expected inflation rate for the following three years, and a decentralized bargaining at the company or territorial level that related wage increases to productivity gains. However, currently the decentralized bargaining has not fully taken off, especially in smaller enterprises (Tronti 2009). This marked the beginning of the so-called "decoupling" phenomenon: wages and labour productivity, having followed the same growth path before the 1980s, began to diverge.

From Figure 6, it is evident that before the 1980s average real gross wages and labour productivity - measured by GDP per person employed - grew steadily[13]. Since the 1980s, productivity maintained its pace while wage growth slowed down, nearly halting around 1992 and remaining stagnant for over 30 years. In contrast, productivity continued to increase steadily until 2001, after which it entered a contraction phase (Paternesi Meloni and Stirati 2022).

[13] Hourly values, derivable from AMECO dataset since 1970, follow similar trends.

Figure 6 Real gross annual average wage and real labour annual average productivity in Italy in thousands of Euro of 2015.



Source: own elaboration on AMECO data

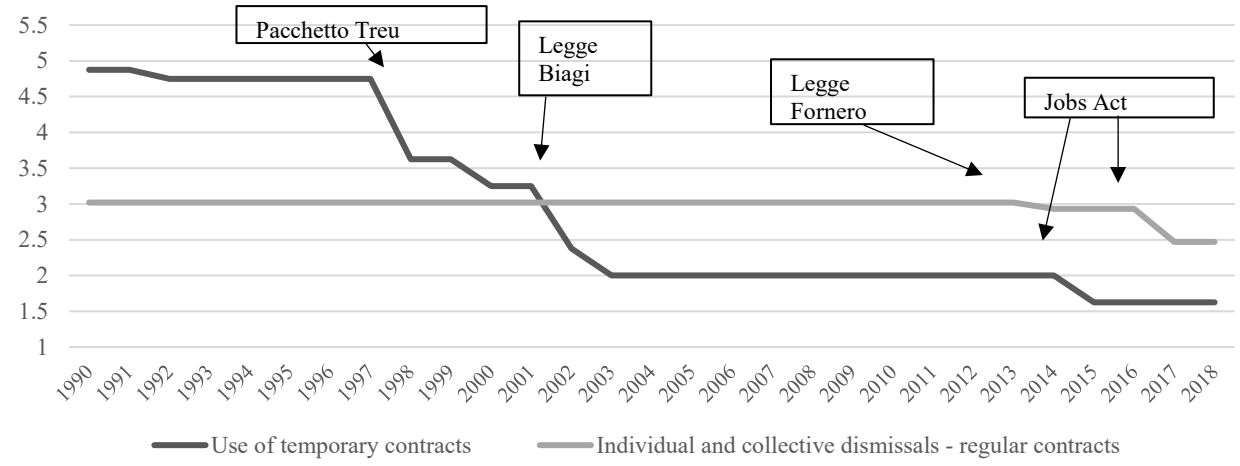
Neoliberalism in the labour market translated into a process of flexibilization. The underlying thesis, inherent in neoclassical economic theories, is that excessive regulation, rigidity, and labour costs discourage entrepreneurs from hiring. In contrast, a flexible market, where wage amounts are determined solely by "individual" bargaining, would allow for the setting of equilibrium wages that would ensure employment even for less productive workers and the total absorption of involuntary unemployment (Friedman 1977, Solow 1995, Antonella Stirati 2020).

In the 1990s, international institutions, such as the IMF and the OECD, began making recommendations in this direction. These guidelines were incorporated into European directives and national regulations of European Union countries (Brancaccio, Emiliano, Nadia Garbellini and Raffaele Giammetti 2018, Rosaria Rita Canale, Giorgio Liotti and Marco Musella 2022, Ferreiro and Gomez 2023).

In Italy, this process occurred in two phases. Initially, atypical employment contracts – such as as part-time or fixed-term - were flexibilized by removing constraints on their use, allowing and facilitating intermediary phenomena and outsourcing of production processes. Only later, after the Subprime Crisis, standard forms of work also were involved in the process through regulations that eased dismissal procedures and costs. This resulted in further dualism in the Italian labour market: on one side, workers with standard contracts, greater protections, and higher wages, not involved in the process until 2011, and on the other side, atypical workers with lower wages and protections (Tito Boeri 2011, Francesco Stolfi and Oliver Fritsch 2023, Michele Bavaro and Michele Raitano 2024).

Figure 7 shows the Employment Protection Legislation (EPL) indexes elaborated by the OECD, which, based on an analysis of the regulations, indicates how rigid they are on a scale from 0 to 6—the higher the index, the greater the rigidity. Constraints on the use of fixed-term contracts (the EPT index) are represented in dark grey, and the costs and constraints regarding dismissal procedures for standard contracts are represented in light grey (the EPRC index). In the figure, we also show the main labour markets reforms.

Figure 7 OECD EPL index, Version 1



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Source: OECD data

The EPL indexes indicate that the process of labour flexibilization has generally affected all Western European countries. As of 2018, the Italian data for regular contracts (2.47) is in line with that of Germany (2.60) and France (2.56), while for temporary contracts (1.63), it is slightly higher than Germany (1.38) and lower than France (3.00).

In the initial phase characterized by labour market flexibilization in Italy, there was a reduction in unemployment (Figure 2), although this often involved atypical and discontinuous work, it should be noted that according to international definitions, a person is considered employed if has worked even just one hour during the reference week. However. After the 2007 crisis, the unemployment rate started to rise again. Overall, after about 30 years of labour market flexibilization in all Western countries, no increase in employment has been observed (Philip Arestis, Jesus Ferreiro and Carmen Gomez 2020, 2023, Ferreiro and Gomez 2020, 2021, Paternesi Meloni and Stirati 2021). Even major international proponents, such as the IMF and the OECD have admitted that there is no empirical evidence of the success of these policies (IMF 2016, OECD 2016). A 2020 study on various research addressing the topic concludes that out of 53 empirical analyses published between 1990 and 2019, only 28% found an increase in employment following flexibilization (Emiliano Brancaccio, Fabiana

De Cristofaro and Raffaele Giammetti 2020). Overall, several studies show that the process of flexibility has led to an increase in profit levels and to a decrease in wages (Liotti and Canale 2020, Canale, Liotti and Musella 2022, Diego Daruich, Sabrina Di Addario and Raffaele Saggio 2023).

As a result of this process, atypical workers have obviously increased. In 1986, fixed-term and part-time workers each accounted for about 4.5% of the total number of employees. Currently, the value is 17% for fixed-term workers and 19% for part-time workers.[14]

In a document referring to the year 2022, Istat reports that 17% of workers are in a vulnerable state because they have a fixed-term contract or involuntary part-time work, while 3.5% experience double vulnerability due to the combination of both elements (Istat 2023).

In addition to formally regular atypical workers, there is a vast grey area of more or less irregular workers where levels of flexibility are obviously even higher but the quantification is extremely complex. Nevertheless, there are studies on the issue. Firstly, according to Istat data, in 2021, about 3 million workers, equal to 11% of the total employed, had no type of contract and performed their work completely irregularly, in the informal economy.[15]

Regarding the phenomenon of false part-time, workers who are formally contracted but actually work more hours than reported, a study from 2011 concluded that 23% of part-time contracts actually concealed a full-time working relationship. False part-time workers earn a net income 20% lower and have a taxable income about half than their counterparts with regular contracts (Carlo De Gregorio and Annalisa Giordano 2014).

Another phenomenon is false self-employment or para-subordinate work, where workers have a formally self-employed or para-subordinate working relationship but are effectively dependent on an employer who benefits from tax and contribution advantages. According to a study, between 15% and 33% of self-employees are actually employees (Emiliano Mandrone and Manuel Marocco 2012).

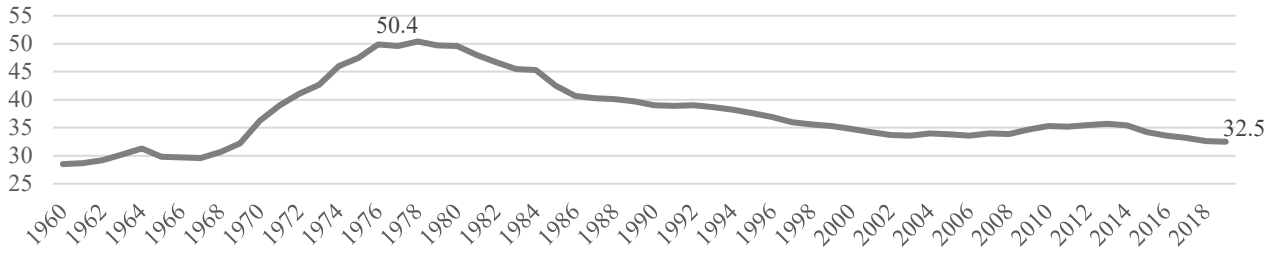
Another issue in this grey area is the application of improper or pirate contracts. An improper contract is the use of a formally regular contract, signed by the main trade union organizations, applied to workers who should be entitled to a more advantageous contract or classification. A pirate contract is one signed by a convenient union created by the employer to gain economic or organizational advantages. This phenomenon has literally exploded in the last twenty years: in 2005 there were about 300 national collective bargaining agreements, currently there are almost 1000. According to a 2014 study, about 25% of workers have an improper contract, while the phenomenon of pirate contracts, despite the large number of national contracts, involves only 1.3% of workers (Claudio Lucifora and

[14] OECD data: https://data-explorer.oecd.org/vis?fs[0]=Topic%2C1%7CEmployment%23JOB%23%7CEmployment%20indicators%23JOB_EMP%23&pg=0&fc=Topic&bp=true&snb=37&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_TEMP%40DF_TEMP_D&df[ag]=OECD.ELS.SAE&df[vs]=1.0&dq=..._T._T.ICSE93_1%2BICSE93_1_U%2B_U.A&pd=2015%2C&to[TIME_PERIOD]=false (accessed on 27/06/2024).
[15] Istat data http://dati.istat.it/Index.aspx?QueryId=11881# (accessed on 27/06/2024).

Dario Vigani 2021). Due to these mechanisms, a study estimates that in 2015, 12% of workers earned less than the minimum wage stipulated in the most representative contract for their category, the phenomenon reaching 19% in micro-enterprises (Garnero 2018).

Traditional trade unions have proven incapable of reaching these new atypical figures emerging in the labour market. Flexibilization is one of the elements that has most contributed to reducing workers' bargaining power (Brancaccio, Garbellini and Giammetti 2018, Pariboni and Tridico 2019, Walter Paternesi Meloni and Riccardo Pariboni 2022). This is one of the factors that has led to the sharp decline in the union density, which had reached a peak of 50% in 1978, but had fallen to 33% by 2019 (Figure 8).

Figure 8 Trade Union density in Italy, percentage value of total employees.



Source: OECD data

Despite the general precariousness of the labour market, union conflict is at historic lows (see Figure 4). A significant exception is the logistics sector, where in recent years there has been a general increase in active conflict aimed at achieving wage and regulatory improvements. The mobilizations, driven by new grassroots unions, have seen the active participation of immigrant workers. Moreover, the logistics sector is generally growing due to globalization and the development of e-commerce. Given its characteristics, strikes and blockades can seriously cause difficulties to companies operating in the sector (Rossana Cillo and Lucia Pradella 2018). As of today, the national logistics contract is the fifth most widespread in Italian private sector, covering 3.6% of employees.[16]

Various studies have shown that flexibilization (Canale, Liotti and Musella. 2022) and the spread of atypical contracts is one of the main reasons for low work intensity and the existence of working poor, that is, individuals who, despite being employed, live in economic difficulty and remain below the poverty line (Michele Bavaro 2022, Bavaro and Raitano 2024).

The economic literature primarily addresses the topic through two indicators: In-Work Poverty (IWP), which refers to the proportion of workers belonging to a household that earns less than the

[16]CNEL data https://www.cnel.it/Archivio-Contratti-Collettivi/Archivio-Nazionale-dei-contratti-e-degli-accordi-collettivi-di-lavoro (accessed on 27/06/2024).

relative poverty threshold, defined as 60% of the national equivalent median household income; and Low-Wage Workers (LWW), which denotes the proportion of employees earning less than two-thirds of the national gross median hourly wage for each hour worked.

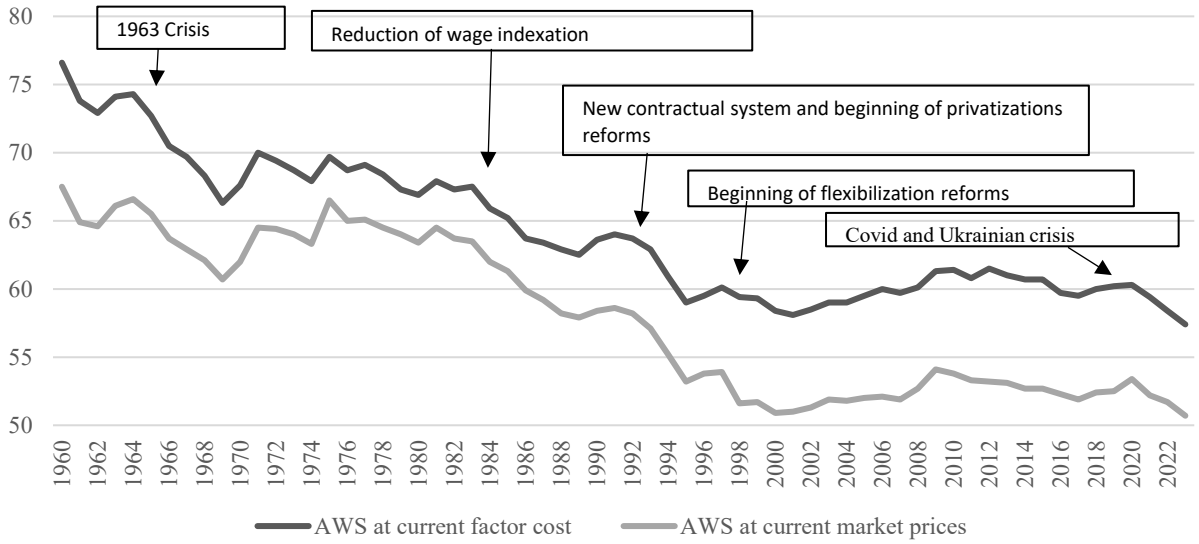
Despite their differences, both indicators show that these phenomena are more prevalent among certain groups: atypical workers, women, youth, immigrants, residents of southern Italy, workers in smaller enterprises, and those in specific sectors such as hospitality and less qualified services (Claudio Lucifora 1998, Bavaro 2022, Bavaro and Raitano 2024). Regarding IWP, according to Eurostat data, the Italian value has been increasing since the first year of observation, namely 2004. In 2019, the percentage of workers in poverty had reached 11.8%, higher than the European average of 9.2%.[17] For workers with temporary contracts, the rate was 22.5%.[18] Regarding the LWW, although there are no continuous official data for Italy, the issue has been treated by a recent study analysing the trend of the phenomenon from 1990 to 2017 using INPS data and considering workers who annually receive less than 60% of the median wage to be underpaid. According to the study, the share rises from 26% in 1990 to 32% in 2017, in the last year the threshold was almost 11,000 euros gross per year (Bavaro 2022).

