Questioni di Economia e Finanza

(Occasional Papers)

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LABOUR, PROFIT AND HOUSING RENT SHARES IN ITALIAN GDP: LONG-RUN TRENDS AND RECENT PATTERNS

Roberto Torrini*

Abstract

The share of labour increased in the first half of the 1970s, declined slowly to its 1960s level in 2001, and since then has been rising. Between 1975 and 2001, the decline in the labour share was due in part to the recovery in profits, and in part to a steady increase in housing rents on GDP, to 13 per cent of value added (5% in 1975) and almost 40 per cent of capital income (20% in the mid-1970s). Net of housing rents, the share of profits fell to a historical low during the great recession. In the business sector net of housing, recovery of the labour share, magnified by the recent recession, was evident in manufacturing and industries other than regulated sectors (energy, transport, communications and finance), where privatizations and changes to regulation provoked a marked drop in the labour share in the late 1990s. I tentatively explain the trend reversal in the labour share, which started well before the onset of the crises, as due to a compression in the mark-ups on marginal costs and the difficulty experienced by Italian firms to be rewarded for their innovation efforts (product quality upgrading) in a more competitive environment.

JEL classification: E25, E22, E24, L32, L33, J30
Keywords: factor shares, returns on capital, productivity, mark-ups.

Contents

1. Introduction

Since the mid-1990s the emergence of large body of literature points to a resurgence of interest in the functional distribution of income, a topic Atkinson (1997) lamented was no longer being investigated. This renewed interest stems from the fact that the stability of factor shares, one of the stylized facts of economic growth described by Kaldor (1957),[1] seemed no longer to hold true, in either the short, medium or long runs. In addition, recent theoretical research shows that, once the overly simplifying assumption of homogeneous agents is removed, the distribution of income can affect the dynamics of capital accumulation and growth, reviving the centrality of the distribution of income to an understanding of modern market economies (Bertola et al., 2005).

In fact, factor shares show rather sharp movements, especially when analysed at the industry level. This is not new. Solow (1958), looking at movements in the wage share in several sectors of the American economy in the first half of the 19th century, expressed some doubts about the soundness of Kaldor's stylized fact. However, until recently it has been accepted as a reasonable description of the functional distribution of income in the US and other Anglo-Saxon economies. The contributions of Blanchard (1997, 1998, 2000) and Caballero and Hammour (1998), which testify to the renewed interest of prominent macro-economists in the topic, began by investigating the differences between the US, Canada and the UK, where factor shares seemed relatively stable, and continental European countries, where factor shares showed wide swings between the 1970s and 1990s. Both Blanchard (1997) and Caballero and Hammour (1998) interpret the rise in the labour share observed in the 1970s in several European countries as the result of the oil and institutional shocks which prompted a rapid rise in real wages, and explained the ensuing decline in the labour share as the outcome of a long-lasting adjustment process to a new equilibrium. However, both Blanchard (1997) and Caballero and Hammour (1998) observed that in the 1990s the labour share reached a historical low in these countries, below the levels observed before the shock. According to Blanchard, the drop in the 1990s was the outcome of profound institutional changes in both the product and the labour markets, driving a reallocation of rents from labour

to capital (see also Blanchard and Giavazzi, 2003). Consistent with this interpretation, Torrini (2005a, 2005b) shows that in Italy in the 1990s the labour share generally declined in the industries most affected by the vast privatization and deregulation programmes enacted in that decade. In these industries increased productivity was accompanied by a decline in unitary labour costs and employment and a large drop in the labour share. Azmat et al. (2012) provides similar results for deregulated and privatized sectors across the European economies. Torrini (2005a, 2005b) also shows that, considering the whole economy, a large part of the decline in the share of labour observed in Italy since the mid-1970s can be explained by the rise in the weight of housing services in GDP. Housing sector value added is comprised largely of imputed rents for services for the housing stock occupied by homeowners, and is produced by housing capital with no role for labour. Therefore, any change in factor shares due to movements in the weight of housing services cannot be directly related to how the value added is shared between labour and capital in the business sector.

However, research since 2000 has paid little attention to institutional factors, although they would seem to be a reasonable explanation for at least part of the decline in the labour share in Europe, and until recently no attention has been paid to the role of the housing sector. Institutional factors have not been considered sufficiently general to explain what seemed to be a global trend, much more widespread than initially thought. Several contributions since the early 2000s have exploited large panel data on both developed and developing countries and point to the role of biased technological change and international trade as possible explanations for the declining labour share (Harrison, 2002; Guscina, 2006; Guerriero and Sen, 2012). Karabarbounis and Neiman (2014) claim that the decline in the relative price of capital goods could be a general explanation for the development of the labour share observed across a number of economies.

Several recent papers analyse in detail the long-run development of factor shares in the US, possibly as a consequence of the new interest in the role of the functional distribution of income as a source of inequality at the personal and family levels, as suggested by Piketty's (2014) bestseller. However, this stream of research shows how hard it is to achieve a consensus view on the development of factor shares even when focusing on a single country. Elsby et al. (2013) point to international trade, while Lawrence (2015) considers an

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[1] Keynes (1939: 48) refers to 'the stability of the proportion of the national dividend accruing to labour' as 'one of the most surprising, yet best-established, facts in the whole range of economic statistics, both for Great Britain and for the United States'.

acceleration of labour augmenting technological change not matched by adequate investments as the most likely explanation for the decline in the labour share in the US. Rognlie (2015) analyses the role played by the rising weight of housing services and capital depreciation, showing that, net of housing and considering net value added, there is no clear declining trend and that the fluctuation in corporate profits could be explained by mark-up movements rather than by changes in the user cost of capital. All reject Karabarbounis and Neiman's (2014) explanation based on the decline of capital good prices. Koh et al. (2015) note that net of capital depreciation, whose incidence in value added has increased owing to the capitalization of R&D expenditure, the labour share of value added in the corporate sector does not show the declining trend which most of the above papers try to explain.

All of these studies seek an explanation for the decline in the labour share. However, Italy's experience over the last 15 years appears at odds with these developments: the declining trend in the labour share reversed at the beginning of 2000's (Torrini, 2010) and, excluding the housing sector, reached historically high levels during the great recession. In this work, I update the results in Torrini (2005a, 2005b, 2010) and discuss possible interpretations of the recent trend reversal.

First, the evidence presented in this paper shows that the recent profound revision to the National Accounts with the release of the ESA 2010 series does not change significantly the description in Torrini (2010) of functional distribution developments up to the onset of the great recession. Moreover, it shows that the great recession has served to magnify some trends already underway before the crisis.

The main facts can be summarized as follows. Housing rents since the mid-1970s have more than doubled their weight in total value added, accounting for a large part of the fall in the labour share which occurred up to the end of the 1990s and offsetting some of the recent drop in the profit share of value added. Net of housing services, the labour share has been rising since the beginning of the 2000s, and the profit share reached an all-time low during the great recession. In the second half of the 1990s, the slight rise in the labour share in manufacturing and in most others business sectors was more than offset by the sharp decline in the regulated sectors (RS) (energy, transport, communication and finance). Since 2001 the upward trend in manufacturing and business sectors other than RS has prevailed, reinforcing the diverging trends with respect to RS already evident at the end of the 1990s.

I argue that the rise in the labour share is probably the outcome of a reduction in mark-ups over marginal costs, possibly related to loss of competitiveness in the Italian economy.

Although part of the recent fall in profit margins is certainly due to the cyclical impact of the great recession, and should at least partially reverse with a cyclical recovery, in the conclusions I suggest that a sound recovery of firm profitability and a sustainable acceleration of economic growth in a more competitive and deeply integrated global market will require a stronger innovation capacity in the Italian production system.

The paper is organized as follows. In Section 2.1 I discuss some empirical issues related to the measurement of factor shares and their impact on factor shares dynamics in the long-run. Section 2.2 focuses on the measurement of self-employment labour income; Section 2.3 assesses the role of housing services in the determination of factor shares at the aggregate level. Section 3 analyses factor share developments in the business sector net of housing rents. Section 3.1 shows the divergence of RS from manufacturing and the rest of the business sector. Section 3.2 discusses how the rise in the labour share in the business sector cannot be convincingly explained by a change in the relative price of labour and capital. Section 3.3 discusses the available evidence on a reduction in mark-ups over marginal costs as a plausible explanation for declining profit rates and a rising labour share, and explains how this might be linked to loss of competitiveness in the Italian production system and a slowdown in total factor productivity. Section 4 concludes. The Appendix reviews some theoretical results on factor share movements and is included for reference to allow the reader to follow the arguments in the main text.

2. Long-run evolution of aggregate factor shares

In a standard production function approach, the functional distribution of income and its dynamics depend on the technology in use, on the relative price of labour and capital, on the elasticity of substitution between production inputs, and on a number of elements affecting the relationship between factor shares and input prices (e.g. mark-ups over marginal costs in imperfect competitive markets, bargaining power of workers in an efficient bargaining set-up, factor adjustment costs, etc.; see Appendix). A change in any one of these factors can affect the equilibrium distribution of value added between labour and capital, while long lasting adjustment processes, for instance in the capital-labour ratio or the desired scale of production, add complexity to the dynamics of factor shares, making its interpretation far from obvious even in a one sector model. However, in the real world, GDP is just the aggregate of the value added of different industries, whose factor shares reflect different technologies and different product and labour market conditions. Therefore, the development

of labour and capital shares at the aggregate level depends on the industry composition of GDP and is affected by common trends (e.g. the dynamics of input prices) and sector specific idiosyncratic shocks (e.g. changes to mark-ups).

2.1 Measurement issues and industry composition

As to the industry composition of GDP, the public and housing sectors have specific features. In the former, value added is the sum of employees' compensation and capital consumption. The net return on capital is nil by construction. This implies that a rise in the share of services supplied by the public sector tends automatically to reduce the capital share of income. Value added in the housing sector is the value of services provided by the housing stock. Since the labour input does not play a role here, if the share of the housing sector increases, the capital share at the aggregate level also increases. Moreover, a large part of the value added in this sector is made up of imputed rents. In fact, the services of houses inhabited by homeowners are valued at market prices observed in actual transactions and are part of household income, although no transaction is observed. In addition, the prices of housing services are affected by investment decisions and, as clearly confirmed by recent history, prices may remain far from the long-run equilibrium for a long time, for both stocks and services. Thus, it must be kept in mind that the complement of the labour share, the capital share, can be broken up into the gross profits of the corporate sector, the consumption of capital in the public sector, and the rents paid (or imputed) for the housing stock services. The recent literature on wealth distribution pays great attention to housing stock prices (Bonnet et al., 2014), whereas the housing sector has received much less attention in studies on the functional distribution of income (Rognlie, 2015; Torrini, 2005a, 2005b, 2010), although as is shown below this accounts for a material part of the observed movements in factor shares.

A more basic source of difficulty is the empirical definition of factor shares, which requires choices that can affect both the levels and dynamics of the empirical counterpart of theoretical shares.

From a theoretical point of view, the labour share is the share of income which goes to labour input. However, national accounts only record paid employees' income. The income received by self-employed workers, which is actually a mix of labour and capital income, is not recorded directly. This means that we need to estimate it in order to get a correct measure of the labour share. In fact, self-employment is a non-negligible part of the labour input and it varies across sectors, countries and over time (Torrini, 2005c); it can affect both the level and

trend of the labour share. The most common solution, customarily adopted by the Bank of Italy and the European Commission in the AMECO database, is to impute to self-employed workers the average compensation of employees (Gollin, 2002). However, the incidence of self-employment is higher in low value added, low wage sectors such as agriculture and retail trade. Thus, imputing to self-employed workers the average compensation of employees for the whole economy provides an overestimation of the labour component of self-employment income. This suggests that it should be imputed at a sufficiently detailed industry level and assuming that self-employed workers earn the same compensation as employees working in the same industry. This again requires attention to the intrinsic heterogeneity across sectors, which can affect both the level and dynamics of factor shares.

