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La part du travail dans les économies développées

Résumé

Nous remettons en question le consensus général d'une diminution tendancielle de la part du travail dans la valeur ajoutée. Nous proposons un modèle théorique simple soulignant les principaux facteurs qui influencent l'évolution de la part du travail et documentons trois problématiques de la littérature actuelle qui peuvent "biaiser" le diagnostic quant aux évolutions de la part du travail: (i) le point de départ de l'analyse empirique, (ii) la prise en compte des travailleurs indépendants et (iii) la prise en compte des revenus tirés de l'immobilier résidentiel. Concernant ce dernier, il nous semble approprié d'exclure le secteur immobilier des analyses du partage de la valeur ajoutée entre la rémunération du travail et les profits. Les explications usuelles des évolutions tendancielles de la part du travail (technologie, mondialisation, pouvoirs de marché, syndicalisation...) n'ont en effet rien à voir avec les revenus de l'immobilier résidentiel.

Une analyse empirique est menée sur dix pays développés : Belgique, Danemark, France, Allemagne, Italie, Pays-Bas, Espagne, Suède, Royaume-Uni et États-Unis. Lorsque les trois biais précédents sont mis de côté, l'évolution de la part du travail ne fait pas apparaître de tendance particulière à la baisse ou à la hausse dans le secteur marchand. Lorsque les services immobiliers sont inclus dans la valeur ajoutée, il y a une évolution clairement à la baisse dans sept des pays étudiés, à la hausse dans deux d'entre eux et une quasi-stabilité dans un seul. Lorsque les services immobiliers sont exclus de la valeur ajoutée, la tendance à la baisse de la part du travail demeure dans cinq pays, la tendance à la hausse apparaît dans trois pays et la quasi-stabilité dans deux pays.

Mots-clés : part du travail, coût du travail, partage de la valeur ajoutée

Labor Share in Some Advanced Countries

Abstract

We challenge the accepted wisdom of a global secular decline in the labor share. A simple theoretical model is proposed to raise the main factors of labor share changes. We document three issues in the existing literature which can bias the diagnosis on labor share evolutions: (i) starting periods for the empirical analysis; (ii) accounting for self-employment; and (iii) accounting for residential real estate income. Concerning the last one, it seems to us appropriate to exclude real estate income to analyse how value added is shared between labor compensation and profits. Usual explanations of labor share trends (technology, trade, market power, unionization...) have nothing to do with real estate income.

An empirical analysis is carried out on ten developed countries: Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden, the United Kingdom and the United States. When the three issues and potential biases are set aside, the orientation of the labor share in the business sector appears not to be a general downward or upward one. With real estate services included in the value added, it is a clear downward one in seven countries, a clear upward one in two countries and a quasi-stability in the last country. When real estate services are removed from the value added, it becomes a clear downward one in five countries, a clear upward one in three countries and a quasi-stability in two countries.

Keywords: labor share, labor cost, value added sharing

Classification JEL : D33, D24, J33

1. Introduction

The evolution of the labor share plays a central role in economics. Following Kaldor (1957), economists have viewed the relative long-term stability of the labor share as an important stylized fact. In recent years, however, the stability of the labor share has been challenged. The common wisdom is that there has been a global and gradual decline in the labor share over the past 30 or 40 years. For instance, Grossman *et al.* (2017) motivate their recent paper by writing that “*unlike several of the other explanations for the decline in the labor share, ours does not rely on considerations that are specific to the United States. The shift in aggregate factor shares has been seen in the data for many countries, especially among the advanced countries.*” The IMF (2017) and OECD (2018) also mention that the labor share has been on a downward trend in a large majority of developed countries since the early 1990s.

Why would the labor share decline? Karabarbounis and Neiman (2014) contend that the decline in the labor share is global and mainly driven by a decline in the relative price of investment goods, resulting in substitution between labor and capital. For Acemoglu and Restrepo (2018) also, technological factors could contribute to a decrease of the labor share, as “*automation increases output per worker more than wages and reduce the share of labor in national income*”.

Elsby *et al.* (2013) emphasize offshoring of the labor-intensive component of the United States (US) supply chain as a leading potential explanation of the decline in the US labor share over the past 25 years. The threat of offshoring would also have contributed to a decline in union density and to labor’s bargaining power.

Autor *et al.* (2017) argue that the labor share decline could be the consequence of the growth of firms with low labor share technologies, especially in the digital economy. These firms might have low marginal costs and might gain market shares if consumer demand becomes more elastic. For Aghion *et al.* (2019) the growth of large firms with a high productivity and a low labor share is related to a decrease in the cost of running a higher number of product lines. This decrease in costs comes from the use of information and communication technologies (ICT).

Our main point is to challenge the accepted wisdom of a general decline in the labor share. We show that there has been no systematic trend in the labor shares in ten OECD countries and we emphasize three important biases that have plagued the existing literature: (i) starting periods for the empirical analysis; (ii) accounting for self-employment; and (iii) accounting for residential real estate income.

Let us start with the first bias: the starting points for the time series. Before the literature on the surprising *decline* in the labor share, there was a literature on the surprising *increase* in the labor share. The labor share increased during the stagflation of the 1970s, especially in Europe. As Blanchard (1998) notes, there was an increase in both unemployment and the labor share in the 1970s. This is commonly interpreted as a “wage push”, as wages failed to adjust to the slowdown in underlying productivity growth. Following the oil shocks of the 1970s, countries that were net importers of oil and gas experienced an adverse change in their terms of trade (that is, an increase in the ratio between consumption prices and value added prices). Several factors explained the size and the duration of the “wage push”: the reliance on oil and gas importations, the dual indexation of wages on consumption price and of prices on labor costs, and the impact of unemployment on wage dynamics (the Phillips curve). Unemployment continued to increase during the 1980s, pushing wages down and leading to a sharp decline in the labor share. The labor share mostly reverted to its long run value, but the transition involved some overshooting as firms adopted labor saving technologies. Thus, the labor share in many

European countries was above its steady state value in the late 1970s, and it was bound to revert to its long run average. Consequently, any empirical analysis that takes the period 1973-1983 as a starting point is likely to find a spurious decrease in the labor share. Another aspect linked to this first bias is that labor share analyses have to take into account that the position in the business cycle at the beginning and at the end of the sample might be different, which could affect labor share evolution¹.