Most studies point out that working poverty, measured in annual terms, is more related to low annual labour intensity than to a particularly low hourly wage (Raitano et al. 2019, Bavaro and Raitano 2024). According to Istat data referring to 2021 the median hourly wage for a fixed term worker was 10.44 Euros, while for a permanent worker was 12.61 Euros.[19] Nevertheless, the spread of atypical and poorly unionized workers has prompted national political debate to address the issue of introducing a legal minimum wage. In fact, Italy is among the few European countries lacking one, and the various minimum wages are treated in the category bargaining and have categorical value.

The reduction of workers' bargaining power through all these historical phases is reflected in the dynamics of the distribution of value added between capital and labour (Engelbert Stockhammer 2011, Wyatt J. Brooks et al. 2021, Paternesi Meloni and Stirati 2022). The share absorbed by profits surged between the 1980s and 1990s, reaching 32.5% of gross value added (GVA) in 1983 and increasing to 42% by 2001. The profit share (APS) is complementary to the wage share (AWS).

Figure 9 Adjusted wage share (AWS) in Italy (%)

[17] https://ec.europa.eu/eurostat/databrowser/view/ilc_iw01/default/table?lang=en&category=livcon.ilc.ilc_ip.ilc_iw (accessed on 27/06/2024).
[18] https://ec.europa.eu/eurostat/databrowser/view/ilc_iw05/default/table?lang=en&category=livcon.ilc.ilc_ip.ilc_iw (accessed on 27/06/2024).
[19]Istat data http://dati.istat.it/Index.aspx?QueryId=11881# (accessed on 09/07/2024).



Notes: Market prices indicate the total volume of GDP. Factor prices indicate the value of GDP without taxes on production - mainly IVA - net of subsidies, this value substantially corresponds to the GVA. In this second definition, the rate is complementary to 100 with the adjusted profit rate.
It is specified that the wage share "adjusted" correctly accounts for self-employment income adding to the wage share an amount for each self-employed person equal to the average wage, otherwise, the historical trend, which has seen a constant reduction in the share of self-employed workers since 1984, risks artificially inflating the value of the wage share. Since 1984, in fact, according to ILO data, the share of self-employed is constantly decreasing, in that year it was 25% of the employed today is 17%, a share that however remains much higher than that of all the other countries of Western Europe.[20]

Source: AMECO data

As figure 9 shows, during the final years of the economic miracle the wage share at current factor cost was around 75%. Following the crisis in 1963/64, there was a sharp reduction until 1969. Starting from 1969, coinciding with renewed large-scale labour movements, the wage share increased and remained stable between 67% and 70%. From 1983 to 2001, this share experienced a collapse, dropping to 58%. During this period, there was the reduction and subsequent elimination of wage indexation, the introduction between 1992 and 1993 of the new two-tier bargaining model and the privatization of major state-owned enterprises that were not profit-oriented when public (OECD 2012, Paternesi Meloni and Stirati 2023). Subsequently, the wage share continued to decrease in the first period of flexibility (Brancaccio, Garbellini and Giammetti 2018) till records an increase due to labour productivity slowdown till the Subprime crisis, thereafter remains roughly stable with slight decreasing tendencies for about a decade, until another reduction was recorded following the return of inflation in 2022.

The structural change in AWS in the early 1980s is also confirmed by the econometric tests. Implementing an autoregressive model for AWS, the Bai-Perron test (Jushan Bai and Pierre Perron 1998) rejects the hypothesis of no structural break at a 5% significance level and identifies the presence of a structural break in 1983[21].

[20]ILO data https://rshiny.ilo.org/dataexplorer58/?lang=en&id=SDG_0111_SEX_AGE_RT_A (accessed on 27/06/2024).
[21] Data available upon request.

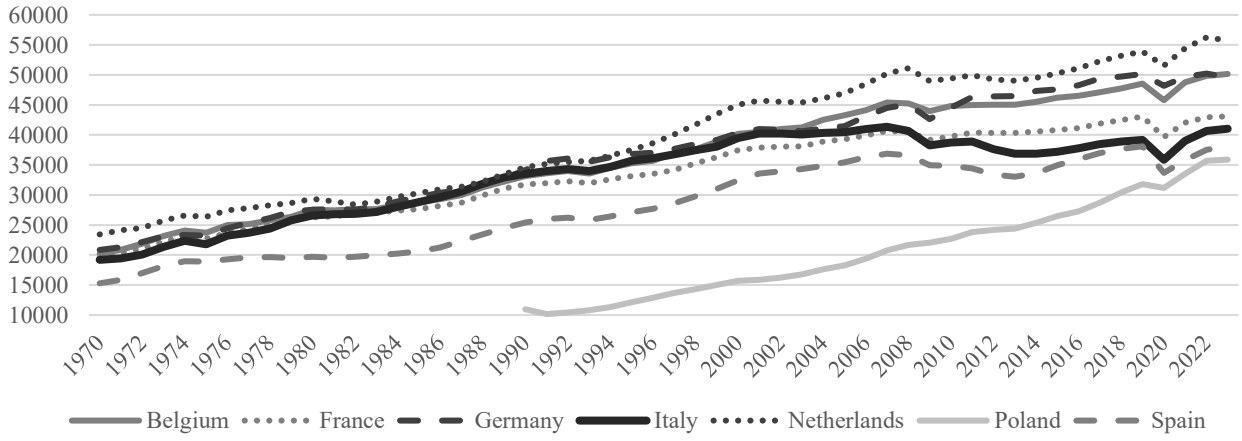
It should be noted that, although similar historical dynamics are recorded in most Western countries (OECD 2012), currently Italy records one of the lowest values in Western Europe. In 2023 this value at factor cost was 57.4%, while in Germany it was 62.6% and in France 67.4%.[22]

4. Macroeconomic dynamics

The dynamics of wage bargaining and labour market trends are lens allowing to understand the macroeconomic transformations occurred in Italy since the decade of the 60s. The real GDP at purchasing power parity (Figure 10), was at least until the end of the 80s, among the highest in Europe and almost equal to the German one, but 30 years later, in 2019, it was 20% lower. Since 2001, growth began to decline, and the Subprime crisis gave further impetus to this trend. Only in recent years, and after the pandemic, the process slightly inverted.

The growth slowdown is deeply related to the process of labour market liberalization, privatization and the austerity measures implemented since the beginning of the 1990s. (Baccaro and D'Antoni 2022, Oscar Afonso, Paulo Alves and Natércia Fortuna 2024, Miloš Žarković, Jasmina Ćetković and Jelena Cvijović 2024). These transformations were the result of globalization supported at international level by the major international institutions such as the IMF, World Bank, and OECD. They pushed for reforms in the direction of a widespread deregulation, privatizations, tax and government expenditure reductions, and flexibility in the labour market (OECD 1994, Dani Rodrik 2006).

Figure 10 Real GDP per capita PPP in 2015 US Dollars



Source: OECD data

[22] AMECO data https://dashboard.tech.ec.europa.eu/qs_digit_dashboard_mt/public/sense/app/667e9fba-eea7-4d17-abf0-ef20f6994336/sheet/2f9f3ab7-09e9-4665-92d1-de9ead91fac7/state/analysis (accessed on 27/06/2024).

This new paradigm was absorbed and codified in the Maastricht Treaty (1992), establishing the birth of the European Monetary Union and the free movements of goods and capital (Sarimehmet Duman 2019, Baccaro and D'Antoni 2022). Signatory countries renounced to intervene actively in the economy in favour of market efficiency, bound by strict financial constraints to limit fiscal deficits and public debt. National monetary sovereignty was initially constrained by these limits and then completely removed with the introduction of the Euro in 1999 for participating countries (Mariangela Bonasia et al. 2020, Canale and Liotti 2021).

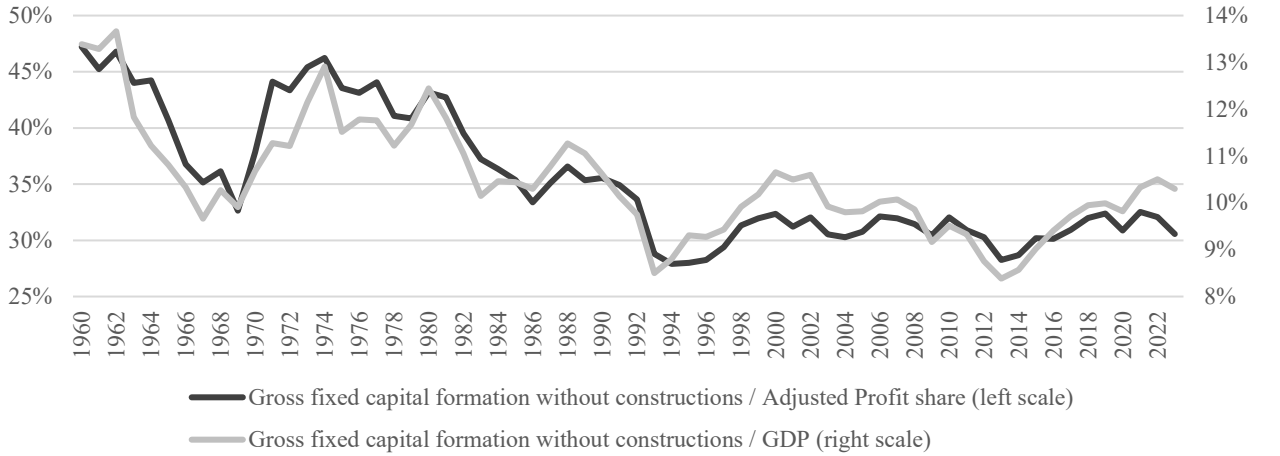
In Italy, the neoliberal restructuring began in the early 1990s with privatizations, liberalizations, and a reduction in public spending. (Baccaro and D'Antoni 2022). From this period to the present day, with few exceptions, the government budget has recorded a primary surplus, meaning taxes exceed expenditures net of interest payments. Nevertheless, the state continues to run deficits, and the debt keeps increasing due to high interest rates that weigh heavily on the debt burden (Canale and Liotti 2021, Canale and De Siano 2024). Privatizations and the reduction of public spending led to a decrease in public sector workers, dropping from 26% in 1995 to 19% in 2022.[23]

The dismantling of public regulation and the increase in global financial integration have led to another phenomenon: the financialization of the economy, which refers to the substantial increase in investments in financial operations, often for speculative and short-term purposes rather than in sectors of the real economy with negative effects on productivity and economic growth (Barradas 2019, Pariboni and Tridico 2019). In Italy in 1992 the value of traded stocks amounted to just 2% of GDP then there was an exponential growth, by the eve of the 2007 crisis, the share of traded stocks reached 100% of GDP. In the United States, considered the epicentre of global finance, this phenomenon began in the 1980s, and in the year of the subprime mortgage crisis, the value of annually traded stocks reached 320% of GDP.[24]

Observing gross investments from a different perspective, namely in relation to GDP and gross profits (Figure 11), a progressive decline is noticeable from the early 1980s until 1994, followed by an increase in the second half of the 1990s, and finally a period of relative stability. In the 1970s, almost half of the profits were reinvested directly into production; today, this share has decreased to less than one-third.

[23] ILO data: https://rshiny.ilo.org/dataexplorer59/?lang=en&id=SDG_0111_SEX_AGE_RT_A (accessed on 27/06/2024).
[24] World bank data:https://databank.worldbank.org/reports.aspx?source=2&series=CM.MKT.TRAD.GD.ZS&country= (accessed on 27/06/2024).

Figure 11 Investments in Italy in relation to GDP and profits



Notes: Gross fixed capital formation refers to the total acquisition or production of machinery, metal products, transport equipment, software, and other assets, both private and public. Therefore, investments in residential and non-residential buildings and civil engineering works are excluded.
Gross adjusted surplus means the surplus excluding the wage share of the self-employed.

Source: own elaboration on AMECO data

This trend in investments, similarly to the wage share, is also due to labour cost reduction and flexibility, which discourage organizational and technological improvements in favour of labour-intensive production (Tronti 2009, Lisi and Malo 2017, Cirillo and Ricci 2019). Indeed, since the late 1990s, unemployment entered a decreasing phase until the 2008 crisis (see Figure 2), and labour productivity began to decline severely from 2001 onward (see Figure 6).

This interpretation essentially supports the theory that Paolo Sylos Labini termed the "Ricardian effect." According to this view, productivity is positively related to labour costs because the desire to save on labour costs is crucial in the decision to introduce more efficient production methods and systems. Therefore, the decline in real labour costs and real wages would be discouraging technological investments (Labini 1984, Vergeer and Kleinknecht 2010, 2014, Oyvat 2023).

With the aim of providing a general interpretation, the dynamics of labour productivity, total gross wages, total gross investments excluding construction, and per capita GDP are presented in Figure 12.