National accounts provide us with three definitions of value added: at factor costs, at basic prices, and at market prices. Recent contributions show a general consensus on the use of the factor costs measure to render factor share movements independent of production taxes and subsidies. The definition of basic prices and market prices is affected by changes in the 'fiscal environment', so that any change in taxation will show up as a change in the measured functional distribution of income.[2] Data on value added at factor costs is not always available, especially in large data sets covering several countries; thus, many studies rely on basic prices or market price evaluations. In relation to the use of gross or net value added, recent contributions tend to pay more attention than previously to net value added because of the role played by the consumption of capital in shaping income distribution. However, the actual output of the production process is gross value added, and it is preferable to consider capital depreciation as one of the factors affecting the user cost of capital and, thus, the distribution of gross income. In any case, to identify the role of capital depreciation it is useful to compare these two measures.

To sum up, when discussing factor shares it is necessary to start by specifying the definition of value added used, the way self-employment labour income is dealt with, and the role played by industry composition, notably the impact of the incidence of the public administration and housing sectors. In what follows, I analyse the functional distribution of gross value added at factor costs. An estimate of self-employment labour income is obtained by assuming that self-employed workers earn the same compensation as waged employees

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[2] An example in the case of Italy was the introduction of a tax on value added, IRAP, in 1998, which replaced part of the social contributions paid by employers. By reducing the compensation of employees, IRAP tilted the distribution of value added at basic and market prices, with a drop of roughly 2 percentage points in the labour share, but leaving the distribution of factor cost value added unchanged (Torrini, 2010).

working in the same sector. The period 1951-2014 is covered by combining three sources of data: 1995-2014 ESA 2010 National Accounts; 1970-1994 ESA 95 National Accounts, and 1953-1970 Prometeia series (Golinelli and Monterastelli, 1990). Then the dynamics of the variables analysed in the paper reflects the original series, while their level is set by overlapping the more recent series with the older ones.[3] The implicit assumption is that the time series dynamics is not significantly affected by changes in methodologies introduced in more recent releases.

2.2 The impact of self-employment on the measurement of the labour share

This section describes the long-run evolution of factor shares. First, I analyse how the definition of labour share - paid-employment share versus labour share - and the way of estimating self-employment labour income affect the long-run dynamics of the labour share. Second, I analyse the impact of the public sector and the housing sector on aggregate factor shares.

The labour share, S_{w1}, is obtained by imputing to self-employed the average compensation of employees in the same industry:

$$S_{w1} = \frac{\sum_i w_i t_i}{Y} \qquad (1)$$

where w_i denotes compensation per full-time equivalent unit in sector i, t_i is total employment measured as full-time equivalent units in sector i, and Y is the gross value added at factor cost. The most commonly used method for assuming the same average compensation for self-employed across sectors makes the unwarranted assumption that labour self-employment income does not reflect the productivity and skill features of the different industries. S_{w2}, is defined as:

$$S_{w2} = \frac{w * T}{Y} \qquad (2)$$

where w denotes the average compensation of employees and T total employment in full-time equivalent units.

Finally, the paid-employment share S_{w3} is the ratio of total compensation of employees to value added:

$$S_{w3} = \frac{w * N}{Y} \tag{3}$$

Italy is one of the developed countries with a very high incidence of self-employment (roughly 30 per cent of labour input). This implies that S_{w1} is about 20 percentage points higher than S_{w3}.

Also, being a latecomer economy, Italy's agriculture sector, where average compensation is low and self-employment high, played an important albeit declining role until the mid-1970s, causing a marked shift from self-employment to paid employment. As a consequence, the share of self-employment declined up to the early 1980s, when a resurgence of independent workers in the service sector stabilized this share at a comparatively high level (Figure 1). This is a major structural change which has to be taken into account in order to get a correct assessment of factor share dynamics.

Figure 1

Agriculture and self-employment shares on total employment
(full-time equivalent units; percentage points)
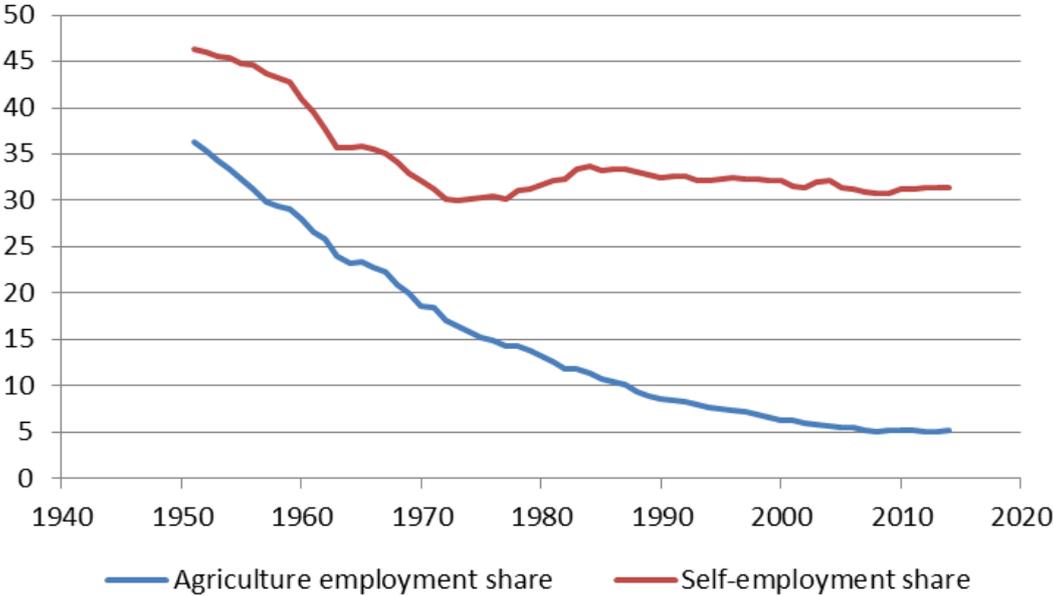
Source: own calculations based on Istat and Prometeia National Accounts data

Before the mid-1970s there were remarkable differences in terms of both levels and dynamics for S_{w1}, S_{w2} and S_{w3} (Figure 2). Comparing the labour share S_{w1} and the paid-employment share $S_{w3,}$ although different in level since the mid-1970s, it can be seen that

they follow a roughly similar trend compared with the previous period. The rise of S_{w3} between the early 1950s and the end of the 1960s reflects the shift from self-employment to paid employment owing to the rapid decline of the agriculture sector. In this time span the labour share remained almost unchanged. Between the end of the 1960s and the mid-1970s both series increased, reflecting an acceleration of the wage rate, which definitely outpaced labour productivity growth.

By contrast, S_{w2} provides a quite different and rather misleading picture. By imputing to self-employed a higher average cost of labour than the average compensation in the specific sector of their employment, the labour share is overestimated. This applies particularly to the period before the mid-1970s when agriculture accounted for a large share of total employment and self-employment. Since the early 1990s the two series S_{w1} and S_{w2} have followed roughly the same pattern. From here on I comment only on the development of S_{w1}.

Figure 2

Labour share patterns
(percentages)
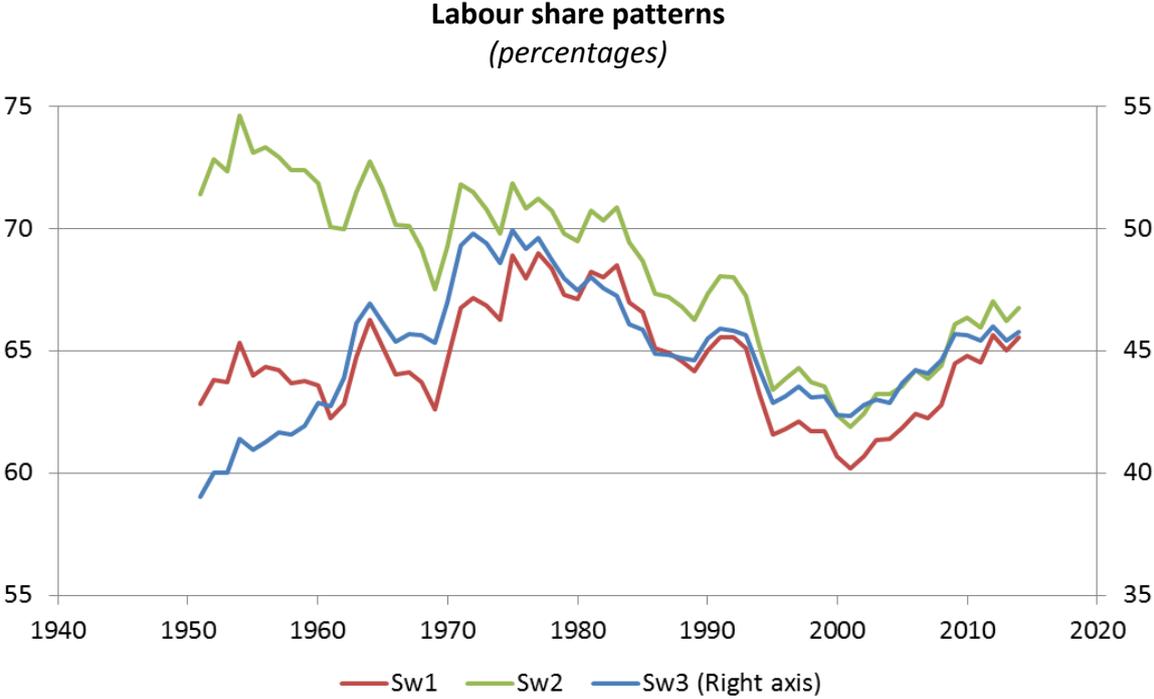
Source: own calculations based on Istat and Prometeia National Accounts data.

The labour share for the whole economy, including the public sector and housing rents, reached a historical high in the mid-1970s, about 5 percentage points higher than the average level observed in the previous decade. Since the early 1980s it has declined progressively (net of business cycle fluctuations), returning to the 1960s' levels in the second half of the 1990s and reaching its lowest level at the beginning of the 2000s, after which this trend reversed.

Between 1975 and 2001 the labour share lost 8.7 percentage points; thereafter, it gained 5.4 percentage points, partly as a consequence of the cyclical impact of the great recession. These trends show that although up to the beginning of the 2000s the Italian economy was consistent with the pattern in many advanced economies, with a persistent fall in the labour share, after that it experienced a trend reversal, which was established well before the great recession. This should not be interpreted as the functional distribution of income fluctuating around some sort of long-run equilibrium. In fact, the way that the capital share is split between housing rents and profits hints at drastic structural changes.

2.3 The impact of housing rents

I next analyse how housing services have affected the distribution of aggregate value added by splitting the capital share into the profit and housing rent shares.[4] The impact is huge.

<div align="right">**Figure 3**</div>

Distribution of GDP at factor prices
(percentages)
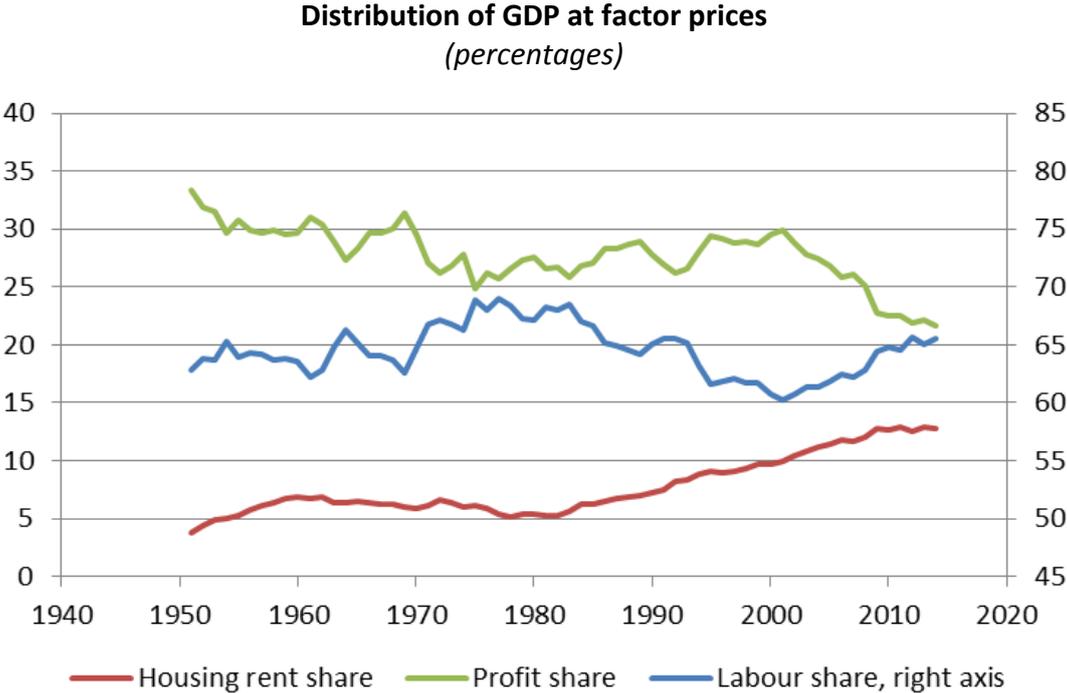
Source: own calculations based on Istat and Prometeia National Accounts data.

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[4] I use the entire real estate sector value added net of labour income. This is a somewhat broader aggregate, in which housing stock services represent most of the value added produced.

Figure 3 plots labour, profit and housing rent shares: 40 per cent of the labour share decline between 1975 and 2001 - 3.8 percentage points - was due to the increasing weight of rents accruing to homeowners, from 6.2 per cent in 1975 to 9.9 per cent in 2001. The share of gross profits also increased, by 5 percentage points, returning in 2001 to about the average level of the 1950s and 1960s. However, in the following years, the profit share steadily declined, reaching historically low levels during the great recession, while housing rents kept on growing. In 2014, the labour share of total value added was 65.5 per cent, 3.4 points lower than in 1975; the share of housing rents was about 12.7 per cent (6.6 points higher than in 1975); and gross profits were only 21.7 per cent of value added, 3.2 points lower than in 1975 and about 10 points lower than in the 1960s. In 2014, rents in the housing sector represented 37 per cent of the capital share, compared with less than 20 per cent in 1975. Moreover, more than two thirds of the capital income in the housing sector is made up of rents imputed to the homeowners living in their own houses: they account for 9 per cent of total value added in 2012, up from 5.8 per cent in 1995 (first year data on imputed rents are available).

Figure 4

Deflator and real value added in the housing sector and total economy net of housing
(index 1970=1)

Deflator

Real Value added
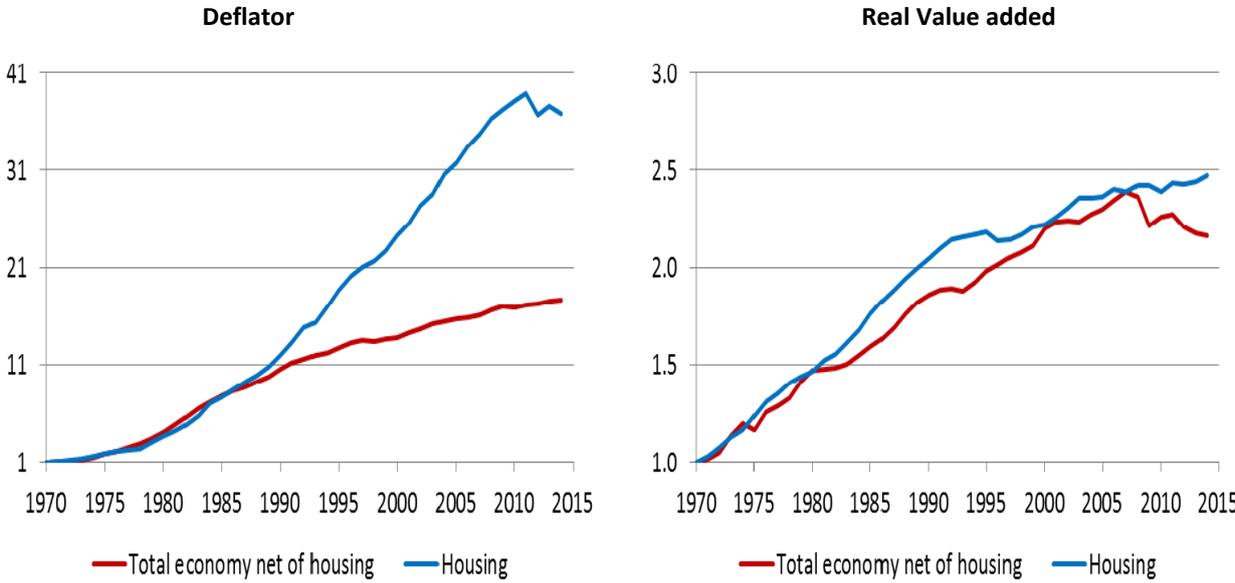
Source: own calculations based on Istat National Accounts data

It should be noted that the rising proportion of housing rents is due entirely to the relative price of housing services which, as the literature shows, may depend on the complex interplay of a number of factors. Elements such as a slower than average

productivity dynamics in the construction sector (Borri and Reichlin, 2015), physical or regulation constraints in housing supply (Caldera and Johansson, 2011), and the complex reaction of stock prices and rents to variations in the financial conditions (Sommer et al., 2013) can all affect the dynamics of the relative price of housing services, shifting the composition of total nominal value added. Figure 4 plots the deflator and real value added growth for the housing sector and the total economy net of housing. While real value added has grown since 1970 at approximately the same rate in the two aggregates, since the mid-1980s the housing services deflator has grown twice as much as the deflator for the rest of the economy.

The rise in the incidence of the housing sector is not an idiosyncratic feature of the Italian economy, although until recently it received little attention in debates on the decline of the labour share. Figure 5, which is based on the latest releases of the EU KLEMS data base, shows that between 1975 and 2007 most countries experienced a decline in labour share and most also experienced a rise in housing rents. In some countries - Austria, Belgium, France, Germany, UK, Italy - housing expansion accounts for half or more of the decline in the labour share.

Figure 5

Labour and housing rent shares, 1975 – 2007 changes
(percentage points)
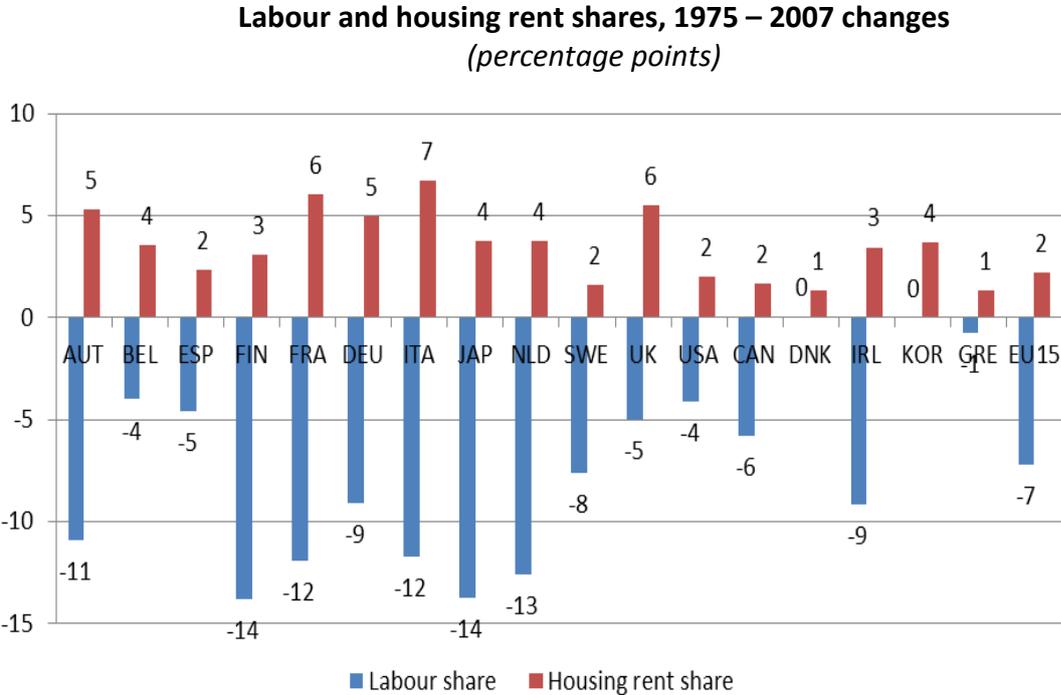
Source: own calculations based on EU KLEMS data.

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Coming back to Italy, even bearing in mind that the labour share is strongly countercyclical and profits in the corporate sector are pro-cyclical, these trends are quite clear evidence of a long-lasting process which goes beyond the impact of the great recession and reveals a large redistribution of capital income from profits to housing rents.

Another way of looking at these developments is to contrast the labour share in total value added with the labour share in value added net of housing rents (Figure 6). Although the labour share in these two aggregates shows similar fluctuations, it is clear that they have been gradually diverging since the mid-1980s. Once one disentangles housing rents and looks at the distribution of income produced outside the housing sector, the labour share in 2014 is at a level comparable to the mid-1970s' peak.

Figure 6

Labour shares, by sector
(percentages)

Source: own calculations based on Istat and Prometeia National Accounts data

By focusing on the business sector[5] net of housing rents (BnH from now on) these trends are even more pronounced. When compared with total value added net of housing rents the fall in the labour share between 1975 and 2001 and its recovery thereafter appear

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[5] The business sector is defined as the total economy net of the public sector, where the public sector is approximated by the aggregate public administration, health and education sectors. In the latter two sectors the role of the state in the production of services still largely prevails. This definition of the public sector tends to slightly overstate the non-market area.

much more dramatic. The difference between total value added and BnH rents reflects the role of the public sector, where net profits are nil by definition. The expansion of the public sector [6] between the 1970s and 1990s held back the decline in the labour share in total value added (6.8 points against 8.8 in the business sector) and, since the public sector is relatively sheltered from business cycle fluctuations, it dampened the rise in the labour share during the great recession. Overall, however, the impact of the public sector on the functional distribution of income appears much less remarkable than the impact of the housing sector. [7]

Abstracting from the public and housing sectors, the next section discusses in more detail the long-run development of the labour share in the business sector, in an attempt to interpret its large fluctuations and especially the recovery which started at the beginning of the last decade.

3. Factor shares and structural changes in the business sector: diverging industry trends and productivity slowdown

Between 1975 and 2001, the BnH labour share fell by 8.8 points to the levels observed in the 1960s; between 2001 and 2007 it recovered more than 4 percentage points, returning to the levels of the early 1980s. This was a remarkable adjustment: between 1970 and 1975, in the middle of the wage push following the labour unrest at the end of 1960s, the labour share increased by less than 6 points. During the great recession it increased by a further 5.7 points, to a level not recorded since the start of the period analysed here. Considering the whole 2001-2014 time span, the labour share increased by more than 10 percentage points.

In line with the analyses in Blanchard (1997, 2000) and Caballero and Hammour (1998), Torrini (2005a, 2005b) interprets the 1970s' rise in the BnH labour share as the outcome of an outward shift in the wage setting curve following the labour unrest at the end of 1960s and the oil shock (see Appendix), while the decline between the early 1980s and the 1990s is interpreted as a gradual adjustment to a new equilibrium when the profitability of firms was restored.

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[6] The employment share of the public sector rose from 14 per cent in 1970 to 19 per cent at the beginning of the last decade.