The first two-year period of available data (1961-1962) register the economic boom, inflation and unemployment are low, the manufacturing sector is expanding, and all the 4 variables are growing significantly. During the crisis period (1963-1964), there is a collapse in investments, wage exceeds productivity growth, but both, as well as the economy in general, continue to grow at a sustained rate. Subsequently, until the resumption of workers' mobilizations (1965-1969), all variables resume growing at a sustained rate but, unlike before, unemployment and inflation slowly begin to increase.

The early 1970s (1970-1972) are characterized by huge workers' mobilizations, the wage growth rate exceeds productivity growth, investments grow rapidly. In this period there is a halt in

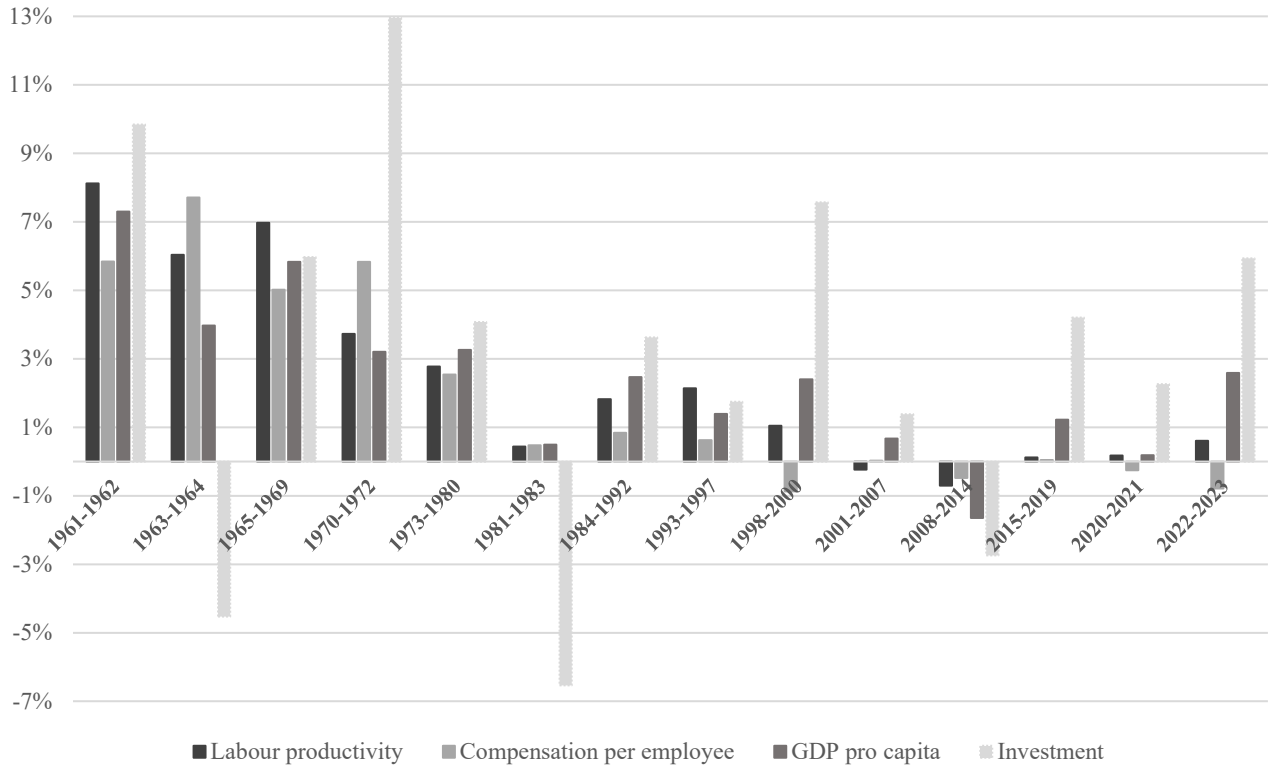
the growth of the manufacturing sector and the beginning of production outsourcing to make labour market more flexible and break the union front. The period 1973-1980 is characterized by a large increase in unemployment and inflationary crises. Nonetheless, during this period, all the variables continue to grow at a sustained rate.

The early 1980s (1981-1983) are marked by the birth of the EMS and the divorce between the Bank of Italy and the Treasury. Inflation begins to decrease, and the phenomenon of economic tertiarization starts. During this period, all variables enter a contraction phase. The period 1983-1992 is characterized by the end of the inflation crisis, the rapid reduction of union conflicts and wage share, and the progressive dismantling of the wage indexation mechanism to inflation until its total abolition in 1992. From this period onwards, wage growth compared to other variables drastically reduces.

The period 1993-1997 is marked by the birth of the European Union, the beginning of globalization and large-scale privatizations, and the adoption of the new two-level contract system. The wage share continues to decline. The period 1998-2000 is characterized by the beginning of the deep labour flexibilization process, wages growth begins to be negative, productivity declines but remains positive, and there is an increase in investments and employment. The wage share reaches the lower peak.

In the period leading up to the subprime crisis (2001-2007), characterized by the birth of the common currency and by the enlargement of the European Union toward east, all the variables are in a phase of stagnation despite the continuous decrease in unemployment. With the crisis and the subsequent period (2008-2014), the four variables under examination are in recession, and unemployment grows quickly. During the slow recovery phase, from 2015 onwards, wages and productivity continued to stagnate while investments and employment increased. Only in 2023 the per capita GDP reached the level that preceded the subprime crisis.

Figure 12 Wage, productivity, growth and investment. Average growth rates, real values



Source: own elaboration on AMECO data

5. Concluding remarks

The main international institutions attribute the Italian economic difficulties to the excess of public debt and low productivity. In turn, low productivity depends on regulations and inefficiencies of public administration and labour market rigidity that discourage investment**.** However, historical dynamics suggest different underlying causes. In particular, the stagnation of wages appears to have been a significant factor in the decline of productivity and the economic slowdown. Since 1960s a consistent theme of containing labour costs has emerged, resulting in slow growth lacking wide strategic vision that prioritized immediate gains over long-term capital accumulation and productivity growth.

The dependence on international trade and the specialization in exporting medium/low value-added manufactured goods paved the way to chronic wage containment in order to maintain competitiveness. Although this element provided a competitive advantage based on low labour costs, which was at the core of the economic boom, however, it exerted downward pressure on employment, productivity, and aggregate demand. These contradictions and vulnerabilities became clear with the integration into international markets of countries that could rely on lower wage levels.

Within the analysed period, several phases can be observed. In the 1960s there was a huge increase in both productivity and wages. This period was also characterised by low both inflation and unemployment, the latter also due to the large emigration.

In the 1970s and till the early 1980s, economic growth decreased but remained nonetheless sustained and wages grew in line with productivity. This period was characterized by strong union conflicts, monetary instability, and attempts by the entrepreneurial class to increase labour flexibility and break the workers' front through outsourcing and rising unemployment, moreover real wage increases were partly offset by currency devaluations.

In the 1980s and until 1993, wage growth slowed. This period was marked by high unemployment, wage moderation with the progressive reduction and later the elimination of the indexation mechanism, and the beginning of the tertiarization process. This phase ends with the adoption of a new industrial two-level bargaining system to counter inflation: a national bargaining that aimed to maintain workers' purchasing power by linking wages to the planned inflation rate, and decentralized bargaining at the company or territorial level that related wage increases to productivity gains. However, currently the decentralized bargaining has not fully taken off, especially in smaller enterprises.

From the 1990s onwards, wage growth stopped completely. This period saw privatization processes, downward wage pressures due to globalization and enlargement of the European Union to the East and a deep process of labour market flexibilization. This flexibilization included the removal of constraints on the use of atypical (fixed term and part-time) contracts, the allow and simplification of intermediary and outsourcing phenomena, and after the Subprime Crisis, the reduction of dismissal procedures and costs. The reduction of labour costs and the increase in flexibility have been pursued to make it easier for the entrepreneurs to hire and thus reduce unemployment. However, these measures generally led to increased profits and reduced wages.

Wage reductions led, in turn, to a decrease in aggregate demand that squeezed GDP and, through the Kaldor-Verdoorn law, productivity.

Declining wage dynamics exerted also a downward pressure on productivity through the reduction of labour costs, therefore discouraging productive investments and favouring diversion of resources toward the financial sector. These tendencies consolidated the Italian phenomenon of the high number of small and medium size companies, generally having lower returns to scale, limited access to credit, insufficient profit margins, limited R&D investments and using low-paid irregular labour.

This historical dynamic leads to conclude that continuing to persevere with these short-term price competitiveness strategies, that prioritize immediate gains over long-term capital accumulation and productivity growth, implies the risk of throwing the country into further decline.

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2

Italian labour productivity: a wage-led decline

Paolo Angelone[25]
University of Naples "Parthenope", Department of Business and Economic Studies, Naples, Italy.

Rosaria Rita Canale[26]
University of Naples "Parthenope", Department of Business and Economic Studies, Naples, Italy.

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Abstract: This paper aims at explaining productivity behaviour through wage share dynamics in Italy in the period ranging from 1960 to 2023. To this end, the growth rate of GDP per worker and the wage share at factor cost - suitable for measuring the weight of labour on production choices – are connected through an autoregressive distributed lag (ARDL) cointegrating technique. The estimates, identifying a univocal direction of causality, reveal that a change in the wage share affects, through a coefficient of about 0.2, the productivity growth rate in the same direction in the long-term. Results support the idea that the strategy of wages' containment contributed to shape a productive model discouraging investments and organizational improvements while favouring low value-added sectors. Further checks not only confirm the results but also indicate that low productivity is neither linked to an excessive presence of the public sector nor to the reduction of unemployment.

Key words: Labour costs, Labour productivity, Wage share, Italy, Time series.

JEL: E24, E25, O47, C22.

1. Introduction

The Italian economy is experiencing difficult times. According to annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs (AMECO) in 2023, real GDP has not yet returned to the 2007 level, the year the subprime crisis began; real labour productivity records a stagnation since 2001, and real gross wages are in contraction since the 1990s[27].

Economic literature, across different theoretical positions, agrees that low productivity is a key factor in the Italian economic poor performance. The most influential international institutions, such as Organization for Economic Co-operation and Development (OECD), International Monetary Fund (IMF) and European Commission (EC), in line with the prevailing literature, find the main causes in

[25] paolo.angelone001@studenti.uniparthenope.it
[26] rorita.canale@uniparthenope.it
[27] AMECO online database (accessed on 25/07/2024).

the inefficiencies of public administration and the excessive regulation that discouraging investments and competition. They recommend therefore liberalization, privatization (IMF, 2020, 2023; OECD, 2021; EC, 2023), and labour market flexibilization reforms (IMF, 2020; OECD, 2021) to overcome the awkward conditions.

On the contrary, heterodox authors, observing the phenomenon from different perspectives, argue that the reduction of labour costs and the flexibilization of the labour market allow the entrepreneurs to use cheaper workers, therefore discouraging investments in innovation, machinery, and organizational improvements, ultimately leading to a decline in productivity and a less dynamic and innovative production system. (Marx, 1867; Sylos Labini, 1984; Tronti, 2009; Vergeer and Kleinknecht, 2010, 2014; Hein and Tarassow, 2010; Storm and C.W.M. Naastepad, 2011; Kleinknecht et al., 2014; Lisi and Malo, 2017; Cirillo and Ricci, 2019; Cruz, 2023; Oyvat, 2023; Ikeda et al., 2024).

The contribution of this article fits into this second line of thought and moves its investigation from the belief that wage dynamics do not represent only an autonomous factor affecting productivity, but rather is able to trigger capital accumulation dynamics, the distribution of productive activities among sectors and across regions as well as internal demand and migration. Therefore, its effect on productivity growth should be evaluated in the light of the so many endogenous effects it drives.

To this aim this article examines the connection between wage share and productivity in Italy from 1960 to 2023 through the autoregressive distributed lag (ARDL) model long-term cointegrating technique (Pesaran and Shin, 1999). The dependent variable is the growth rate of GDP per worker measured at full time equivalent (FTE) while the main explanatory variable is the adjusted wage share (WS) at factor cost, suitable for measuring the weight of labour costs on production choices. The central hypothesis is that the dynamics of productivity can be explained by the decline in the WS. The paper argues that the strategy of wages' containment contributed to build up a productive model that discouraged investments and favoured sectors with a low value added. The reduction of workers' bargaining power, the flexibilization of labour market, the presence of new international competitors and the general drastic reduction in labour costs, institutionalized through legislation since the 80s, gave further impetus to this process, undermining the Italian growth potential through the stagnation of productivity. According to the estimates, identifying a univocal direction of causality from the explanatory to the dependent variable, a change in the wage share affects, through a coefficient of about 0.2, the productivity growth rate in the same direction. Further estimates including additional variables affecting productivity, not only confirm the results but also indicate that low productivity is neither linked to an excessive presence of the public sector nor to the reduction of unemployment, as

suggested by the main international institutions. These outcomes appear to be robust when implementing estimates accounting for bidirectional causality and endogeneity issues.

The novel contributions of the paper are twofold: 1) the use of the adjusted wage share at factor cost as the main determinant of productive and allocative production choices with the aim of capturing the most influential variable of firms' decisions in Italy and especially; 2) the univocal direction of causality going from labour costs toward productivity, that as far as we know, has not been identified previously through a cointegrating connection. Results support the conclusion that, the Italian wage share reduction occurred especially in the last 40 years is not just a matter of inequality and poverty but also a challenge for the Italian growth.

The paper is organized as follows: section 2 provides the theoretical underpinnings connecting wages and productivity according to different streams of thought. Section 3 focuses on the historical dynamics of wages and bargaining on the labour market from 1960 to 2023, with the aim of underlying its functional role to the Italian production structure. Section 4 presents the empirical analysis of the long-term relationship between productivity and labour costs in Italy over the same period and is articulated into three subsections: section 4.1 presents the methodological issues; section 4.2 provides the main results presenting the connection between wages and productivity as a univariate relationship and including control variables considered to be relevant in the literature; Section 4.3 contains a robustness check addressing the issue of endogeneity. Finally, the last section suggests policy implications and provides concluding remarks.

2. The connection between wages and productivity

Wages and labour productivity dynamics, inside the neoclassical stream of thought, follow the marginal productivity theory. It states that productivity determines real wages and assigns little importance to the reverse relationship (Hicks, 1932; Friedman, 1977; Layard and Nickell, 1986; Solow, 1995; Phelps and Zoega, 1998). Within this framework, the shared vision is that labour market flexibilization and the reduction of labour costs increase employment in a way that would not have been viable in a situation of excessive rigidity. The decline of productivity could be a side effect of the increase in employment not compromising economic growth (OECD, 2003).

However, the most influential international institutions, such as OECD, IMF and EC, identify low productivity as a critical driver of Italy's economic slowdown. This route is mainly attributed to inefficiencies in public administration, the excessive regulation and the huge public debt increasing the tax burden and discouraging investments and competition. It is recommended, therefore, to reduce market entry barriers, liberalize sectors still under public control or regulation (IMF, 2020; OECD, 2021; EC, 2023), contain public spending (OECD, 2021; EC, 2023; IMF, 2023) and encourage

investments by making wages more flexible through prioritizing decentralized company bargaining (IMF, 2020) and reducing dismissal costs (OECD, 2021). Labour market flexibilization and reduction of labour costs reduce unemployment and boost the economy (Friedman, 1977; Layard and Nickell, 1986; OECD, 1994; Solow, 1995; Phelps and Zoega, 1998; Boeri et al., 2021). The reduction of rigidities would lead to a faster relocation of workers from less productive sectors to more productive ones, shaping a more dynamic production system (Martin and Scarpetta, 2012; Haltiwanger et al., 2014; Cahuc and Palladino, 2024); excessive rigidity in firing workers would make labour-saving innovations less attractive (Scarpetta and Tressel, 2004; Cahuc and Palladino, 2024); finally, the reduction of worker protections would encourage employees to be more efficient, thereby leading to an increase in productivity (Bassanini and Ernst, 2002; Ichino and Riphahn, 2005). These positions have been promoting the major labour reforms occurred in Western Europe, including Italy (Deleidi et al., 2022).

However, it is argued, on contrary, that the reduction of labour costs allows low-productivity firms to survive, which would otherwise fail (Kılıçaslan and Taymaz, 2008). These effects may benefit employment in the short term, but in the long term, they would make the production system less dynamic (Vergeer and Kleinknecht, 2014). After about 30 years of general labour market flexibilization in all western countries, no increase in employment has been observed (Arestis et al., 2020, 2023; Ferreiro and Gomez, 2020, 2021; Paternesi Meloni and Stirati, 2021). Even major international promoters, such as the IMF and the OECD admitted that there is no empirical evidence of the success of these policies (IMF, 2016; OECD, 2016). A meta-analysis of the papers addressing the topic concludes that out of 53 empirical analyses published between 1990 and 2019, only 28% found an increase in employment following flexibilization (Brancaccio et al., 2020).

Adopting a different perspective, many heterodox authors argue that the reduction of labour costs and the flexibilization of the labour market allow entrepreneurs to use cheaper workers discouraging investments in innovation, machinery, and organizational improvements, ultimately leading to a decline in productivity and a less dynamic and innovative production system.

This stream of thought relies on classical economists' seminal contribution, theorizing, as it is well known, that workers' wage increase pushes the capitalist class to react by investing in new machinery to reduce labour input. This substitution boosts productivity and profits while compresses wage claims through the widening of the industrial reserve army (Marx's, 1867).

Sylos Labini, referring mainly to the manufacturing sector, identifies two direct effects of labour costs on productivity: an organizational effect, referred to a more efficient use of existing resources; and the Ricardian effect, implying an increase in investments related to a rise in the relative cost of

labour input in respect to capital input (Sylos Labini, 1984; Guarini, 2007; Carnevali et al., 2020; Fontanari, 2024).

Following this line of thought some scholars explained the total labour cost effect on productivity considering the overall trend of wages (Storm and C.W.M. Naastepad, 2011; Cruz, 2023; Oyvat, 2023) while some others have focused on both the wage growth rate and the trend of the WS (Hein and Tarassow, 2010; Vergeer and Kleinknecht, 2010, 2014). The share of fixed-term and atypical contracts has been also considered a powerful explanation for the decline in productivity (Kleinknecht et al., 2014: Lisi and Malo, 2017; Cirillo and Ricci, 2019; Ikeda et al., 2024). Wage inequalities have also been considered a cause of lower effort by lower-paid workers and, consequently, a factor contributing to reduced productivity (Policardo et al., 2019). Focusing on Italy, Tronti (2009) stated that the decline in productivity is rooted in the labour market deregulation following the approval of the Industrial Relations Protocol of 1993, which decoupled wage increases from productivity growth.

A very relevant theoretical position indirectly links wages to productivity from the demand side: it is the so-called Kaldor-Verdoorn law, which posits that the growth of aggregate demand leads to productivity growth due to specialization and economies of scale in the manufacturing sector (Kaldor, 1966). This thesis is also present in the Sylos Labini's Smithian effect determinant of productivity, namely the positive effects on productivity in manufacturing sector of market volume (Sylos Labini, 1984; Guarini 2007; Carnevali et al., 2020; Fontanari, 2024). Many authors have found these effects to be valid for the entire economy, specifically regarding the Italian case (Deleidi et al., 2018; Deleidi and Paternesi Meloni, 2019; Forges Davanzati et al., 2019).

From an econometric perspective, detecting the effects of labour costs on productivity presents challenges due to the bidirectional relationship between the variables and endogeneity issues (Cruz, 2023). Authors who used gross wages to explain productivity trends included instrumental variables (Vergeer and Kleinknecht, 2010, 2014) or t lagged explanatory variables in their estimates (Carnevali et al., 2020; Fontanari, 2024) to overcome this obstacle. Authors who used the wage or profit share did not address the issue of endogeneity (Vergeer and Kleinknecht, 2010, 2014). While the wage share represents the ratio between average wage and average productivity - and thus productivity trends influence both the numerator and the denominator - there is no clear evidence that productivity dynamics systematically distort the ratio between these two variables in medium and long term (Hein and Tarassow, 2010;

However, this issue is far from settled. Some strands of the literature argue that the wage share is influenced by technological progress, particularly claiming that the decline in the wage share observed across advanced economies since the 1980s has been primarily driven by new technological

developments (Bentolila and Saint-Paul, 2003; Bassanini and Manfredi, 2012). The effect of capital accumulation and technological change - and thus productivity - on income distribution depends on the elasticity of substitution between capital and labour in the production function at aggregate level (Antràs 2004; Guschanski and Onaran, 2022). Technological progress would have made workers little needed and poorly paid. However, it should be taken in mind that a higher use of capital implies a higher value added per worker therefore contrasting the decline in productivity.

Another strand of the literature contends that the general decline in the wage share was mainly driven by the weakening of workers' bargaining power, caused by institutional factors such as regulatory changes and the weakening of labour unions (Brancaccio, Garbellini and Giammetti, 2018; Damiani et al., 2020; Paternesi and Stirati 2022), as well as international phenomena such as financialization (Pariboni and Tridico 2019) and the globalization (Stockhammer, 2013; Guschanski and Onaran, 2022) of the economy. Regarding the specific case of Italy, as will be thoroughly discussed in Section 3, the literature on the drastic reduction of the wage share focuses more on issues related to workers' bargaining power rather than technological factors (Zenezini 2004; Levrero and Stirati, 2006; Tronti 2009; Paternesi Meloni and Stirati 2023).

The present paper aims to contribute to the research area viewing labour costs as a variable capable of influencing productivity. It implements a long-term cointegrating analysis focused on Italy and shows that the productivity crisis stemmed from the policy strategy of lowering wages and labour costs, therefore supporting the point of view that it was the main driver of the reduced capital accumulation and technological innovation in Italy. A distinctive feature of this paper lies in the use of wage share at factor costs to capture the main variable affecting productive decisions. It reflects the total remuneration of labour input - composed by the sum of gross wages and social contributions paid by the employer - per unit of wealth produced. Therefore, it represents the real unit labour cost and is therefore more suitable for explaining its influence on profit margins and, consequently, on organizational decisions (Hein and Tarassow, 2010). Moreover, this choice allows to overcome the reverse causality issue. The section 4.1 presents a causality analysis through cointegration tests, supporting a unidirectional causal in long term relationship from the wage share to productivity in Italian history since the 1960s. To reinforce this result, section 4.3 includes robustness checks to validate this relationship by employing instrumental variable techniques. Despite focusing on the effects of labour costs on productivity, this contribution does not rule out that productivity and investments might be influenced by a wide range of additional variables.

3. Wage dynamics and bargaining in the labour market in Italy: a historical perspective

Since the post-World War II period, the issue of labour costs has been central to Italian economic history. The process of European trade integration and the growing importance of exports required labour costs to remain lower than those of European partners. Italy's economy, which could rely on a large labour force but on a less technologically advanced industry compared to major partners, specialized in the production and export of medium-to-low value-added manufactured goods with a competitiveness strategy based on costs (Graziani, 2000; Boltho, 2011; Paternesi Meloni and Stirati, 2023). Even today, according to AMECO data, Italy's manufacturing sector is among the largest in Western Europe, employing approximately 16% of the workforce and relying on exports for approximately one-third of the GDP.[28] According to Observatory of Economic Complexity (OEC) more than 60% of Italy's exports and imports are directed to or come from European Union countries[29].

These dynamics polarized the Italian production structure. On one side there were industries, primarily concentrated in the northwest of the country, competing in international markets with larger sizes, higher productivity, better wages, and greater unionization rates. On the other side there was a network of small-scale enterprises with low productivity levels heavily reliant on informal labour, serving in particular domestic demand (Graziani, 2000).

While this model was one of the driving factors behind the economic miracle starting in the 1950s (Kindleberger, 1967; Stern, 1967; Graziani, 2000; Ninni 2021), the chronic need to contain wages required to maintain high levels of unemployment to reduce workers' bargaining power and wage demands (Kalecki, 1943; Salvati, 1975; Graziani, 2000; Deleidi and Paternesi Meloni, 2014). High unemployment rates, therefore, were both a necessary tool for this type of production system and international competitiveness strategy. However, at the same time it was a factor that undermined the growth of domestic demand. In this process, the south of the country was not passive but played a functional role by providing low-cost labour for the industry and maintaining a large unemployed population despite ongoing migration flows (Graziani, 2000).

During the 1960s and 1970s in Italy, a massive labour union movement emerged, achieving significant victories in terms of wages and labour regulations: purely instrumental outsourcing was prohibited, the principle of the employer's actual responsibility was established (Law 1369/1960); and the indiscriminate use of fixed-term contracts was almost banned (Law 230/1962). The national metalworking collective agreement, signed in 1963, recognized the 40-hour workweek, setting a precedent for other sectors; an inter-confederation agreement in 1969 abolished the "gabbie salariali"

[28] AMECO online database (accessed on 25/07/2024).

[29] Observatory of Economic Complexity (OEC) data: https://oec.world/en/profile/country/ita?yearlyTradeFlowSelector=flow0&subnationalTimeSelector=timeYear (accessed on 27/06/2024)

system, a mechanism whereby the contractual wage was differentiated by geographical area; the Workers' Statute (Law 300/1970) recognized a wide range of workplace rights (Musso, 2019). In 1975 a general agreement between the counterparties recognized a mechanism known as “Scala Mobile” for full and automatic wage indexation to inflation.

The main counterreaction implemented by firms was the outsourcing with the aim of breaking the unity of the labour front and making the production process more flexible, namely by keeping central or final phases in the main factory while shifting other phases to other companies, which were controlled or autonomous (Barca and Magnani, 1989; Forges Davanzati et al., 2019; Ardeni and Gallegati, 2024).

This process exacerbated another significant weakness inherent in the Italian industrial structure: the small size of firms. Smaller companies generally have lower returns to scale and productivity levels, less access to credit and lower profit margins restricting substantial investments in production or in R&D. Additionally, smaller firms tend to be less regulated, more prone to tax evasion and irregular labour practices, and often pay lower wages (Arrighetti and Seravalli, 1997; Calia and Pacei, 2017; Garnero, 2018). According to Eurostat data for 2016, 45% of Italian employees work in companies with fewer than 10 employees, a significantly higher value compared to other European countries.[30]

The oil crisis, occurred in the 1970s, the wage increases driven by labour mobilizations and by the mechanism indexation, together with monetary devaluation strategies to neutralise wage increases and encourage exports, led to significant inflationary pressures (Graziani, 2000). The rise in prices became increasingly concerning and the control of inflation became one of the main policy objectives. (Tronti, 2009).

From the late 1970s through the 1980s, the continuing rise in unemployment and the general widespread phenomenon of stagflation challenged Keynesian economic theory. Monetarist theories began to gain prominence, laying the theoretical groundwork for the spread of neoliberalism. These theories viewed markets as capable of self-regulation and considered state intervention as a source of distortions and inefficiencies (Chernomas and Hudson, 2017; Sarimehmet Duman, 2019). The accession to the European Monetary System (EMS), which imposed constraints on currency fluctuations, led to increased attention on the creation of money and public spending (Baccaro and D’Antoni, 2022).

During this phase, major union organizations chose a conciliatory approach and did not oppose restructuring efforts to overcome the crisis period (Musso, 2019; Deleidi et al., 2022). At the same

[30] Eurostat data: https://ec.europa.eu/eurostat/databrowser/view/sbs_sc_sca_r2/default/table?lang=en&category=bsd.sbs.sbs_h.sbs_na_h. (accessed on 27/06/2024).

time, their weight and impact began to decline. While trade union density exceeded 50% of workers at the end of the 1970s, this share started to decrease rapidly since 1980s reaching its lowest peak in 2019, the last available year, at 32.5%.[31] Trade unions' conflict followed the same trajectory: in the 1990s the average total annual hours of work lost due to strikes amounted to just 7% of those lost during the peak conflict period from 1969 to 1979.[32]

In 1982 the main organization of entrepreneurs rejected the agreements on wage indexation of 1975, the mechanism was gradually reduced since the early 1980s, with the "Lodo Scotti" (Agreement between Government and social parties signed on 22/01/1983) and the "San Valentino" Decree under the Craxi's Government (D.L. 10/1984) and then completely abolished in 1992 (Agreement of 31/07/1992) (Zenezini, 2004; Deleidi and Paternesi Meloni, 2014).