However, as noted by Blanchard (1997, 2000), interpreting the fall in the labour share as merely a return to the equilibrium level of the late 1960s is not fully consistent with the contemporary development of the employment and capital-output ratio, which did not return to the levels prevailing before the shock in the 1970s. Blanchard (1997, 2000) and Blanchard and Giavazzi (2003) suggest that these facts can be explained by institutional changes which, at least in the short and medium runs, might have prompted a reduction in the labour demand for any given level of capital stock, as well as a rising capital share and increasing returns on capital. In analysing the case of Italy, Torrini (2005a, 2005b) stresses the role of labour market institutional changes in the wage setting process and regulation (Brandolini et al., 2007; Casadio, 2003; Sestito, 2002) and especially the impact of the massive programme of privatization and deregulation which, in the 1990s, affected major RS industries where state-owned companies were prevalent (Banca d'Italia, 2000; Giavazzi, et al., 1998; Zanetti and Alzona, 1998). While labour market reforms were conducive to across-the-board wage moderation, privatization accounted for sector specific developments in productivity, wages and labour share developments. In what follows I focus on the structural changes that occurred in the 1990s and the trend reversal since the beginning of the 2000s.

3.1 The structural changes of the mid-1990s: RS versus manufacturing and the BnH sector

Figure 7 compares manufacturing and RS, two aggregates that face a completely different competitive context.[8] The first is more exposed to international competition and has been largely unaffected by the major privatization process of the 1990s. The second is oriented mostly towards the domestic market, is heavily regulated, and has been closely involved in the privatization process. Owing to data limitations the analysis focuses on the period 1970-2014.

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[7] Torrini (2010) analyses the impact of industry composition dynamics on factor shares, concluding that net of housing rents it did not significantly affect the distribution of value added between 1970 and 2009 for the whole economy.

Figure 7

Labour shares in manufacturing, RS and BnH
(percentages)
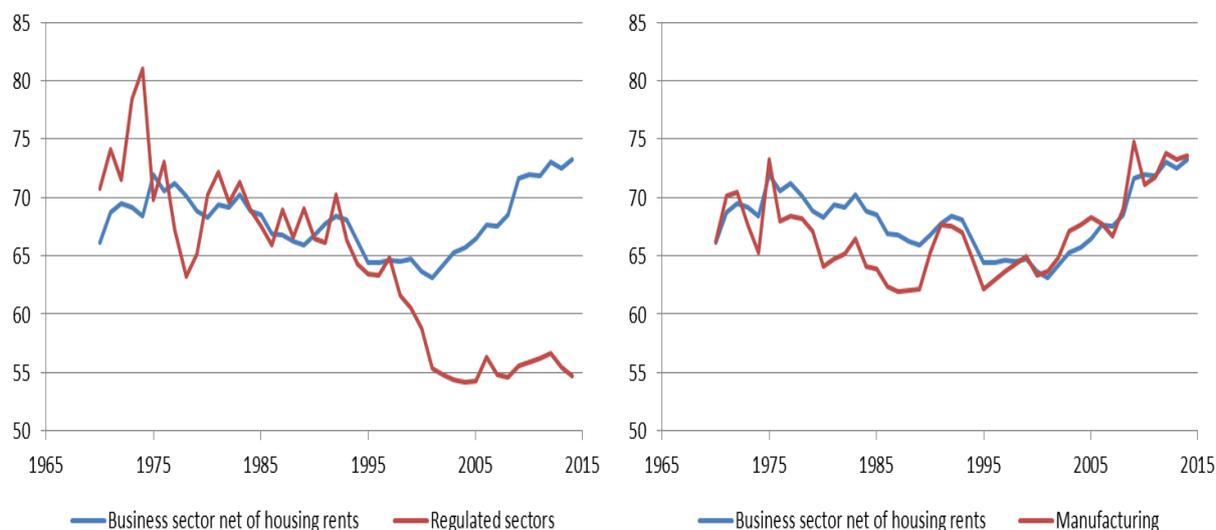
Source: own calculations based on Istat National Accounts data

After the recession and restructuring process of the early 1980s, the labour share in manufacturing fell rapidly to below the level of the early 1970s. Manufacturing labour productivity, which was heavily affected by the recession of the early 1990s, collapsed between 1989 and 1991 and the labour share jumped by 6 points. Devaluation and the social partner agreement over a wage freeze in 1993 resulted in the labour share in manufacturing reverting rapidly to its 1989 level. In contrast, the labour share in RS remained almost flat until the early 1990s.

Since 1995 the two aggregates have shown clearly diverging trends. The declining trend of the labour share in manufacturing has reversed, while in RS it has fallen by 8 percentage points. Since 2001 the labour share has levelled off at the low levels of the beginning of the last decade for RS, but increased in manufacturing and BnH.

The decline in the labour share in RS is consistent with a shift in rents from labour to capital (Bassanetti et al., 2010; Torrini, 2005a, 2005b; Azmat et al., 2012) and a rise in the required return to capital following privatization and stock market listing of the main companies. This can be rationalized in an efficient bargaining model in terms of loss of bargaining power for workers facing private shareholders instead of public owners, resulting

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[8] In 2014, these two sectors accounted for 22 per cent and 25 per cent of total business sector value added, respectively (28 per cent and 22 per cent in 1995).

in a decline in wages, employment and labour share (see equation A4 in the Appendix).[9] In fact, these sectors experienced higher than average wage moderation and, consistent with a reduction in featherbedding, relatively good performance of labour and total factor productivity (TFP), in sharp contrast to the deceleration observed in the Italian economy. Net of the cyclical upturn in the early 1990s, RS accounted for most of the fall in the labour share observed in that decade.

Between 1995 and 2014 the labour share fell by 8.8 points in RS and, owing in part to the cyclical impact of the great recession, increased by 11.5 points in manufacturing and by 8.8 points in BnH.

This trend reversal largely coincides with the striking break in labour and TFP dynamics which has been responsible for the disappointing economic growth since the end of the 1990s. In the next section I show that an interpretation based on a change in the relative price of labour and capital is not fully consistent with the available evidence. If wage moderation can partially explain a slowdown in labour productivity and a possible rise in the labour share (this would require capital-labour elasticity of substitution to be higher than 1), it cannot simultaneously explain a rise in the labour share and the capital-output ratio and a decline in the profit rate. I argue that an explanation of these facts must rest on a shift in the relationship between factor shares and the relative prices of production factors, possibly due to a reduction in mark-ups over marginal costs, in a context of rising international competitive pressures.

3.2 Labour productivity, wage moderation and labour share

To gain insights into the factors involved in the observed movements in the functional distribution of income in the BnH it is useful to analyse the development of the accounting determinants of the labour share. The labour share in a given industry can be written as:

$$S_w = \frac{(W/N)}{Y}T = \frac{w/P}{\overline{YD}/P}T = w_r\, p\, \frac{1}{\pi} \tag{4}$$

where W denotes compensation of employees, n is paid-employment in full-time equivalent units, T is total employment in full-time equivalent units, P is the consumption price index

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(CPI), *D* is the value added deflator, *p* is consumption prices relative to the value added deflator, $\overline{Y}$ is real value added, *w* is compensation per employee and w_r is the real compensation per employee, deflated by the CPI, and π is labour productivity. Since workers are interested in consumption prices, and collective bargaining in Italy is meant to safeguard workers' purchasing power measured on the basis of the CPI, a diverging price dynamics can affect factor share movements: even if real wages and labour productivity grow at the same rate, a relative decline in production prices will prompt a rise in the share of labour.

Figure 8 shows that recovery of the share of labour in the business sector is linked to labour productivity stagnation, which has characterized the Italian economy since the second half of the 1990s. Despite a dramatic slowdown in the real wage dynamics, stagnating productivity and an upward trend in the dynamics of consumption prices versus production prices (value added deflator) have resulted in a marked rise in the labour share.

In the ten years 1985-1995 manufacturing and RS followed almost the same pattern in terms of labour productivity and real wage dynamics. However, after 1995 RS experienced a drop in real wages but continued growth in productivity and relative price dynamics up to the beginning of the 2000s at about the same pace as in the 1985-1995 period. As a result, the labour share registered a marked drop between 1995 and 2000, levelling off thereafter.

By contrast, between 1995 and 2005 manufacturing experienced an unprecedented slowdown in productivity. Possibly, for the first time since the end of second world war, labour productivity in manufacturing grew at the same sluggish pace as the BnH before showing some signs of recovery in 2005-2007 just before the great recession. At the same time, from 1995 real compensation grew comparatively faster, while production prices continued to decline with respect to consumption prices despite productivity stagnation.

Figure 8

The dynamics of labour share, labour productivity, real compensation and relative prices

Labour share (index 1995=1)

Labour productivity (index 1995=1)

Real compensation per employee (index 1995=1)

Relative prices (index 1995=1)

——— Business sector net of housing rents ——— Manufacturing ——— Regulated sectors
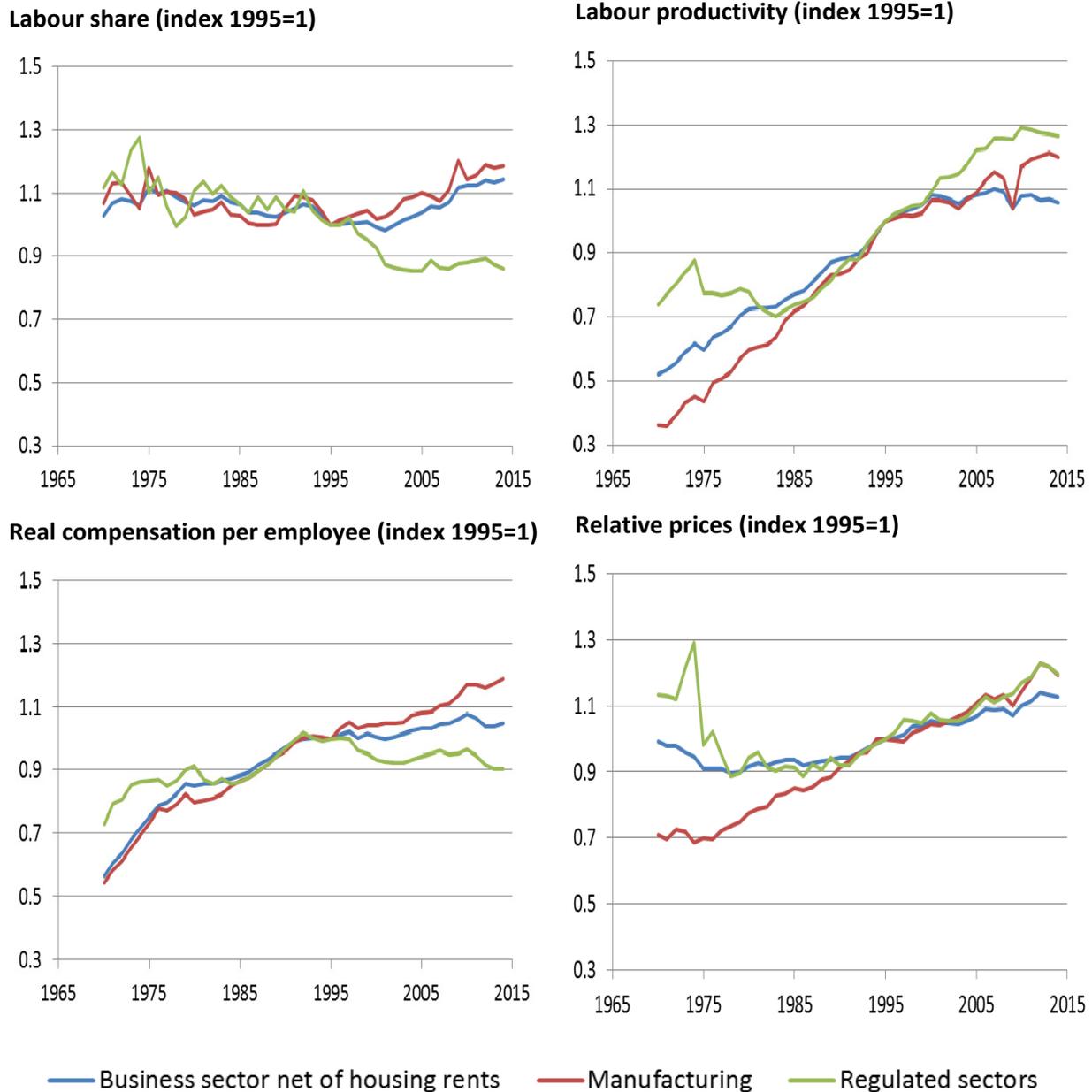
Source: Own calculations based on Istat National Accounts data

All this is in sharp contrast to the classical interpretation of the sources of inflationary pressure and curbs on economic growth in the Italian economy. There seems to be a consensus that Italy was suffering from poor performance in domestic market sectors where regulation prevented the beneficial effects of competition on prices and efficiency, and that in industries exposed to international competition market forces spurred productivity and curbed price dynamics (Barca and Visco, 1993; Signorini and Visco, 2002). Although this explanation may hold for the 1970s and 1980s, productivity development between the mid-

1990s and the mid-2000s shows that it does not explain the relative decline experienced by the Italian economy since the mid-1990s. Productivity in manufacturing has performed as poorly as in most non-tradable services despite growing international competition, while RS have improved their relative performance.

Recovery in the labour share started in most of the BnH in the second half of the 1990s but shows huge differences from the rise in the early 1970s. At that time, in a context of still rapid productivity growth, real wages outperformed labour productivity and employment growth started to slow despite the increased contribution of public employment, all of which caused a progressive rise in unemployment. However, before the great recession a rising labour share was accompanied by good labour market performance which, in spite of meagre economic growth and stagnating public employment, allowed a drastic reduction in the unemployment rate from about 12 per cent in the mid-1990s to less than 7 per cent in 2007.

The improvement in the labour market is related to changes in the bargaining rules agreed by social partners in 1993 and to the reforms introduced by the Treu 1997 and Biagi 2003 laws (Brandolini et al., 2007; Casadio, 2003; Pirrone and Sestito, 2006). It could be argued that a phase of wage moderation started in the early 1990s along with labour market reforms and this spurred an outward shift in the wage setting schedule, which would have induced labour intensive economic growth and a deceleration in capital intensity and productivity. The slowdown in productivity is clearly associated with a marked slowdown in capital intensity measured by the capital-labour ratio (panel b in Table 1). However, most of the disappointing labour productivity performance can be explained by TFP dynamics (Daveri and Jona-Lasinio, 2005; Bassanetti et al., 2006) (Table 1, panel c). In the manufacturing sector the TFP growth rate averaged 0.8 per cent between 1995 and 2000, compared with a growth rate of about 2.5 per cent in the previous ten years, and turned negative in 2000 to 2005. BnH followed a similar pattern while RS TFP continued to grow at a relatively fast pace. Owing to the slowdown in TFP the capital-output ratio did not decline despite a slowdown in the capital-labour ratio. In BnH and manufacturing the capital-output ratio remained fairly stable between 1995 and 2000 and has increased since 2000 (Figure 9). The slowdown in labour productivity has been accompanied by a decline in capital productivity.

Table 1

Labour productivity, capital intensity, TFP and capital intensity contribution to productivity growth (yearly averages; percentage points)

Period	(a) Labour productivity			(b) Capital intensity (K/L)		
	BnH	RS	Manufacturing	BnH	RS	Manufacturing
1980-85	1.3	-1.0	3.6	2.5	2.1	4.9
1985-90	2.6	2.8	3.0	2.4	3.9	1.7
1990-95	2.6	3.2	3.6	2.9	3.6	3.3
1995-00	1.5	1.8	1.3	1.6	1.4	1.2
2000-05	0.0	2.3	0.4	1.6	2.6	2.4
2005-07	0.8	1.4	2.9	0.6	0.6	1.2
2007-14	-0.5	0.4	0.6	1.0	0.4	3.1
Period	(c) TFP contribution to productivity growth			(d) Capital intensity contribution to productivity growth		
	BnH	RS	Manufacturing	BnH	RS	Manufacturing
1980-85	0.5	-1.6	1.9	0.7	0.6	1.7
1985-90	1.9	1.6	2.4	0.8	1.3	0.6
1990-95	1.6	2.0	2.5	0.9	1.2	1.1
1995-00	1.0	1.2	0.8	0.5	0.5	0.4
2000-05	-0.5	1.1	-0.4	0.6	1.2	0.8
2005-07	0.6	1.1	2.5	0.2	0.3	0.4
2007-14	-0.8	-0.2	-0.4	0.3	0.2	0.9

Source: own calculations based on Istat National accounts data

Although the labour market reforms are clearly linked to good employment performance between the mid-1990s and 2007, a rise in the capital-output ratio is not

consistent with an interpretation of the rise in the labour share as the result of wage moderation (see equation A2 in the Appendix).[10]

Figure 9

Capital-output ratio
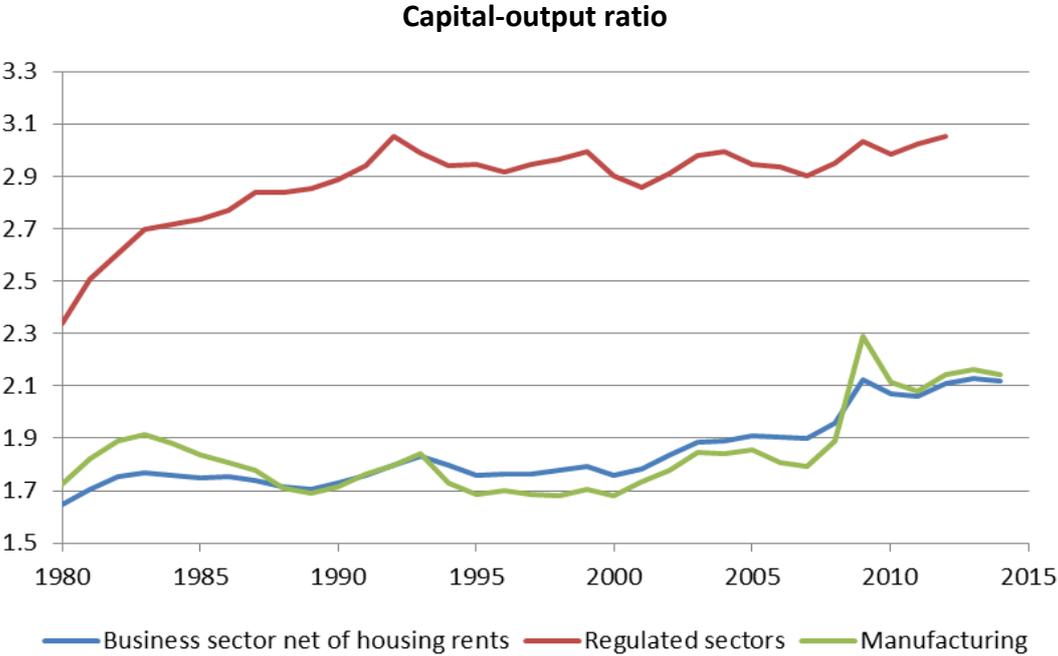
Source: own calculations based on Istat data

In addition, between 1995 and 2007 the rate of return on capital, computed as net profits on net capital stock valued at substitution prices, almost halved in BnH and declined even further in manufacturing (Figure 10). Only in RS, where structural changes spurred labour productivity and curbed wage dynamics, has the profit rate remained relatively stable, increasing in the late 1990s and then declining somewhat.[11] The drop in profit rates was due in part to the rise in the capital-output ratio and in part to the marked decline in the profit share, which becomes even steeper if computed net of capital depreciation.[12]

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[10] With an elasticity of substitution greater than 1, a relative decline in the cost of labour prompts a rise in employment which more than compensates for the wage rate reduction. This results in a higher labour share, lower labour productivity and a lower capital-output ratio.

[11] However, the starting point seems to be relatively low in this sector, possibly reflecting the traditional prevailing role of state companies. Efficiency enhancements and wage moderation spurred by privatizations and changes in regulation would have implied a recovery in profitability to 'normal' levels. Many former state companies were listed, forcing them to guarantee at least a minimum return on capital.

[12] The incidence of capital depreciation in gross value added has been increasing since the mid-1990s, contributing to the compression of net profit margins. In the business sector net of housing rents it grew from 14 per cent in 1995, to 16 per cent in 2007, to 19 per cent in 2014. The BnH labour share in value added net of capital depreciation increased from 78 per cent in 1995 to 92 per cent in 2014.

Figure 10

Net return on capital stock
(percentage points)
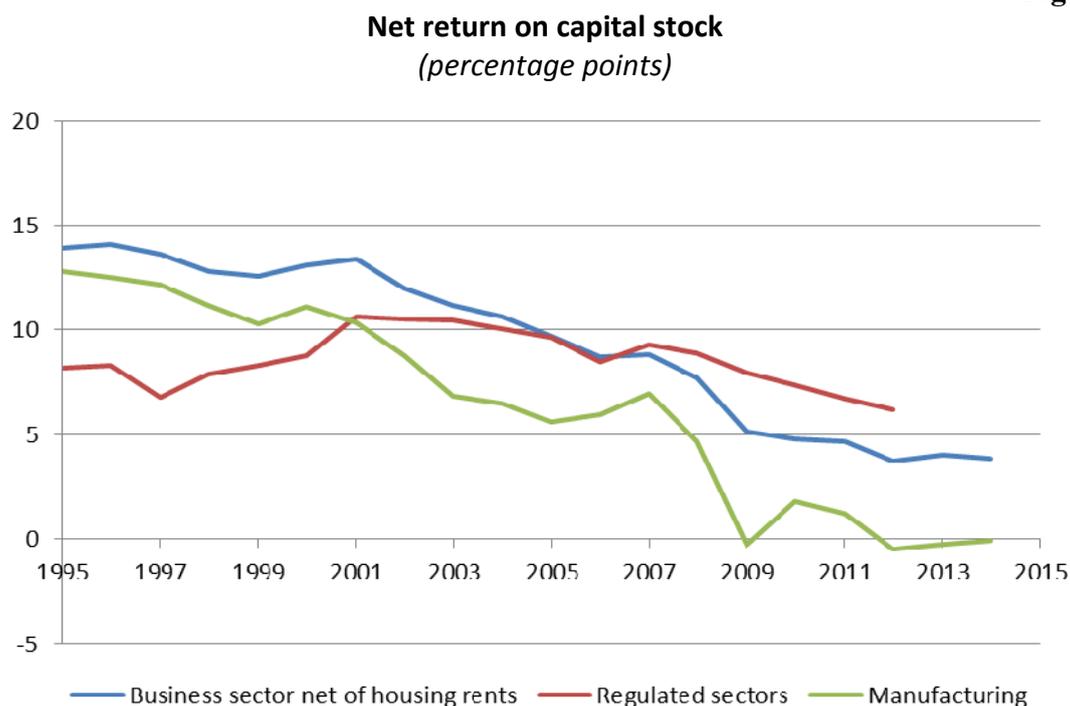
Source: own calculations based on Istat National accounts data

Overall, the decline in profit rates also seems at odds with the explanation of a rise in the labour share prompted by wage moderation and a reduction in capital intensity (a similar argument is made by Confindustria, 2015). On the contrary, one could interpret these developments as the consequence of a reduction in the user cost of capital, which fell by a half between the early 1990s and 2005 (Giordano and Zollino, 2015a). This would justify a rise in the capital-output ratio and the capital-labour ratio measured in efficiency units which, assuming an elasticity of substitution lower than 1, could explain the shrinking profit share, the rise in the labour share and the decline in the profit rate. The slowdown in labour productivity and the rise in the labour share would be the consequence mainly of an exogenous shock to TFP and a simultaneous reduction in the relative price of capital. The declining TFP dynamics would explain the disappointing performance of the Italian economy; the relative price of inputs would be responsible for the recovery of the labour share and the decline in the profit rate observed in most business sectors apart from RS. However, this does not explain the rapid rise in employment and the decline in the unemployment rate that occurred between 1995 and 2007. It also does not explain the decline in productivity dynamics in a context of growing international competition and the slowdown in economic growth which occurred long before the great recession despite labour market reforms, wage moderation and declining user cost of capital.