The general agreements between government, employers' organizations, and trade unions in 1992/1993 (Agreements on 31/07/1992 and 23/07/1993) established a new bargaining mechanism oriented towards decentralization and wage flexibilization. The system was structured in two levels: a national bargaining that aimed to maintain workers' purchasing power by linking wages to the planned inflation rate, and decentralized bargaining at the company or territorial level that related wage increases to productivity gains. However, currently the decentralized bargaining has not fully taken off, especially in smaller enterprises (Tronti, 2009).

In 1990s the process of dismantling controls, constraints and regulations globally integrated the production of goods and capital movements. New actors entered the same product market, leveraging on lower wages to increase price competitiveness. The Italian production model proved particularly vulnerable to globalization and the eastern enlargement of the European Union. (Boltho, 2011; Judzik and Sala, 2013; Storm, 2019; Paternesi Meloni and Stirati, 2023; Petrović and Gligorić Matić, 2023). Companies had the opportunity to relocate production processes where wages were lower and the constant threat of offshoring significantly reduced workers' bargaining power (OECD, 2012; Guschanski and Onaran, 2022; Paternesi Meloni and Stirati, 2023). In the 1990s a marked process of privatization of firms previously controlled by public institutions also occurred (Baccaro and D'Antoni, 2022) further weakening the Italian production structure.

In the same years, international institutions, such as the IMF and the OECD, began making ever increasing recommendations in support of labour market flexibilization. These guidelines were included into the European directives and regulations of the European Union (Brancaccio et al., 2018,

[31] OECD data: https://data-explorer.oecd.org/vis?tm=trade%20union&pg=0&snb=93&vw=tb&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_TUD_CBC%40DF_TUD&df[ag]=OECD.ELS.SAE&df[vs]=1.0&dq=ITA..&pd=1960%2C2020&to[TIME_PERIOD]=false (accessed on 27/03/2025)

[32] Istat data: https://seriestoriche.istat.it/fileadmin/documenti/Tavola_10.22.xls (accessed on 27/03/2025)

Canale et al., 2022) and subsequently incorporated into the single countries' institutional framework, including Italy.

Initially, employment contracts – such as part-time or fixed-term - were flexibilized by removing constraints on their use, allowing and facilitating intermediation phenomena and outsourcing of the production processes. Some changes had already been included into the national legislation at the beginning of the 1980s (Laws 863/1984 and 56/1987) but intensified significantly during the 1990s through the "Pacchetto Treu" (Law 196/1997), the Legislative Decree 368/2001, the "Legge Biagi" (Law 30/2003) and the "Decreto Sacconi" (DL 138/2011). After the Subprime and Euro Crisis further kind of standard jobs were involved in the flexibilization process through the "Riforma Fornero" (DL 201/2011) and the Job's Act (Law 183/2014 and related implementing decrees). This temporal discrepancy led to further dualism in the Italian labour market: on one side, workers with standard contracts, greater protections, and higher wages, not involved in the process until 2011, and on the other side, atypical workers with lower wages and protections (Boeri, 2011; Deleidi and Meloni, 2014; Deleidi et al., 2022, Stolfi and Fritsch, 2023; Bavaro and Raitano, 2024). According to OECD Employment Protection Legislation (EPL) index, from 1990 to 2018 in Italy the restrictions on the use of fixed-term contracts have been reduced by 67%, while the restrictions on dismissals have been reduced by 40%.[33]

As a result, atypical workers have abundantly increased. OECD data shows that in 1986, fixed-term and part-time workers each accounted for about 4.5% of the total number of employees. Currently, the value is 17% for fixed-term workers[34] and 19% for part-time workers[35]. Several studies show that this process has led to an increase in profit levels and to a decrease in wages (Canale et al., 2022, Daruich et al., 2023, Amendola et al., 2024).

In addition to formally regular atypical workers, there is a vast grey area of irregular workers, where levels of flexibility are even higher. According to ISTAT data, in 2021, about 3 million workers, equal to 11% of the total employed, had no type of contract and performed their work completely irregularly.[36]

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[33] OECD data: https://data-explorer.oecd.org/vis?fs[0]=Topic%2C1%7CEmployment%23JOB%23%7CEmployment%20protection%23JOB_PRT%23&pg=0&fc=Topic&bp=true&snb=1&vw=tb&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_EPL%40DF_EPL&df[ag]=OECD.ELS.JAI&df[vs]=1.0&dq=A.ITA.EPL_T%2BEPL_OV..VERSION1&pd=%2C2019&to[TIME_PERIOD]=false (accessed on 27/03/2025)

[34] OECD data: https://data-explorer.oecd.org/vis?pg=0&bp=true&snb=40&tm=temporary&vw=tb&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_TEMP%40DF_TEMP_D&df[ag]=OECD.ELS.SAE&df[vs]=1.0&dq=ITA.EMP%2BEMP_PERM%2BEMP_TEMP.._T._T.ICSE93_1.A&pd=1980%2C2023&to[TIME_PERIOD]=false (accessed on 27/06/2024)

[35] OECD data: https://data-explorer.oecd.org/vis?pg=0&bp=true&snb=40&tm=temporary&vw=tb&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_FTPT%40DF_FTPT_NATIONAL_INC&df[ag]=OECD.ELS.SAE&df[vs]=1.0&dq=ITA.EMP_PT%2BEMP.._T._T.EMP.MAIN.ICSE93_1.FT%2BPT..A&pd=1966%2C2023&to[TIME_PERIOD]=false (accessed on 27/06/2024)

[36] Istat data: http://dati.istat.it/Index.aspx?QueryId=11881# (accessed on 27/06/2024).

The historical decline in workers' bargaining power and the shift in the balance of power in favour of profits can be illustrated by the wage share dynamics during the whole period under examination. Figure 1 shows that the wage share falls in the 1960s, mainly as a result of the 63/64 crisis. Following the workers' mobilizations of 1969 a recovery occurred. During the 1970s the wage share remained fairly stable. From 1983 to 2001, this share experienced a collapse, dropping from 67.5 to 58.1%. The little increase from 2001 to 2012 seems to be due to a slowdown of GDP (Canale et al., 2022). Then there is a sluggish decline until a new fall linked to the recent inflationary crisis. Implementing an autoregressive model for this variable, The Bai-Perron test (Bai and Perron 1998) rejects the hypothesis of no structural break at a 5% significance level and identifies the presence of structural breaks in 1983 and in 1992 (Table 1) in alignment with the first reduction and abolition of the wages 'indexation mechanism and the adoption of the new Industrial Relations Protocol.

Table 1 - Structural break analysis of adjusted wage share

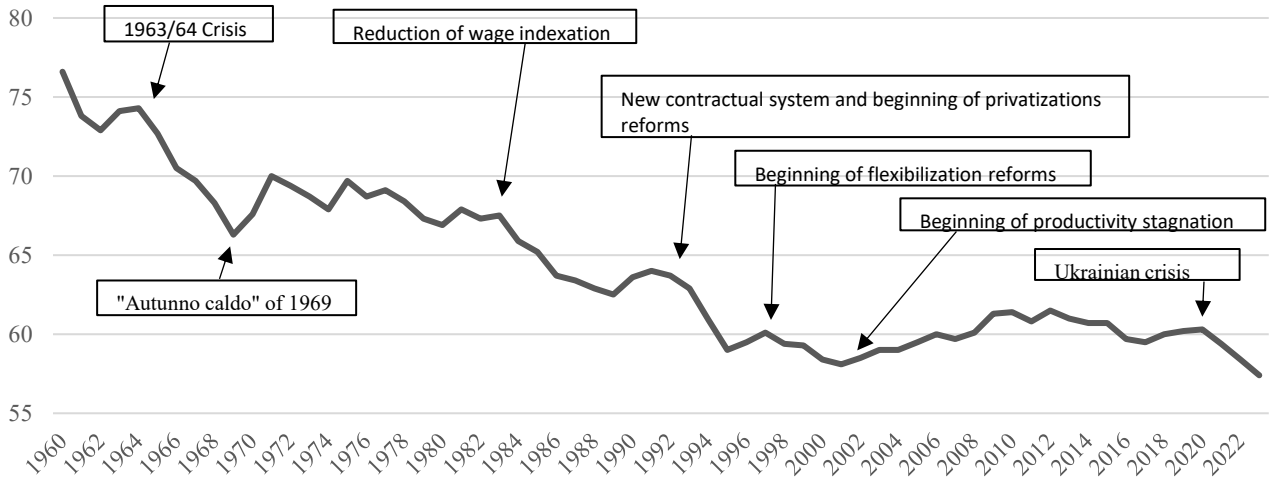
Bai and Perron Critical Values			
Test statistic	1% critical value	5% critical value	10% critical value
7.57	9.36	7.22	6.28
Estimated break points: 1983 and 1992			

From the 1980s there has been a decrease in wage share in all Western countries (OECD, 2012). The literature has identified the reduction in workers' bargaining power as one of the main causes (Brancaccio, Garbellini and Giammetti, 2018; Damiani et al., 2020; Paternesi Meloni and Stirati 2022), also linked to financialization (Pariboni and Tridico 2019) and globalization of the economy (Stockhammer, 2013; Guschanski and Onaran, 2022). Overall, the process of wage share reduction in Italy has been particularly intense, recording, in present times, one of the lowest values in Western Europe.[37]

In regard to the Italian case, additional variables can be identified as factors contributing to the reduction of the wage share: the privatization of public assets (Torrini, 2016; Paternesi Meloni and Stirati 2023) and the increase of housing rents (Torrini, 2016); the growth of interest on public debt and the associated fiscal constraints (Canale and De Siano 2024); the reduction and elimination of the automatic wage indexation (Zenezini 2004; Levrero and Stirati, 2006; Tronti 2009); the reduction of the number of workers in the secondary sector which have historically been at the forefront of the Italian labour movement (Levrero and Stirati, 2006). However, technological change is not considered one of the factors behind this phenomenon in Italy (Torrini, 2016).

[37] AMECO online database (accessed on 27/06/2024).

Figure 1: Adjusted wage share at current factor cost and labour market bargaining in Italy 1960-2023



Source: AMECO data

4. Empirical analysis

4.1 Variables description and methodology

The empirical analysis focuses on the long-term relationship between labour productivity and the WS at factor cost in Italy from 1960 to 2023.

The dependent variable is the annual growth rate of real labour productivity (π), represented by real GDP divided by the number of employed persons per FTE, both sourced from the AMECO database[38]. The FTE measure was preferred as it represents a homogeneous unit of labour input. Using the simple total number of employed individuals could have introduced distortions due to the introduction of atypical contracts in the labour market over the last 30 years. Since the FTE employment data is available in the database only from 1970, the values before that date were estimated by rescaling the total number of employed individuals with the percentage of FTE employment in 1970. This adjustment was considered reliable because, during that historical period, there was little use of atypical contracts (Deleidi and Paternesi Meloni, 2014; Bavaro and Raitano, 2024), meaning no significant differences or disruptions in these proportions. The growth rate was calculated by transforming the variable into its logarithmic form to leverage the properties of logarithmic differentials.

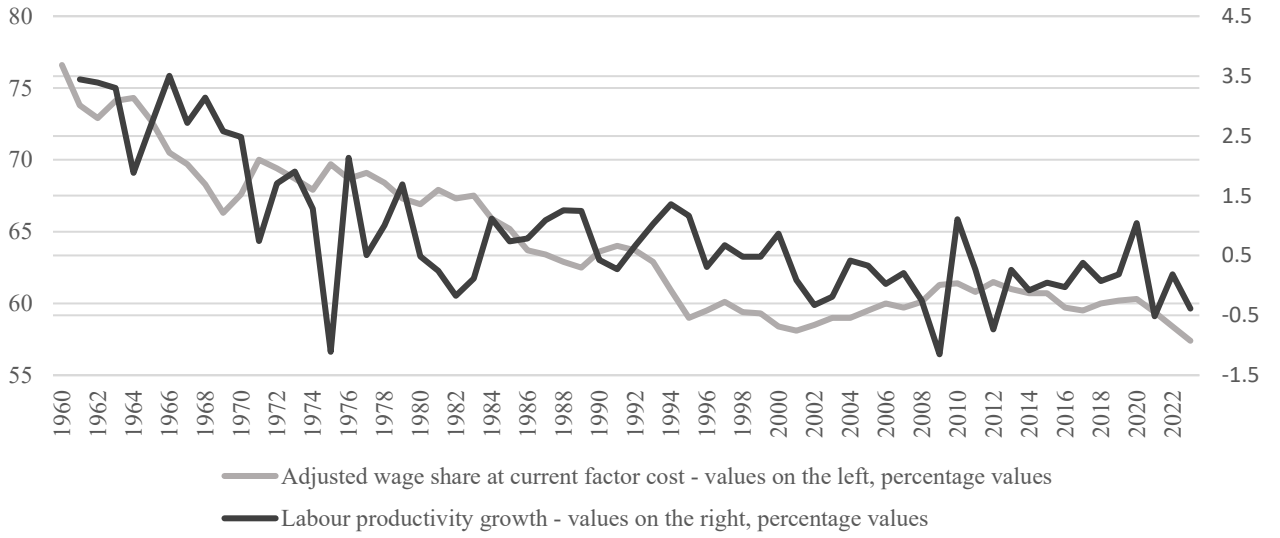
The main explanatory variable is the annual adjusted wage share at factor cost (*WS*), extracted from the AMECO database[39]. This variable reflects the total amount paid for labour input by the employer, composed by the sum of gross wages and social contributions per unit of production. It is

[38] AMECO online database (accessed on 25/07/2024).
[39] AMECO online database (accessed on 25/07/2024).

supposed to be more suitable in explaining the influence of labour costs on profit margins and, consequently, on organizational business decisions. (Hein and Tarassow, 2010). The term adjusted implies that an estimate of self-employment income is included in the WS, attributing an average gross wage to each self-employed worker (Paternesi Meloni and Stirati, 2023). Moreover, as will be further detailed and tested in section 4.2 the choice to use the wage share instead of the gross wage value allows to overcame the issues related to the bidirectional relationship between wages and productivity. However, Section 4.3 includes robustness checks to validate this relationship by employing instrumental variable techniques.