Figure 11

User cost of capital, total economy
(percentage points)
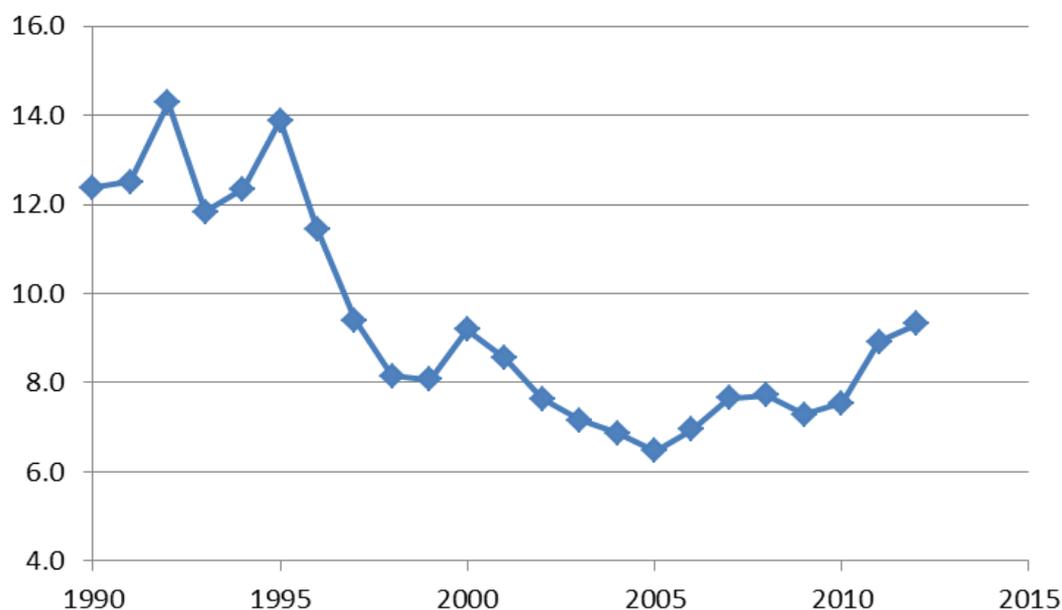
Source: Giordano and Zollino (2015a)

A caveat is required. The above discussions are based on the available data on capital stock. Capital stock is estimated using the perpetual inventory method and its level and dynamics are determined by investments, on the one hand, and depreciation and the expected life of capital goods on the other. The implicit assumption is that, once an investment is realized, it remains in the production process according to the life expectancy of the capital good. There is no room for movement of plants outside the domestic market or for premature scrapping of capital goods. In the very long run this may be less relevant; however, if exceptional events materialize in the short run, these simplifying assumptions could generate imprecise estimates of the effective capital stock used in the production process. For instance, if a significant share of the capital goods is prematurely scrapped or moved abroad due to an increase in off-shoring activity, this could lead to a reduction in the effective capital stock that is not recorded in the official statistics. Based on the restructuring and increased delocalization opportunities this is not implausible. For instance, Barca and Magnani (1989) show that at the end of 1970s the average life of capital goods was significantly reduced by the restructuring undertaken by Italian companies. If the intuition is correct, the estimated TFP dynamics and profit rates may be somewhat underestimated by the available statistics. Although the labour share and labour productivity are not affected by overestimation of the

capital stock dynamics, it clearly would affect the profit rate and the capital-labour and capital-output ratio and thus the interpretation of factor shares dynamics according to the available evidence.

One way to explore this issue is to compare the dynamics of factor shares and profit rates taken from the national accounts with the same dynamics taken from the CERVED firm accounts database, which covers all Italian corporate firms. Although this exercise would have some major limitations due to differences in coverage and in the definition of the variables,[13] by narrowing the analyses to manufacturing only, where coverage in terms of value added is more satisfactory, it would be possible to assess whether the differences between the two sources are compatible with a hypothesis of overestimation of capital stock dynamics in the national accounts.

Since it is not possible to adjust firms' accounts for self-employment income, for manufacturing, both with CERVED and national accounts data, I compute a measure of the gross profit share of value added as a complement to the paid-employment labour share. For the profit rate I compare the national accounts net profit rate as defined above with the ratio of net operating profits to fixed tangible and intangible assets in the CERVED data.

Figure 12 plots the dynamics of the gross profit share and net profit rate based on the national accounts (panel A) and CERVED (panel B) in the period 2002-2013. The CERVED net profit rate series shows a more favourable development before the onset of the crisis, a more marked drop between 2007 and 2009, and a slight recovery thereafter, which is not detectable in the national accounts. The gross profit share of value added dynamics in the two sources follows a more similar dynamics. Overall, the national accounts dynamics of the gross profit share of value added on the one side and net profit rate on the other reveal clear diverging trends, which can be ascribed to capital stock and capital depreciation dynamics. This is much less evident in the CERVED data, where only a level shift in the profit rate is apparent based on a decrease in the numerator. This is roughly consistent with an overestimation of capital stock and capital depreciation dynamics as measured in the national accounts. However, owing to the differences between these sources we can draw no firm conclusions on this issue. It is in any case useful to recall that the possible weaknesses in the available statistics and the difficulty involved in assessing capital and TFP dynamics over a

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[13] CERVED is a comprehensive data base of firm accounts. In contrast to the national accounts it does not cover sole-proprietorship enterprises and does not include any estimate of the underground economy, which is included in the national accounts.

relatively short period of time combine with the difficulty involved in identifying an accurate explanation for the distribution of income between labour and capital.

Figure 12

Gross profit share of value added and net profit rate in manufacturing
(Index 2002=100)
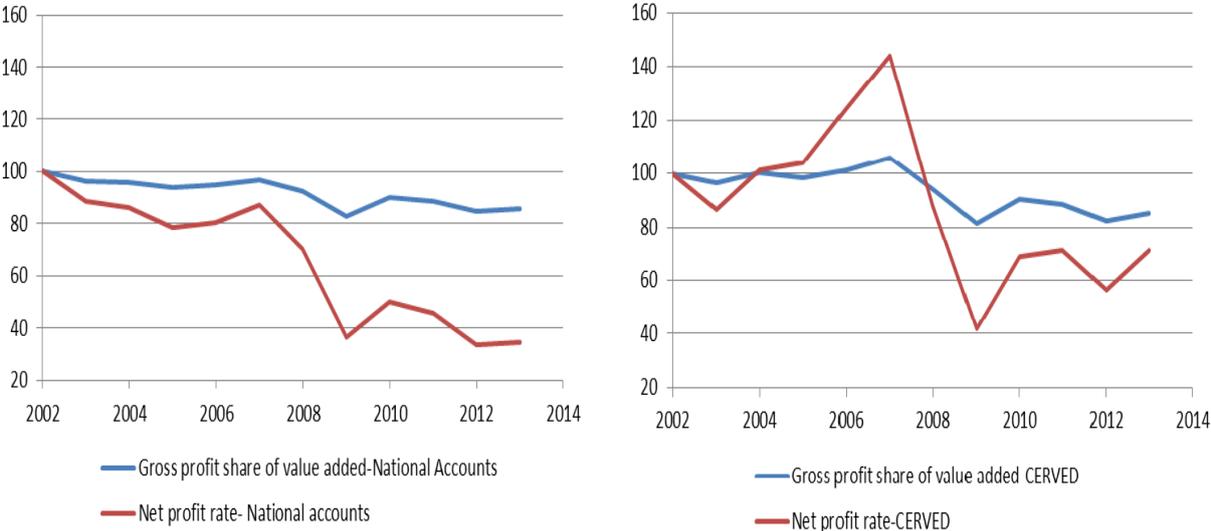
Source: Own calculations based on Istat National Accounts and CERVED balance-sheet data

Bearing in mind some uncertainty surrounding the capital stock estimation, the discussion in this section suggests the following. The idiosyncratic pattern of income distribution in RS since the mid-1990s can be largely explained by changes to regulation and privatizations. In manufacturing and in BnH recovery of the labour share which occurred at the beginning of 2000 cannot be explained completely by the relative dynamics of capital and the labour cost. In particular, the rise in the share of labour combined with a decline in profit rates and a rise in the capital-output ratio cannot be explained by the decline in the relative cost of labour. The opposite hypothesis of a relative decline in the cost of capital, although consistent with a rise in the capital-output ratio, does not explain the good performance of the labour market up to the onset of the financial crisis. Thus, the search for an explanation for the recent recovery in the labour share must include those factors able to shift the relationship between factor shares and the relative prices of labour and capital. As shown in Appendix A (equations A2-A4), a reduction in the mark-up over marginal costs can account for a rise in the labour share, a drop in the profit rate, and a rise in the labour input, for any given level of the capital-output ratio. In the next section I present some supporting evidence of the decline in Italian firms' market power in a context of growing international competition and discuss

how a market power shift could have affected measured productivity growth, possibly helping to explain the unprecedented slowdown in productivity.

3.3 Mark-ups, quality enhancement and productivity

A decline in mark-ups is conducive to a rise in the utilization of labour and to a rise in the labour share. Therefore, changes in mark-ups over the business cycle can contribute to the cyclical dynamics of factor shares, and a structural break in the market power of firms can explain a shift in factor shares. According to Rognlie (2015), for instance, changes in firms' market power are the most likely explanation of the dynamics of the share of labour in value added net of housing rents in the US.

Since the 1990s completion of the European single market, the impact of growing imports from China, and European monetary union have radically changed the competitive environment, with a possibly unfavourable asymmetric impact on Italian companies' competitiveness.[14] Alongside the direct exposure of industries to international competition, the influence of these changes is likely to have extended to the whole business sector, thereby spurring regulation reforms in protected sectors (retail trade is a possible example) and, owing to a loss of competitiveness, dampening domestic demand.

There is evidence that mark-ups over marginal costs have declined since the mid-1990s. Bassanetti et al. (2010, 2014) provide evidence of both a reduction in mark-ups and, with an opposite impact on factor shares, a reallocation of rents in favour of profits since the early 1990s. Recalling equation A4 in the Appendix, this can be conceptualized as a simultaneous reduction in mark-ups and in the bargaining power of workers in an efficient bargaining model, whose net impact on income distribution depends on their relative size. Consistent with observed diverging movements in the share of labour, these contributions show that rent reallocation has been much greater in RS. Moreover, Bugamelli et al. (2008) provide evidence of increased competitive pressure after monetary union. They show that the sectors relying more on devaluations and price competition were the ones whose efficiency improved the most after monetary union. Bugamelli et al. (2015) show that the competitive pressure exerted by Chinese products has contributed significantly to curbing price dynamics and the mark-ups

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[14] The specialization in traditional sectors and the small average firm size typical of the Italian economy are possible explanations for the adverse impact of deepening global market integration (Banca d'Italia, 2009).

of Italian firms.[15] Chinese imports have a direct impact on the scale of production and a range of profitability measures.

Possible indirect evidence of declining profit margins is provided by the divergence between the Bank of Italy's competitiveness index computed on the basis of unit labour costs and that computed on the basis of production prices (Figure 13). While the first shows a progressive loss of competitiveness in the Italian economy, especially compared with Germany, the second has remained fairly stable, following a pattern not so different from the German benchmark. Although the diverging trends of these two indicators can be explained in part by a declining weight of labour costs in total production costs (Brandolini et al., 2013; Giordano and Zollino, 2015b), this clearly points to a compression of profit margins, mostly explained by the disappointing performance of labour productivity (see De Nardis, 2015 for an analysis of the potential impact of German price competition on the Italian economy). Evidence on the dynamics of value added deflators goes in the same direction, having has grown systematically less than consumption prices since the mid-1990s in spite of the productivity slowdown (Figure 8).

Figure 13

Competitiveness indexes
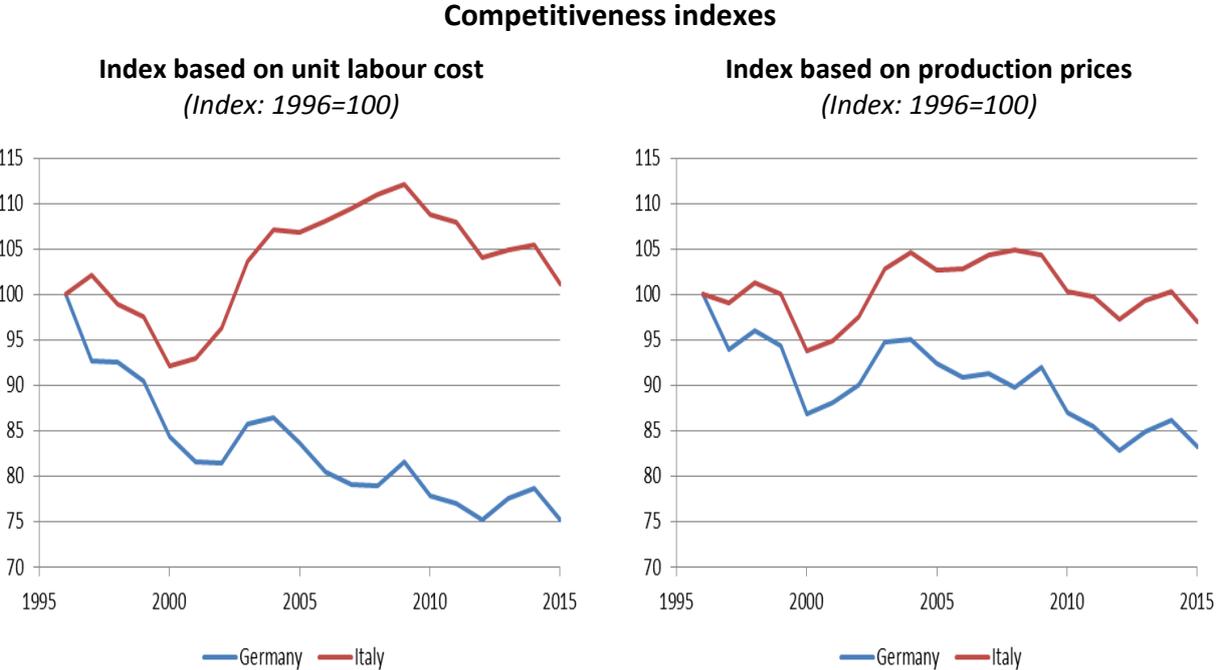
Source: Bank of Italy

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[15] Note that Chinese world market share increased from 1.6 per cent in 1990 to 11.4 per cent in 2012

Growing competitive pressures have materialized also within a process of severe firm selection, resulting in a marked reduction in manufacturing production in many sectors of specialization, even before the great recession. Recall that in 2007 production of textiles and shoes was already 50 per cent and 25 per cent respectively below 1995 levels; electronics and motor vehicles showed similar performance (Accetturo et al., 2013). Since early 2000 the number of manufacturing firms has declined, and at an accelerated rate during the great recession (De Nardis, 2015). This has been accompanied by a decline in Italy's export share and a rising current account imbalance which has only recently begun to improve.

These developments are consistent with a decline in mark-ups and probably contribute to explaining a rise in the labour share, especially in sectors such as manufacturing, which are more exposed to international competition.[16] Other explanations based on technological bias are not consistent with the opposite movements in the labour share observed in other economies. For instance, according to Lawrence (2015) the decline in the labour share in manufacturing explains a large part of the fall observed in the US labour share at the aggregate level since the beginning of the last decade.

Although a reduction in mark-ups due to growing competitive pressure can explain a decline in the rate of return on capital and a simultaneous rise in the labour share, it is somewhat paradoxical that these trends went hand in hand with a decline in TFP dynamics. In fact, there is evidence that before the onset of the crisis Italian firms were stepping up their innovation efforts in terms of both production organization and product quality enhancement. This is evident in the results of the Bank of Italy survey of Italian firms (Rossi, 2006; Bank of Italy, 2009; Accetturo et al., 2013). Other contributions have studied product upgrading on the quality ladder among Italian firms as a response to market pressures (De Nardis, 2015). However, in spite of firm selection, product quality improvements and firm reorganizations, we observe that labour and total factor productivity has slowed or even declined since the mid-1990s, diverging from the pattern in the other main EU economies and showing a clear break with respect to historical trends. This puzzle can be explained in part by considering the interaction between loss of competitiveness and how increased quality of products affects productivity measures. Although an in-depth discussion of this issue is beyond the scope of

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[16] Although many contributions assume international trade drives down the labour share, possibly due to downward pressure on wages, some analyses find the labour share is affected positively by market openness (Guerriero and Sen, 2012) .

the present paper, it is useful to recall how product quality improvements enter measured productivity and how this can be affected by changes in firms' market power.

Productivity improvements tend to be interpreted as efficiency gains in the production process (e.g. more shoes produced from the same amount of inputs), but a great part of productivity improvements is due to better quality products (same inputs, same number of shoes but of higher quality). However, improvements in the quality of products will only be reflected in the statistics if the better quality is priced more highly in the market (higher price for better quality) and if deflators are accurately estimated and take account of that part of the observed price increase which reflects quality enhancement and not price inflation.

With respect to achieving a rise in productivity, it is clearly not enough to improve the quality of production with respect to the past: quality improvements also need to be rewarded by buyers. However, this cannot be taken for granted, especially in a context of growing international competition. It is possible that better products can be sold only at the same or an even lower price owing to increased price competition or quality enhancements in competitors' products. It is unquestionable that Nokia's smartphones were a huge improvement on its traditional mobile phone; however, because of the success of Apple and Samsung models this did not result in their selling for a higher price and did not improve Nokia's capacity to remain in the mobile phone market. If a company moves upwards on the quality ladder and this is not mirrored by a price rise, the firm's value added at current prices will not change. The product price also does not change and value added at constant prices remains unchanged: the quality enhancement does not show up as a productivity increase. By contrast, if the innovation effort is rewarded by the market and a firm is able to sell the same quantities at a higher price, this entails a rise in the value added at current prices. If the statistics correctly register the price rise as a quality enhancement, production prices remain unchanged and value added in real terms increases. Assuming unchanged production inputs, this will result in an increase in labour productivity and TFP. This is exactly what happens with the overlap method, one of the most frequently used by statistical institutes to adjust price estimates for quality. The price of a new model is compared with the price of the model it is meant to substitute for. The price difference is interpreted as a change in quality which should not affect the price dynamics; the price series for the new model is linked to the time series for the old one, levelling off the observed jump in the price level (Istat, 2004).

Increased market competition and reduction in the market power of Italian firms might explain the apparent paradox of stagnating productivity in a more competitive environment.

Although, as expected, market forces spurred innovation, as shown by direct firm level evidence, this has not fully materialized into a higher value added per unit sold. This was probably particularly relevant for weaker firms. Bugamelli et al. (2015) show substantial firm level heterogeneity, with less productive firms in low skill sectors suffering the most from increasing international competition.

Figure 14

Labour productivity in manufacturing, National Accounts revisions*
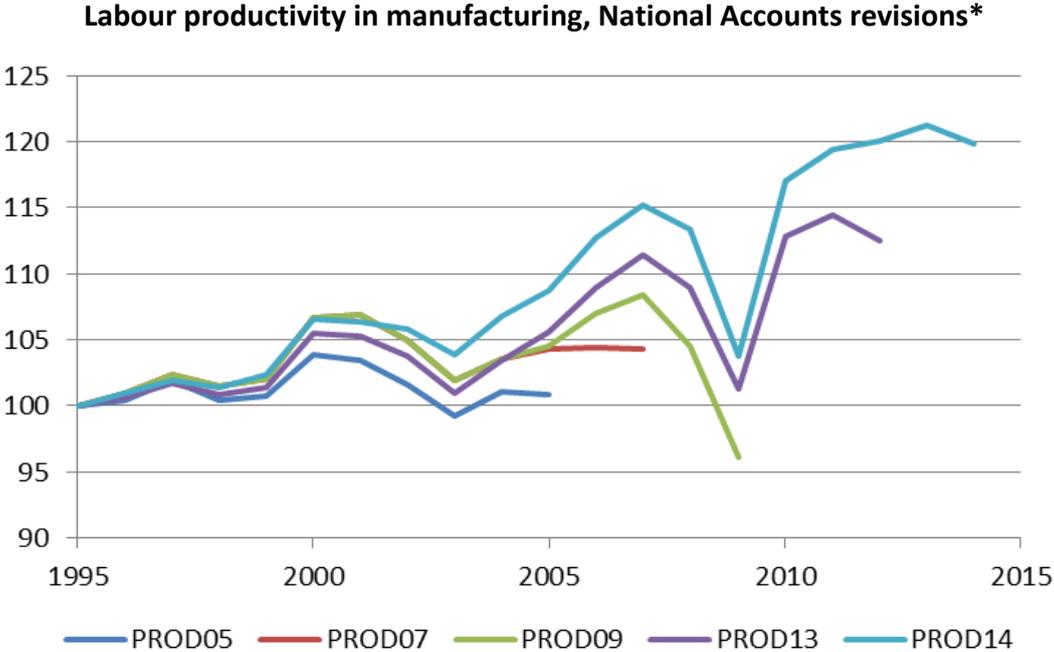
* The last two digits in names indicate the end period of different annual releases of Italian National Accounts
Source: Own calculations based on Istat National Accounts data

In addition, at least in the past, official statistics have clearly failed to keep up with on-going quality enhancement processes. This is evident in import and export price deflation (Bugamelli, 2007) which, in the first half of the last decade, in the absence of a direct measure of import and export prices, was based on quite crude indicators, resulting in a systematic upward bias in the deflator dynamics. The revisions to the national accounts since the mid-2000s show for manufacturing a gradual upward adjustment to labour productivity, mainly owing to downward revisions of the value added deflator (see Figures 14 and 15). For instance, the 2006-2007 productivity growth, now evident in the new series, was not detected by real-time estimates, although there was clear evidence from other sources of an on-going firm selection and product quality enhancement process which should have spurred productivity growth.

Figure 14

Revisions to manufacturing National Accounts data*

| Value added at current prices | Real value added |

| Value added deflator | Labour input |

A drop in profit margins is consistent with a declining profit rate and could help to explain why, in spite of moderate wage growth and a declining user cost of capital, the Italian economy was expanding so slowly even before the great recession. The decline in the user cost of capital helped Italian firms to withstand the decline in profit margins, but the fall in profits and easier and cheaper access to external financial sources brought about a rise in firms' debt burdens, thus aggravating the impact of the great recession (Accetturo et al., 2013).

In recent years the unprecedented fall in economic activity has made it difficult to disentangle more structural underlying developments from purely cyclical ones. As the labour share is clearly countercyclical, it is more than likely that a large part of the capital share drop observed since the onset of the crisis will be recovered. It should be recalled that wage dynamics in Italy is largely predetermined by collective agreements at the industry level for quite long periods of time. These agreements are based on inflation expectations which slowly adjust to actual price dynamics. This generates substantial inertia in wage dynamics, preventing the labour cost from adjusting rapidly to changes in inflation and labour market conditions. Labour cost inertia and labour hoarding certainly explains part of the most recent rise in the labour share.