The variables determined in this way are presented in Figure 2.

Figure 2: Adjusted wage share and labour productivity growth in Italy 1960-2023



Source: elaboration on AMECO data

Both variables are found to be integrated of order 1 (Table 2), which allows for the formulation of an ARDL model (Pesaran and Shin, 1999). The model is implemented using annual data from time t=1960 to t=2023, with a maximum of 2 lags identified through the SBIC method (Schwarz, 1978) and up to 2 control variables. The small sample size – ranging from 63 to 64 observations due to dynamic technique – requires control variables to be introduced sparingly. The model can be represented by the following equation:

$$\Delta \ln(\pi)_t = c + \beta_i WS_{t-i} + \gamma_j \Delta \ln(\pi)_{t-j} + \varphi_i X_{t-i}$$

With:

i = 0;1;2;
j=1; 2;
X = a combination from 0 to 2 control variables.

In the case of a cointegration relationship between the variables, long-term coefficients can be identified (Pesaran and Shin, 1999). Specifically, for the explanatory variable WS, the long-term coefficient β is determined using the following equation:

$$\beta = \frac{\sum_{i=0}^{i=2} \beta_i}{1 - \sum_{j=1}^{j=2} \gamma_j}$$

This analysis focuses on the effects of labour costs on productivity, but it clearly does not rule out that productivity and investments may be influenced by a wide range of additional variables. These variables, all integrated of order 1 (Table 2), were extracted or derived from AMECO database[40] and are:

- The growth rate of aggregate demand *(Δln(Y))* included to assess the Kaldor-Verdoorn law/Smith effect on productivity. This refers to account for the effect of an increase in aggregate demand on productivity through economies of scale and greater productive specialization across firms. While these effects were initially conceived for the manufacturing sector, in this case, they are generalized to the entire economy. Including this variable allows to isolate the effect of WS on productivity from the supply side and is frequently used to explain productivity trends, both in relation to the Kaldor-Verdoorn law (Kaldor, 1966; Vergeer and Kleinknecht, 2010, 2014; Deleidi et al., 2018, Deleidi and Paternesi Meloni, 2019; Forges Davanzati et al., 2019) and the Smith effect (Sylos Labini, 1984; Guarini, 2007; Carnevali et al., 2020; Fontanari, 2024).

  It should be noted that a highly rigid labour market can amplify these effects. With high job security and restrictions on layoffs, economic fluctuations in GDP can be reflected in the short term as an accounting variation in productivity in the same direction, rather than on employment trends (Vergeer and Kleinknecht 2010, 2014). At the same time, a second factor that can interfere, in the opposite direction to the phenomenon just described, is the presence of a high number of irregular workers. This type of labour – inherently highly flexible – can rapidly increase or decrease depending on the economic cycle, meaning that short-term economic fluctuations can have immediate consequences on employment. In this regard, it is specified that irregular workers are included in the AMECO employment count used in present estimates.
- The share of workers in the manufacturing sector relative to the total workforce, known as the Baumol effect. This variable is included to verify whether the decline in productivity is not merely the result of the tertiarization of the economy (Vergeer and Kleinknecht, 2010, 2014;

[40]AMECO online database (accessed on 25/07/2024).

Deleidi and Paternesi Meloni, 2019). The variable is expressed in differentials to ensure it is of integration order 1 *(ΔBaum)*.

- The unemployment rate *(UN)*, to verify that the reduction in productivity is not linked - as claimed by some proponents of labour market flexibilization - to an increase in employment in lower value-added sectors. (OECD, 2003).
- The share of public consumption in GDP has been included as a variable representing the size of the public sector *(Gov_gdp).* Major international institutions argue that Italy's productivity stagnation is due to an overly burdensome and restrictive public sector that crowds out and discourages private investment through excessive taxation and regulation (IMF, 2020; OECD, 2021; EC, 2023),
- The ratio between annual Italian labour productivity level and the annual labour productivity level of the technologically leading country or the catching-up effect *(CU)*. The leader was identified as the country recording the highest productivity level year by year among those of European Coal and Steel Community (ECSC), economically and historically closely linked to Italy, namely: Germany, France, Netherlands and Belgium. Luxembourg was excluded because, despite its high productivity values, its industry is so small in scale that its inclusion among the industrially and economically leading countries would produce misleading results. This variable is included to account for the phenomenon whereby productivity grows more rapidly where there is a larger technological gap compared to the economically leading country. This occurs because less advanced industries can quickly adopt techniques and technologies already developed and tested elsewhere (Vergeer and Kleinknecht, 2014).

Table 2 provides a statistical description of the variables and includes the Augmented Dickey-Fuller (ADF) (Dickey and Fuller, 1979) and Dickey-Fuller Generalized Least Squares (DFGLS) (Elliott et al., 1996) stationarity tests in level and at first difference[41].

Table 2 - Variables description and integration order

							First differences	
Variable	Obs.	Mean	Std. Dev.	Min.	Max.	ADF	DFGLS	ADF	DFGLS
Productivity growth	63	0.020	0.026	-0.026	0.081	-2.002	-1.699	-7.115***	-6.952***
Adjusted Wage Share	64	0.642	0.050	0.574	0.766	-1.434	-1.846	6.210***	-5.036***
GDP growth	63	0.023	0.031	-0.094	0.081	-1.918	-2.255	-6.059***	-4.867***
Baumol effect	63	-0.001	0.004	-0.010	0.008	-2.220	-2.062	-6.144***	-6.217***
Unemployment rate	64	0.082	0.024	0.036	0.129	-2.227	-2.385	-4.372***	-4.175***

[41] The complete dataset is available upon request

Public consumption	64	0.189	0.009	0.172	0.206	-2.392	-2.354	-8.037***	-7.434***
Catching-up effect	64	0.839	0.733	0.621	0.935	-1.898	-0.722	-5.703***	-5.352***

Notes: the lags considered in the integration order tests were selected according to the AIC method. ***, ** and * reject the null at 1%, 5% and 10%, respectively.

4.2 Results

As a first step the empirical analysis addresses the relationship between the productivity growth rate and the WS, focusing on cointegration, long-term coefficients and the direction of causality. In Table 3 the first regression presents the model considering the productivity growth rate as the dependent variable and WS as the explanatory variable. The second regression reverses the variables to test for causality.

Table 3 - Labour productivity growth and wage share ARDL model: cointegration long-term coefficients and causality.

	Long-term coefficients							
Dependent variable	Adjusted Wage Share	Productivity growth	EC adj.	Bound F-Test	Bound T-Test	Adj R^2	DW	BP p-value
Productivity growth	0.290***		-0.477***	9.828***	-4.314***	0.56	2.15	0.83
Adjusted Wage Share		-7.133	-0.011	2.073	-0.312	0.30	1.55	0.62

Notes: the lags considered in the integration order and co-integration tests were selected according to the SBIC method. ***, ** and * reject the null at 1%, 5% and 10%, respectively.

In the first regression, the error correction (EC) adjustment value, which falls between 0 and -1, along with the Bound tests (Pesaran et al., 2001), indicate the presence of a cointegration and level relationship and a long period causal effect from WS to the productivity growth rate at a 1% significance level. The cointegration relationship validates the long-term coefficient which is significant at the 1% level and indicates that a 1 percentage point increase in WS corresponds to a 0.29 percentage point increase in the productivity growth rate. The Durbin-Watson (DW) test (Durbin and Watson, 1950) confirms the absence of serial autocorrelation in the errors, and the Breusch-Pagan (BP) test (Breusch and Pagan, 1979) indicates no heteroskedasticity.

In the second regression, the insignificance of the EC adjustment and the Bound tests indicate no cointegration or causal relationship from the productivity growth rate to WS, rendering the results of this second regression invalid, moreover the p-value (0.80) indicates that the effect is not significant at all. It can be affirmed therefore, following the results of the estimates, that the causal relation goes from WS to the productivity growth rate and not vice versa.

The analysis of the relationship between the two variables can be enriched by a structural break analysis (Bai and Perron 1998), revealing that the null hypothesis of no structural break cannot be rejected at 5% level. Table 4 presents the results. This is not in contrast with the structural break

analysis implemented on the single variable WS (table.1) but rather reinforce its stable long-run connection with productivity.

Table 4 - Structural break analysis of the effects of adjusted wage share on labour productivity growth

Bai and Perron Critical Values			
Test statistic	1% critical value	5% critical value	10% critical value
3.92	5.06	4.05	3.56
Estimated break points: None			

The empirical ARDL model is enriched adding control variables to further reinforce the results. The aggregate demand growth rate is added to capture the Kaldor-Verdoorn law/Smithian effect. Including this variable allows to isolate the effect of WS from the supply side. In fact, it can also affect productivity from the demand side trough consumption. Moreover, the estimated models progressively include one at a time additional control variables, such as: the Baumol effect *(ΔBaum)*, the unemployment rate (*UN*), public expenditure relative to GDP *(Gov_gdp)*, and the catching-up effect *(CU)*. All variables are available for the period 1960–2023. The number of explanatory variables has been limited to a maximum of three due to the small size. Table 5 presents the results.

Table 5 - ARDL models coefficients and tests; dependent variable: labour productivity growth

Long- term coefficients											
Adjusted Wage Share	*GDP growth*	*Baumol effect*	*Unemployment rate*	*Public consumption*	*Catching-up effect*	EC adj.	Bound F-Test	Bound T-Test	Adj R^2	DW	BP p-value
0.226***	0.265**					-0.569***	8.060***	-4.804***	0.58	2.14	0.34
0.207***	0.203*	1.607*				-0.691***	6.878***	-4.974***	0.59	2.02	0.72
0.220**	0.263*		-0.015			-0.570***	5.937**	-4.746***	0.57	2.13	0.35
0.225***	0.270*			0.028		-0.566***	5.936**	-4.451**	0.57	2.14	0.34
0.148**	0.069				0.012	-0.612***	10.725***	-5.812***	0.67	2.06	0.78

Notes: ***, ** and * reject the null at 1%, 5% and 10%, respectively.

In each of these five models, the WS variable is significant at least at the 5% level, with values ranging from 0.148 to 0.226 and an average of 0.205. Based on the average value, this implies that for every unitary percentage point increase in WS, the productivity growth rate increases by approximately 0.2 percentage points.

The growth rate of aggregate demand generally has a positive effect on productivity, though in most cases, it is not significant at the 5% level. It is worth remembering that this effect, whether conceptualized as Smithian or as the Kaldor-Verdoorn law, was originally developed with reference only to the manufacturing sector, whereas it is now applied to the entire economy. The sign of

Baumol's effect aligns with expectations, although it is not significant at the 5% level. The unemployment rate, the public expenditure relative to GDP and the catching-up effect have no significant impact on productivity in the long-term. These results highlight the fragility of orthodox interpretations regarding the decline in productivity in Italy

For each of these regressions, the DW tests indicate no serial autocorrelation of errors, the BP tests confirm the absence of heteroscedasticity, and the ECM adjustment and Bounds tests indicate the presence of a long-term relationship.

4.3 Robustness check

Although the results presented in the previous subsection indicate that the causal relationship between the wage share and the productivity growth rate seems to be unidirectional, part of literature on the wage share argues that technological change, and productivity, might affect aggregate labour costs, raising the issue of endogeneity. Therefore, this subsection replicates the analysis of the previous estimates employing techniques able to capture exogenously the behaviour of wage share.

In particular a new value of wage share has been obtained predicting its estimated value as dependent on variables capturing the institutional and regulatory framework affecting workers' bargaining power. The first is the OECD trade union density. Since data was only available from 1960 to 2019, the values for the last four years were estimated by projecting the historical trend of the most recent period. This choice is considered plausible, as no major disruptions occurred in the trade union landscape during this period. The second one is a dummy variable reflecting union conflict taking a value of 1 during periods of heightened labour conflict (the year 1962 and the period from 1969 to 1982) and 0 otherwise. The third is a dummy variable included to capture the onset of concertation and the reduction of the wage indexation mechanism, taking a value of 1 from 1983 onward and 0 before that. Finally, another dummy variable reflects the elimination of the automatic wage indexation mechanism and the introduction of the new collective bargaining system, taking a value of 1 from 1992 onward and 0 before that. It is worth noting that the last two dummy variables are defined in accordance with the results of the structural break tests on the wage share presented in Section 3. The predicted value of wage share at labour cost is substituted in the main estimates to account for the need of considering a strictly exogenous explanatory variable. Table 6 presents the results.

Table 6 - ARDL model with IV for Adjusted wage share; dependent variable: labour productivity growth

Long- term coefficient	EC adj.	Bound F-Test	Bound T-Test	Adj R^2	DW	BP p-value
0.323***	-0.705***	15.521***	-5.523***	0.33	2.15	0.22

Notes: ***, ** and * reject the null at 1%, 5% and 10%, respectively.

Even in this case the EC adjustment value and the Bound tests (Pesaran et al., 2001), indicate the presence of cointegration and a long period causal effect from WS to the productivity growth rate at a 1% significance level. The cointegrating relationship validates the long-term coefficient which is positive and significant at the 1% level. The DW test (Durbin and Watson, 1950) confirms the absence of serial autocorrelation in the errors. The BP test (Breusch and Pagan, 1979) indicates no heteroskedasticity. Results of the effect of the wage share on the long-term labour productivity growth rate appear, therefore, to be consistent with those in the previous subsection.