However, as shown above, the labour share recovery and the drop in profit margins have been under way since the end of the 1990s, reflecting more structural underlying processes. I hypothesize that the reversal of the trend in the labour share which occurred in a context of slow economic growth, declining capital costs, wage moderation and TFP stagnation, could be related to profit margin compression, exacerbated by the difficulty for Italian firms of facing rising competition from both new comers and advanced economies.

4. Conclusions

The share of labour in gross domestic income increased in the first half of the 1970s, slowly declined between the mid-1970s and 2001, returning to the level of the 1960s, and has been rising since then. Between 1975 and 2001, the decline in the labour share was due in part to a recovery of the share of profits and in part to a steady increase in the weight of housing rents (both actual and imputed) in GDP, from 5 per cent in 1980 to 13 per cent in 2014. In 2014, housing rents accounted for 37 per cent of total capital income, up from about 20 per cent in the 1970s. These trends show the relevance of the housing sector in determining not only wealth distribution but also the functional distribution of domestic income. Net of housing rents, the profit share in business sector value added declined between 2000 and 2005, falling to historically low levels during the great recession. Since the second half of the 1990s, factor shares in regulated sectors (RS), on the one side, and manufacturing and the business sector net of housing (BnH), on the other, followed divergent trends. The labour share in RS fell in the late 1990s, possibly owing to privatization and deregulation, and then stabilized; in manufacturing and in BnH the decline in the labour share began to be reversed in the second half of the 1990s and has rapidly increased thereafter. With the exception of RS,

these trends were associated with an unprecedented and disappointing productivity performance and declining profit rates, both in sectors relatively sheltered from international competition and industries exposed to international trade.

Any convincing explanation of recent trends also needs to account for an accompanying rising labour share, an increasing the capital-output ratio, a good performance of the labour market until the start of the crisis, and sluggish labour and total factor productivity growth. I proposed an explanation for these recent developments as being due to a compression of mark-ups on marginal costs and the difficulty Italian firms have in being rewarded for their innovation efforts relating to product quality upgrading in the context of growing competitive pressure. This will involve a shift in the relation between factor shares and factor prices, a reduction in profit margins, a rise in the labour share and, possibly, a slowdown in both labour and total factor productivity, if innovation efforts are dissipated by growing competition.

If my interpretation is correct, or at least captures some of the underlying processes, the trend of reduction in profit margins reveals structural difficulties rooted in the innovativeness of the Italian economy in a context of growing international competition. Profit compression can be alleviated in the short run by a reduction in the tax burden on labour and capital or by further compressing of the already sluggish real wage dynamics. However, without an acceleration in productivity, understood here as the ability to improve both production processes and production quality (market rewarded) of goods and services supplied, Italy is unlikely to succeed in reversing the declining trend which was at the centre of Italian economic and political debate well before the great recession (see e.g. Boeri et al., 2005). Although the Italian economy is still suffering the consequences of the great recession, only in part because of the weaknesses of its production system, it will be necessary to address the long-term challenges by supporting the innovation efforts of Italian firms and strengthening the innovation capacity of the economic system, which is clearly lagging behind other advanced economies when measured using the standard indicators.

Appendix

Factor-share movements: some theoretical references

Movements in factor shares can be due to changes in the relative price of capital and labour, if the elasticity of substitution is different from 1, and to factors that modify the relationship between factor shares, capital intensity and production factor prices.[17] Bentolila and Saint-Paul (2003) show that, if firms operate along labour demand, there is a one-to-one relation between factor shares and the capital-output ratio (what Bentolila and Saint-Paul call the *share-capital schedule*) which, in turn, depends on the relative prices of production factors. If capital normally grows at the same rate as labour-augmenting technical progress, any change in the capital-output ratio will reflect changes in the relative price of labour in efficiency units, so that the capital-output ratio can be used to summarize the impact of factor prices on factor shares (the impact is nil with an elasticity of substitution equal to 1). Any movements in factor shares not explained by a change in the capital-output ratio cannot be due to production factor prices and must be due to factors which shift the *share-capital schedule* or steer the economy away from this schedule.

To illustrate this point let us assume first that real wages are set along the marginal revenue function. In this case, with imperfect competition, the marginal revenue is:

$$R_n \equiv p(y)\mu f_n = w,$$

where $\mu = (1-1/\eta)$ is the inverse of the mark-up and η is the demand elasticity. The wage share can be written as:

$$q_w = \frac{wn}{py} = \frac{wn}{R} = \frac{w}{R_n}\frac{n}{R}R_n = 1\frac{n}{py}\left[1-\frac{1}{\eta}\right]pf_n = \mu\varepsilon_{y,n} \tag{A1}$$

and $\varepsilon_{y,n}$ is the elasticity of output with respect to labour input. In the case of a CES production function:

$$y = \left(a(zn)^{\frac{\sigma-1}{\sigma}} + bk^{\frac{\sigma-1}{\sigma}}\right)^{\frac{\sigma}{\sigma-1}},$$

equation (A1) can be easily rewritten as a function of the capital-output ratio:

$$q_w = \mu\left[1 + \frac{b}{a}\left(\frac{zn}{k}\right)^{\frac{1-\sigma}{\sigma}}\right]^{-1} = \mu\frac{a(zn)^{\frac{\sigma-1}{\sigma}}}{a(zn)^{\frac{\sigma-1}{\sigma}}+bk^{\frac{\sigma-1}{\sigma}}} = \mu\left[1 - b\frac{k^{\frac{\sigma-1}{\sigma}}}{a(zn)^{\frac{\sigma-1}{\sigma}}+bk^{\frac{\sigma-1}{\sigma}}}\right] = \mu\left[1 - b\left(\frac{k}{y}\right)^{\frac{\sigma}{\sigma-1}}\right] \tag{A2}$$

As equation (A2) shows, the labour share can change in response to movements in the capital-output ratio driven by factor prices or due to changes in the efficiency of capital, *b*, or in the

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[17] This section is based largely on Torrini (2005b).

mark-up μ. Karabarbounis' and Neiman's (2014) explanation of the labour share decline, based on a reduction in the relative price of capital goods, which in turn implies a rise in capital intensity, can lead to a reduction in the labour share if and only if the elasticity of substitution is greater than 1 (against this hypothesis see Rowthorn, 1999 and Lawrence, 2015). International trade could affect the labour share by driving a reduction in the relative price of labour which, in turn, with an elasticity of substitution lower than 1 would imply a reduction in the labour share (Guscina, 2006). Therefore, the elasticity of substitution is a key element for interpreting movements in the functional distribution of income.

Biased technological change (the *b* parameter) or mark-up movements shift the relationship between the wage share and capital-output ratio and between the wage share and the relative prices of labour and capital. In the case of a Cobb-Douglas production function (elasticity of substitution equal to 1) the wage share can only move in response to technological changes (parameter α) or mark-up adjustments, as the elasticity of output with respect to labour is constant and does not depend on the capital output ratio:

$$y = k^{1-\alpha}(zn)^{\alpha} \Rightarrow \varepsilon_{y,n} = \alpha \text{ , and } q_w = \mu\alpha \tag{A3}$$

If wages are set in a bargaining process, equations (A2) and (A3) still hold if the bargaining takes place according to *a right to manage* or a *monopolist union* model, where employment is set along labour demand. In such a case, any change in the bargaining power of workers will drive movements in the wage share along the share-capital schedule; however, if firms and trade unions bargain over wages and employment, as in an efficient bargaining setting, maximizing:

$$\underset{w,n}{Max}\left(\beta \ln(U(w)n) + \ln(p(y)F(n,k) - wn)\right)$$

the wage share turns out to be:

$$q_w = \frac{\beta + \mu\varepsilon_{y,n}}{1 + \beta} , \tag{A4}$$

so that the share-capital schedule is displaced by changes in the bargaining power of workers, *β*, (Balducci and Staffolani, 2001, Blanchard and Giavazzi, 2003).

Factors such as these, non-neutral technical change, mark-up movements or bargaining power changes in an efficiency bargaining model, are all possible explanations for changes in the labour share not associated with a change in the capital-output ratio. Other factors that can shift the share-capital schedule are adjustment costs and movements in imported raw material relative prices if they differently affect the use of capital and labour (see Bentolila and Saint-Paul, 2003). This is one of the ways that international trade can affect the functional distribution of income (see Elsby et. al., 2013 for the impact of imported intermediate inputs on the US labour share).

This framework can be augmented to take account of the determinants of wage movements, explicitly modelling a wage-setting curve (as a reduced form of labour supply behaviour) and long-run adjustment to the stock of capital in response to a misalignment between the returns on capital and the opportunity cost of investments. Blanchard (1997) assumes that employment is set along the short-run labour demand curve at the crossing point with the wage-setting curve (upward sloping in the wage-labour space). These two schedules are drawn in terms of efficiency units of labour, as implied by a balanced growth pattern; namely,

both capital and wages are assumed to grow normally at the same rate as the efficiency of labour (Figure A1).[18] This short-run wage-employment equilibrium, however, is compatible with the long-run equilibrium only if the return on capital is equal to the exogenously given opportunity cost of capital (Cotis and Rignols, 1998). For a given mark-up there is only one wage level along the factor price frontier which allows such equality, so that in the long-run labour demand is horizontal and is determined by the opportunity cost of capital.

$$\frac{R(k,n,z,\mu) - wn}{p_k k} = r \tag{A5}$$

Blanchard envisages an adjustment process driven by movements in the capital stock. If the returns on capital are too low (high) and wages are too high (low), given the opportunity cost of capital firms will disinvest (invest) so that the short-run labour demand will shift to the left (right) and the wage will fall (rise) along the wage-setting curve until the returns on capital are equal to the opportunity cost. Thus, any misalignment of the wage level from its long-run equilibrium due to a shift in the wage-setting curve is doomed to be undone and to affect only the employment level. In the case of a shift to the left in the wage-setting curve, the economy will move from equilibrium A to the short-run equilibrium B, to the new long-run equilibrium C, where the wage returns to its long-run equilibrium level and the employment level is lower than in the previous equilibrium (Figure A1). Along the adjustment process the wage share will increase if the elasticity of substitution is less than 1, but will return slowly to its original level once wages have regained the long-run equilibrium. At the same time capital intensity first increases and then returns to the equilibrium level.

Figure A1

Short-run and long-run equilibrium in the labour market

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The short-run movements in wages and factor shares may be due to shifts in both labour demand and the wage-setting curve. However, only factors that modify the price frontier will permanently change the wage level and the labour share. An increase in the opportunity cost of capital will reduce equilibrium wages and employment and, if the long-run elasticity of substitution is less than 1, then the wage share will also be lower. If investors face a transaction cost whenever they move their capital to foreign countries, or if these movements are explicitly contrasted, the prevailing rate of return on capital can be lower than the average global rate of return. This implies that a reduction in these transaction costs in countries where the rate of return is comparatively low may trigger a rise in the rate of return demanded by investors, with an impact on factor shares equivalent to a rise in the global rate of return on capital. This hypothesis is explicitly analysed in Harrison (2002).

In a multi-sector context, with a single wage rate set at the aggregate level, any idiosyncratic shock at the industry level (say, a shock on labour efficiency or on relative prices, mark-ups and any kind of sector-specific institutional change affecting its returns on capital) will drive the accumulation or the reduction of its capital stock according to the sign of the shock. Thus, this framework accounts for industry-specific movements in the distribution of income across factors. All these theoretical results show the complexity of interpreting movements determined by both relative price and share-capital schedule shifts. Also, they provide a picture of possible long-lasting adjustment processes underlying the observed trends. In addition, factor shares also show marked changes along the business cycle, with quite clear countercyclical behaviour of the labour share, which adds to the difficulty of interpreting the overall changes in the functional distribution of income.[19]

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[19] The cyclical behaviour of labour shares has attracted a lot of attention due to its role in New-Keynesian business cycle models as an indicator of wage pressure (Muck et. al., 2015).

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