5. Concluding remarks

This paper presented the effects of wage share dynamics on productivity growth in Italy since the ’60 in the light of the historical evolution of wage bargaining and production structure in Italy. It fits into the stream of literature underlying the adverse effects of wage containment on the whole productive system. The reconstruction of the events occurred since the so-called “economic miracle” shows that the Italian production model has been based on wage containment. This policy strategy allowed Italy to reach high levels of growth in a western world experiencing industrial development and increasing openness to international markets, but in subsequent years undermined its competitiveness and growth potential. These dynamics, triggered also by the switch of the policy model from the Keynesian to the neoliberal paradigm and the entry into the European Monetary Union, stuck Italy in a productivity slowdown and reduced rates of growth. These conclusions are supported by the empirical evidence presented in the paper according to which productivity is linked, through a cointegrating relationship, to wage share at factor costs dynamics.

The drastic reduction in labour costs, which occurred with intensity in the last decades, highly contributed to the poor growth performance of the whole country. Since 1980s workers' bargaining power sharply declined: policy authorities tried to reply to the greater international competitiveness exerting downward pressure on wage levels, trough greater labour market flexibilization measures, reduced workers’ protections, increased outsourcing, and the spread of atypical employment contracts. The result was a progressive decline in productivity.

The adjusted WS at factor cost, representing the real labour cost per unit of output, fell from 67.5% in 1983 to 58.1% in 2001. That same year marked the beginning of a prolonged and persisting stagnation in productivity. According to the estimates, in the average, a one percentage point decrease in the WS is steadily connected with approximately a 0.2 percentage point decline in the productivity growth rate. Further checks, including other variables affecting productivity, confirm the results and indicate that low productivity is neither linked to an excessive presence of the public sector nor to the

reduction of unemployment in the long-term. Furthermore, the estimates show that the direction of causality goes from WS to productivity and that the result remains valid even in the presence of additional checks accounting for endogeneity issues.

The strategy of wage containment, occurred with alternate fortunes during the whole period, paved the way to the construction of a production model generating adverse effects on the country. These effects - despite cannot be directly derived from the presented results - can be recognized in the low level of capital accumulation, the enlargement of productive activities with low value added, the high number of small and medium size firms as well as the development delay of some regions in respect to others. Additionally - further extending the interpretation - the low remuneration of labour could have produced migration abroad of high qualified individuals further impoverishing the availability of resources and human capital and widening the distance between the north and the south of the country. However, these issues would require further investigations.

The issue of wage stagnation in Italy is not only related to inequality and poverty but also a matter of weakness of the entire productive system, suggesting that persevering on the path of further labour market flexibility will produce unsuccessful effects on growth. Results seem to support - instead - the alternative route according to which an increase in real wages could avoid condemning the country's productive system to further marginalization within the international context. This would happen both through the positive effects the increase in wages exerts on productivity - and therefore on the reduction of unit cost - but also through the widening of internal demand. The abandonment of the neoliberal model based on real devaluation would allow to gain advantages in terms of growth.

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3

Labour costs and productivity dynamics: the weakness of the European competitive model

Paolo Angelone[42]
University of Naples "Parthenope", Department of Business and Economic Studies, Naples, Italy.

Rosaria Rita Canale[43]
University of Naples "Parthenope", Department of Business and Economic Studies, Naples, Italy.

Jesus Ferreiro[44]
University of the Basque Country UPV/EHU, Faculty of Economics and Business, Department of Public Policies and Economic History, Bilbao, Spain.

Abstract: The reduction of labour costs and the increase in productivity are two founding pillars of economic policy strategy in the Eurozone. They are said to be two independent factors to focus on, in order to promote competitiveness and growth, without taking into account - except indirectly - the reciprocal effects they could have. The aim of this paper is to revise this perspective and investigate the effects of wage share at factor costs on productivity behaviour in 11 Eurozone countries from 1960 to 2024, therefore accounting for the many changes occurred in these countries from the WWII. The empirical strategy is a long run error correction model - the PMG estimator - allowing to detect a common stable connection between the variables, while allowing specific short run dynamics for each country. Results reveal a long run univocal direction of causality going from wage share to productivity growth both when considering a univariate estimated equation and when accounting for several control variables. On contrary, in the short-run the sign of the connection appears to be negative. These outcomes suggest that the short sight vision of the European institutions risks to undermine long-term growth.

Key words: Labour costs, Labour productivity, Wage share, Dynamic panel data, European Union.

JEL: E24, E25, O47, C33.

1. Introduction

The European Commission (EC), in its strategic documents, presents productivity growth as the main driver of competitiveness and economic growth, and a priority for economic policy strategy (EC, 2023a). Its slow growth in recent years has been described as a critical factor (EC, 2024). At the same time, the EC identifies the reduction of unit labour costs (ULC) – the ratio between total gross labour compensation and the output - as another key factor for competitiveness and growth (Storm and Naastepad, 2015; EC, 2023b). Both in its strategic documents and in its country-specific recommendations, the EC has generally called for reducing labour costs as a way to revive the

[42] paolo.angelone001@studenti.uniparthenope.it
[43] rorita.canale@uniparthenope.it
[44] jesus.ferreiro@ehu.eus

economy, especially in the aftermath of the Euro crisis (Schulten and Müller 2015; Syrovatka, 2021; Cova 2022).

Such recentpositions do not represent a novelty. Since the 1980s, Western countries have generally sought to contain and reduce labour costs through the adoption of wage moderation policies and labour market flexibilization in order to contrast inflation and boost employment and economic growth (Stockhammer, 2007; Brancaccio, Garbellini and Giammetti 2018). Globalisation and eastward enlargement of the Union have further exerted through years significant pressure on this trend, as the the compression of wages and real devaluation is perceived as the main instrument to compete - through neo-mercantilist policies (Bellofiore and Halevi, 2010; Cesaratto and Stirati, 2010) - on international markets. (Stockhammer, 2013; Guschanski and Onaran, 2022; Paternesi Meloni and Stirati, 2022).

Following the prevailing view among economists, since the 1980s Western Europe has been experiencing a decline in ULC and wage share. According to Annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs (AMECO) data for the founding members of the Eurozone, in 1980 gross labour on average accounted for approximately 70% of value added, whereas by 2024 this share had declined to around 60%.[45]

The adoption of these neoliberal agenda reflects the marginalist and neoclassical economic view, according to which the reduction of labour costs represents a key instrument to stimulate investment, curb inflation, improve the balance of payments, and foster both employment and growth (Friedman, 1977; Layard and Nickell, 1986; Blanchard, 2021, Boeri et al., 2021).

ULC corresponds to the wage share (WS) at factor cost, namely the share of GDP allocated to the remuneration of total gross workers' compensations (Stockhammer, 2007; Angelone and Canale 2025). From a heterodox perspective, in contrast, growth strategies centred on workers' compensations restraint tend to depress domestic demand, inhibit investment and organisational innovation, and promote the expansion of low value-added sectors, ultimately undermining long-term growth dynamics (Marx, 1867; Sylos Labini, 1984; Stockhammer, 2007; Vergeer and Kleinknecht, 2010, 2014; Hein and Tarassow, 2010; Cruz, 2023; Oyvat, 2023).

This paper aims to demonstrate that in the long run the reduction of the WS at factor cost, and so the ULC, led to a decline in the growth rate of labour productivity, represented by GDP produced per hour worked, although in the short-run there may be positive effects. The panel analysis covers a broad time span, from 1960 to 2024, and focuses on 11 Western European Euro-Area countries that display a certain degree of historical homogeneity. The analysis is developed with Pooled Mean

[45] https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/ameco-database_en. (accessed on 29/04/2025). Till 1991 German data refer to West Germany.

Group (PMG) model (Pesaran, Shin and Smith, 1999), a model that allows the intercept and short run coefficients to differ across countries but detect common long-term coefficients with error-correction model and maximum likelihood method (Blackburne and Frank, 2007). According to the estimates, identifying a univocal direction of causality from the explanatory to the dependent variable, a change in the wage share in the long run has an impact on the productivity growth rate in the same direction. Further estimates including additional variables affecting productivity confirm the results. The novel contributions of the paper are twofold: 1) the use of the adjusted wage share at factor cost as the main determinant of productive and allocative production choices with the aim of capturing the most influential variable of firms' decisions in Western Eurpe; 2) the long-run univocal direction of causality going from labour costs toward productivity in European countries since the post WWII period, that as far as we know, has not been identified previously through a cointegrating connection. We extend to a set of European countries the Angelone and Canale (2025) analysis for Italy, in the strong belief that the connection between wage share at factor costs and productivity can be generalized and extended to underline the short sight view of the European institutions.

The paper is organized as follows: section 2 provides the theoretical connections between wages and productivity according to different streams of thought. Section 3 presents the empirical analysis of the long-term relationship between productivity and labour costs in western Europe Euro-Area from 1960 to 2024 and is articulated into two subsections: section 3.1 presents the variables description and the methodological issues; section 3.2 presents the connection between wages and productivity as a univariate relationship and provides the main results including control variables considered to be relevant in the literature. Finally, the last section suggests policy implications and provides concluding remarks.

2. The connection between wages and productivity

According to the neoclassical stream of thought real wages are set according to the theory of decreasing marginal productivity of labour, deserving little attention to the reverse relationship (Hicks, 1932; Friedman, 1977; Layard and Nickell, 1986; Solow, 1995; Phelps and Zoega, 1998). Within this framework, labour market flexibilization and reduction of labour costs reduce inflation and unemployment, while boosting economic growth (Friedman, 1977; Layard and Nickell, 1986; OECD, 1994; Solow, 1995; Phelps and Zoega, 1998; Blanchard, 2021; Boeri et al., 2021). The decline of average productivity could be just a side not worrying effect of the increase in employment (OECD, 2003). The reduction of labour market rigidities leads to a faster relocation of workers from less toward more productive sectors, in favour of a more dynamic production system (Martin and Scarpetta, 2012; Haltiwanger et al., 2014; Cahuc and Palladino, 2024). Excessive rigidity in firing

workers makes labour-saving innovations less attractive (Scarpetta and Tressel, 2004; Cahuc and Palladino, 2024) and the reduction of worker protections encourages employees to be more efficient, therefore leading to an increase in productivity (Bassanini and Ernst, 2002; Ichino and Riphahn, 2005). These conclusions are at the core of the main policies of European countries, which, since the 1980s, have sought to reduce labour costs through wage moderation policies and labour market flexibilization (Stockhammer, 2007; Brancaccio, Garbellini and Giammetti 2018). In the following decades, the EC adopted these recipes, placing them at the centre of its economic policy strategy. (Schulten and Müller 2015; Storm and Naastepad, 2015; Syrovatka, 2021; Cova 2022; EC, 2023b).

After about 30 years of general labour market flexibilization in all Western countries, no increase in employment has been observed (Arestis et al., 2020, 2023; Ferreiro and Gomez, 2020, 2021; Paternesi Meloni and Stirati, 2021). Even major international promoters, such as the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD) admitted that there is no empirical evidence of the success of these policies (IMF, 2016; OECD, 2016). A meta-analysis of the papers addressing the topic concludes that out of 53 empirical analyses published between 1990 and 2019, only 28% found an increase in employment following flexibilization (Brancaccio et al., 2020). Some studies highlight that these policies have mainly increased profits (Brancaccio, Garbellini, and Giammetti, 2018) and the spread of in-work poverty (Canale, Liotti and Musella, 2022).

Adopting a different perspective, many heterodox authors argue that the reduction of labour costs and the flexibilization of the labour market allow entrepreneurs to use low-wage workers discouraging productive investments and organizational improvements, ultimately leading to a decline in productivity and a less dynamic and innovative production system.

This stream of thought relies on classical economists' seminal contribution, theorizing that workers' wage increase pushes the capitalist class to react by investing in new machinery to reduce labour input. This substitution boosts productivity and profits while compresses wage claims through the widening of the industrial reserve army (Marx's, 1867).

Sylos Labini, referring mainly to the manufacturing sector, identifies two direct effects of labour costs on productivity: the Ricardian effect, implying an increase in investments related to a rise in the relative cost of labour input in respect to capital input; and an organizational effect, referred to a more efficient use of existing resources (Sylos Labini, 1984; Guarini, 2007; Carnevali et al., 2020; Fontanari, 2024).

Following this line of thought the total labour cost effect on productivity is explained considering the overall trend of wages (Storm and C.W.M. Naastepad, 2011; Cruz, 2023; Oyvat, 2023), focusing on the WS (Angelone and Canale, 2025) on the wage growth rate and the trend of

the WS (Hein and Tarassow, 2010; Vergeer and Kleinknecht, 2010, 2014), and on the spread of fixed-term and atypical contracts (Kleinknecht et al., 2014: Lisi and Malo, 2017; Cirillo and Ricci, 2019).

The reduction of labour costs allows low-productivity firms to survive, (Kılıçaslan and Taymaz, 2008). These effects may benefit employment in the short term, but in the long term, they make the production system less dynamic (Vergeer and Kleinknecht, 2014).

A very relevant theoretical position indirectly links wages to productivity from the demand side: it is the so-called Kaldor-Verdoorn law, which posits that the growth of aggregate demand leads to productivity growth due to specialization and economies of scale in the manufacturing sector (Kaldor, 1966). This concept is also the basis of Sylos Labini's Smithian effect determinant of productivity, namely the positive effects on productivity in manufacturing sector of market volume (Sylos Labini, 1984; Guarini 2007; Carnevali et al., 2020; Fontanari, 2024).

From an econometric perspective, detecting the effects of labour costs on productivity presents challenges due to the eventual presence of bidirectional relationships of causality (Cruz, 2023). Authors who used gross wages to explain productivity trends included instrumental variables (Vergeer and Kleinknecht, 2010, 2014) or time lagged explanatory variables in their estimates (Carnevali et al., 2020; Fontanari, 2024) or adopted long-term cointegrating techniques (Angelone and Canale, 2025) to overcome this obstacle. Authors who used the wage or profit share did not address the issue of endogeneity (Vergeer and Kleinknecht, 2010, 2014) Furthermore, while the WS represents the ratio between average wage and average productivity - and thus productivity trends influence both the numerator and the denominator - there is no clear evidence that productivity dynamics systematically distort this ratio between in medium and long term (Hein and Tarassow, 2010).

The present paper aims to contribute to the research area viewing labour costs as a variable capable of influencing productivity. It implements a long-term panel cointegrating analysis focused on western Europe Euro-Area from 1960 to 2024 aiming at supporting the conclusion that the productivity slowdown stemmed from the policy strategy of lowering labour costs.

3. Empirical analysis

3.1 Variables description and methodology

The empirical analysis focuses on the long-term relationship between labour productivity growth and the wage share at factor cost in western Europe Euro-Area from 1960 to 2024. All data were extracted from AMECO database.[46]

[46] https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/ameco-database_en. (accessed on 29/04/2025). Till 1991 German data refer to West Germany.

The countries involved display a certain degree of historical, political, social, economic, and cultural homogeneity. The study includes the countries that adopted the Euro at its introduction in 1999, along with Greece, which adopted it shortly afterward in 2001. Luxembourg is excluded due to its very peculiar features The analysis covers therefore 11 countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal and Spain.

The dependent variable is the annual growth rate of real hourly labour productivity (π), represented by real GDP divided by the number of hours worked in one year, both extracted from the AMECO database. The growth rate is obtained through a logarithmic transformation.

The main explanatory variable is the annual adjusted wage share at factor cost (WS), sourced from the AMECO database. This variable reflects the share paid for labour input by the employer, composed by the sum of gross wages and social contributions, per unit of production, so it reflects the ULC compensations (Stockhammer, 2007; Angelone and Canale 2025). It is supposed to be more appropriate in explaining the influence of labour costs on profit margins and on organizational business decisions. (Hein and Tarassow, 2010). The term adjusted implies that an estimate of self-employment income is included in the WS, attributing an average gross wage to each self-employed worker (Paternesi Meloni and Stirati, 2023). Moreover, as will be further detailed and tested in section 3.2 the choice to use this variable instead of the gross wage value allows to overcame the issues related to the bidirectional relationship between wages and productivity.

The variables determined in this way are presented in Figure 1. As will be seen better later, both variables present a very strong cross-sectional dependence in the sample. This factor allows us to identify common historical trends, although there are still divergences and particularities.

Figure 1: Average adjusted wage share and labour productivity growth in western Europe Euro-Area 1960-2024 panel yearly mean.

Source: elaboration on AMECO data

With regard to the wage share (WS), Figure 1 shows that the average value remained roughly stable during the 1960s and 1970s. From the early 1980s onwards, it declined sharply until the subprime crisis, then recovered slightly - reflecting the countercyclical component of the wage share – while continuing in the subsequent years with a cyclical but downward trend. This tendency is common across all the countries in the sample.

As for productivity, Figure 1 shows that growth rates were high in the average in the earlier period, up to the mid-1970s. From the 1980s until the Subprime/Euro crisis, the values stabilized at significantly lower levels. After the crisis, the downward trend continued, but with wider fluctuations.

This analysis focuses on the effects of labour costs on productivity and of course it does not rule out that productivity and investments may be influenced by a wide range of additional variables. A selection of these is included in the model as control variables:

1) The growth rate of aggregate demand *(y),* determined as a logarithmic real GDP growth rate, included to assess the Kaldor-Verdoorn law/Smith effect. This refers to account for the effect of an increase in aggregate demand on productivity through economies of scale and higher productive specialization across firms. While these effects were initially conceived for the manufacturing sector, in this case, they are generalized to the entire economy. Including this variable allows to isolate the effect of WS on productivity from the supply side as itis frequently used to explain productivity trends, both in relation to the Kaldor-Verdoorn law (Kaldor, 1966; Vergeer and Kleinknecht, 2010, 2014; Deleidi et al., 2018, Deleidi and Paternesi Meloni, 2019) and the Smith effect (Sylos Labini, 1984; Guarini, 2007; Carnevali et al., 2020; Fontanari, 2024).

2) The unemployment rate *(UN)*, to verify if the dynamics of average productivity is linked - as claimed by some proponents of labour market flexibilization - to an increase in employment in lower value-added sectors (OECD, 2003) or if the decline of wage share – observable from the middle of the '70 - is connected to workers' bargaining power.
3) The public expenditure in consumption as a share of GDP(PE) to account for the size of the public sector and verify if the reduction in productivity is linked to an increase in the public sector and to a crowding out effect on investments (Cardi, 2010).

Table 1 provides a statistical description of the variables and several additional preliminary tests implemented to choose the appropriate methodology: cross-sectional independence (CSI) tests (Pesaran, 2004), Pesaran unit root tests (URT) (Pesaran, 2003) – and Westerlund test (WT) for cointegration (Westerlund, 2005).[47]

Table 1 - Variables description, cross sectional independence, integration order and cointegration

Variable description, Cross sectional independence and Unit root tests									
								Unit Root test	
Variable	Description	Obs.	Mean	Std. Dev.	Min.	Max.	CSI	Level	First Difference
π	Productivity growth	704	0.024	0.028	-0.092	0.189	17.527***	-2.543	-3.133***
WS	Adjusted wage share	715	0.660	0.068	0.303	0.938	13.561***	-2.330	-3.251***
y	GDP growth	704	0.028	0.032	-0.116	0.220	32.890***	-2.628	-2.997***
UN	Unemployment rate	715	0.073	0.047	0.004	0.278	37.325***	-2.436	-2.256**
PE	Public expenditure	715	0.208	0.423	0.087	0.301	23.696***	-2.232	-2.327**
Westerlund cointegration tests									
π and WS							-2.214**		
π, WS, y, UN and PE							-2.638***		
Notes:***, **, and * reject the null at 1%, 5% and 10% respectively: Standard errors are presented below the estimated coefficients.									

The integration order of the variables and the presence of cointegration shown in Table 1 allows for the formulation of a pooled mean-group (PMG) model (Pesaran, Shin and Smith, 1999). This model allows the intercept and short run coefficients to differ across countries but detect common long-term coefficients with error-correction long-run model and maximum likelihood method (Blackburne and Frank, 2007).

The model can be expressed as an autoregressive distributive lag (ARDL) dynamic panel (1, 1, 1):

$$\pi_{i,t} = \alpha_i + \lambda_i \pi_{i,t-1} + \beta_{i,0} WS_{i,t} + \beta_{i,1} WS_{i,t-1} + \gamma_{i,0} X_{i,t} + \gamma_{i,1} X_{i,t-1} + \varepsilon_{i,t}$$

[47] Full dataset will be provided upon request.

Where i = 1,2,…,11, represents the countries; t = 1960,1961,…,2024, represents the time periods; π represents the productivity growth; WS represents the adjusted wage share; X represent the vector of the control variables (y, UN, PE); λ, β and γ represent the short-run coefficients; α represents the group-specific effect.

The error correction reparameterization is:

$$\Delta\pi_{i,t} = \phi_i\left(\pi_{i,t-1} - \vartheta_i - \omega_i WS_{i,t} - \rho_i X_{i,t}\right)\rho + \beta_{i,1}\Delta WS_{i,t} + \gamma_{i,1}\Delta X_{i,t} + \varepsilon_{i,t}$$

Where ϕ_i represents the error correction speed of adjustment; ϑ_i, ω_i and ρ_i represent the long-run coefficient calculated as a weighted average of the coefficient of the fixed effect α and of the independent variables β and γ. The weight is given by the coefficient of the dynamic dependent variable. With simple transformations is easy to verify that:

$$\phi_i = -(1-\lambda_i); \qquad \vartheta_i = \frac{\alpha_i}{1-\lambda_{i,}}; \qquad \omega_i = \frac{\beta_{i,0}+\beta_{i,1}}{1-\lambda_i}; \qquad \rho_i = \frac{\gamma_{i,0,}+\gamma_{i,1}}{1-\lambda_i}.$$

3.2 Results

Once set the proprieties of the variables, as first step the empirical analysis investigates the causal relationship between the labour productivity growth rate (π) and the adjusted wage share at factor cost (WS). In Table 2 the first regression presents a PMG model considering the productivity growth rate as the dependent variable and WS as the explanatory variable, the second regression reverses the variables to test for causality. Since the model aims at capturing a long run phenomenon the usually implemented panel Granger causality test (Granger, 1969, Juodis, at al. 2021) – checking the causality in terms of time - cannot be considered reliable to connect unidirectionally the variables. However, when implemented it rejects the null hypothesis that WS does not granger-cause π (z statistics 2.44**), while accepts the null hypothesis that π does not granger-cause WS (z statistics -0.16).

Table 2 - Labour productivity growth and wage share in 11 European countries: causality links.

	Long-term coefficients			Short-term coefficients				
Dependent variable	π	WS	EC	π	WS	Const	Obs.	WT
π		0.211***	-0.558***		-0.592***	-0.065***	693	-2.214**
WS	29.416		0.004**	-0123***		-0.001*	693	0.917

In the first equation, the value of the error correction term (EC) and the Westerlund test (WT) (Westerlund, 2005) indicate the presence of cointegration. The coefficient of the WS shows a positive and significant long-run relationship.

Setting WS as the dependent variable, the value of the EC is not between 0 and -1, and the lack of significance in both the WT and the coefficient of π indicates that the model is not valid and that there is no long-run relationship.

We can therefore support the conclusion that, in the long run, the causal relationship is unidirectional, running – as anticipated by the granger causality test results - from the wage share to the labour productivity growth rate.

In table 3 the analysis is enriched including control variables.

Table 3 - Labour productivity growth and wage share in 11 European countries: PMG estimation results

	WS	*y*	*UN*	*PE*	EC adj.	Const.	Obs.
Long- term coefficients	0.066***	0.661***	-0.077***	0.015	-0.758***	0.028***	693
Short- term coefficients	-0.319***	-0.070	0.578***	-0.081			

The WS remains positive and significant at the 5% level in the long run, although the value of the coefficient decreases due to the inclusion of other variables. In the short run, however, there is a negative relationship between WS and productivity. The reduction in WS allows low value-added firms to save on labour costs, increase profits (or reduce losses) and survive within competitive markets. However in the long run it makes the system less dynamic and favours the spread of low value-added firms. This model was also re-estimated excluding the years after 2019, in order to avoid possible distortions related to the Covid crisis. The analysis was also carried out for other subperiods of the sample, and in all cases the coefficient of the WS remains positive and significant, and the EC always included between -1 and zero and highly significant.

The value of the GDP growth rate (y) in the long run is positive and confirms the validity of the Kaldor-Verdoorn law; in the short run, this variable is not significant. This suggests that the growth of domestic demand has generally positive effects on productivity across the economies y as a whole.

Unemployment has a negative effect in the long run and a positive effect in the short run. This indicates that, in the short term, a reduction in unemployment actually leads to a decrease in average productivity, maybe due to the increase in precarious employment or employment in low value added sectors. In the long run, however, a decline in unemployment has a positive effect on productivity, due to its positive impact on wages and aggregate demand.

The volume of public spending relative to GDP has no effect on productivity, neither in the long run nor in the short run. This result contradicts the crowding-out theory, which suggests that public spending negatively affects private investment.

Finally, the coefficients of the EC indicate that the model exhibits cointegration among the variables.

4. Concluding remarks

This paper analyses the relationship between the labour productivity growth rate and the adjusted wage share at factor cost from 1960 to 2024 using a PMG model involving 11 Western Europe Euro-Area countries. The wage share at factor cost represents the real unit labour cost, as it reflects the total gross share absorbed by labour for each unit of wealth produced. The analysis supports the presence of a unidirectional causal relationship running from the wage share to productivity. When the model is enriched by the inclusion of several control variables, such as the GDP growth rate, the unemployment rate, the Baumol effect, and the share of public spending relative to GDP, results confirm that, in the long run, the wage share (WS) has a positive effect on the labour productivity growth rate, despite in the short run the effect is negative. This could mean that a reduction in labour costs may initially stimulate production, but in the long term - by providing low-cost labour to the entrepreneurial class - discourages productive investments and organizational improvements, and encourages the spread of low value-added production. The GDP growth rate has a positive effect on productivity in the long run. This generalises and confirms the so-called Kaldor-Verdoorn law, or the Smithian effect, according to which increases in market size have a positive impact on output by promoting greater specialisation and economies of scale. The unemployment rate has a negative effect in the long run and a positive effect in the short run on the productivity growth rate. This suggests that, in the short term, a reduction in unemployment - often linked to an increase in temporary and precarious employment - may have a negative effect on average productivity due to accounting reasons. However, in the long run, this relationship no longer explains the decline in productivity. On the contrary, the effect is reversed: lower unemployment leads to higher productivity, likely due to its positive impact on aggregate demand and wages.

Finally, the share of public spending relative to GDP is not significant, meaning that the downward trend in productivity cannot be explained by a crowding-out effect on investment.

These findings suggest that continuing to pursue growth strategies having at the centre stage the containment and reduction of labour costs, may pose a threat to the dynamism of the entire productive system. The European Commission's policy recommendations appear to be short-sighted

and risk weakening - together with the absence of a common industrial policy - the growth potential of the European Union as a whole

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Conclusions

The pursuit of labour cost containment and reduction - implemented in line with neoclassical theories, aimed at reducing inflation, boosting employment and exports, and thus fostering growth - has been translated into neoliberal economic policies of wage moderation and labour market flexibilization, both in Italy and in other Western European countries since 80s.

This thesis shows that this wage containment has led to a decline in labour productivity growth through econometric models that identify long-term relationships, namely, the Autoregressive distributed lags (ARDL) method for the Italian case and the Pooled mean group (PMG) estimator for the Eurozone.

These results lead us to conclude that this growth strategy discouraged productive improvements and investments, contributed to the spread of low value-added sectors and ultimately undermined the long-term growth of these economies.