The two other biases have already been studied in the literature. For instance, Elsby *et al.* (2013) show that the imputation of the labor income for the self-employed explains about 1/3 of the measured decline in the labor share in the US. Rognlie (2015) or Gutiérrez (2017) explain the impact of the real estate sector in detail.

For France and the US, we are able to construct measures of the labor share for the entire post-war period. Taking into account the three biases mentioned above, we do not observe any structural decrease of the labor share in France; if anything, we find a slight increase over the last two decades. In the US, we observe a decrease in the labor share, but it is not a secular decline: the labor share shows no trend until 2000 but declines sharply between 2000 and 2015.

We then extend our analysis to eight additional developed and European countries: Belgium, Denmark, Germany, Italy, Netherlands, Spain, Sweden, and the United Kingdom. Here, the analysis can only start in the 1990s. We find a decline in the labor share in four countries, an increase in five countries and a quasi-stability in one country - so no global decline in the labor share. These results are consistent with those of Rognlie (2015) on the G7 economies and of Gutiérrez (2017). They are also largely consistent with OECD (2018) when we consider the same set of countries and total economy, but not directly comparable for restricted scopes of the business sector².

The paper is organized as follows. Section 2 describes a simple theoretical model to raise the main factors of labor share changes and to frame the discussion of the three biases. Section 3 provides the empirical analysis for ten developed countries, first over a long period of seven decades for France and the US, and after for the ten countries over a shorter period of two decades. Section 4 concludes.

¹ For example, all things being equal, labor share is likely to be higher at the bottom of the business cycle.

² Specifically, when they exclude real estate income and also other activities as agriculture, mining and quarrying, education, health and social services. The share in the business sector of these excluded activities changes over time and differ between countries. For this reason, OECD (2018) results are not directly comparable to ours.

2. A Simple Theoretical Framework

2.1. Labor Share in Production

Consider a standard CES production function with capital K and labor N :

$$Y = [(1 - \alpha)^{\frac{1}{\eta}} N^{\frac{\eta-1}{\eta}} + \alpha^{\frac{1}{\eta}} K^{\frac{\eta-1}{\eta}}]^{\frac{\eta}{\eta-1}}$$

where Y is the production, η is the substitution elasticity between capital and labor, and α is a parameter of distribution.

We assume that firms are price takers in factor markets, i.e., they take the wage W and the rental rate R as given when choosing how much capital and labor to hire. On the other hand, we assume that firms have market power when they sell their output, so that they charge a markup μ of price over marginal cost. The marginal cost of production is:

$$\chi = [(1 - \alpha)W^{1-\eta} + \alpha R^{1-\eta}]^{\frac{1}{1-\eta}}$$

Firms set up the markup so that:

$$P = \mu\chi$$

This is a standard assumption in macroeconomic models, but we note that there is increasing evidence of monopsony power in the U.S. labor markets (Azar *et al.*, 2017; Benmelech *et al.*, 2018). Two-sided platforms (e.g. Amazon) can also have monopsony power over merchants.

Cost minimization implies that the capital labor ratio satisfies:

$$\frac{K}{N} = \frac{\alpha}{1 - \alpha} \left(\frac{W}{R}\right)^\eta$$

and profit maximization implies:

$$\mu \frac{W}{P} = [(1 - \alpha) \frac{Y}{N}]^{\frac{1}{\eta}}$$

and similarly $\mu \frac{R}{P} = (\alpha \frac{Y}{K})^{\frac{1}{\eta}}$. The labor share is defined as:

$$\begin{aligned} \Lambda &= \frac{WN}{PY} \\ &= \frac{(1 - \alpha)^{\frac{1}{\eta}}}{\mu} \left(\frac{Y}{N}\right)^{\frac{1-\eta}{\eta}} \end{aligned}$$

This shows how the labor share depends on the output/labor ratio. Using the production function, we can express this ratio as a function of the capital/labor ratio:

$$\frac{Y}{N} = [(1 - \alpha)^{\frac{1}{\eta}} + \alpha^{\frac{1}{\eta}} \left(\frac{K}{N}\right)^{\frac{\eta-1}{\eta}}]^{\frac{\eta}{\eta-1}}$$

Finally, we can use the cost minimization condition to obtain:

$$\begin{aligned} \left(\frac{Y}{N}\right)^{\frac{1-\eta}{\eta}} &= \frac{1}{(1-\alpha)^{\frac{1}{\eta}} + \alpha^{\frac{1}{\eta}} \left(\frac{K}{N}\right)^{\frac{\eta-1}{\eta}}} \\ &= \frac{1}{(1-\alpha)^{\frac{1}{\eta}}} \frac{1}{1 + \frac{\alpha}{1-\alpha} \left(\frac{W}{R}\right)^{\eta-1}} \end{aligned}$$

We therefore have the following expression for the labor share:

$$\Lambda = \frac{1}{\mu} \frac{1}{1 + \frac{\alpha}{1-\alpha} \left(\frac{W}{R}\right)^{\eta-1}} \quad (1)$$

Equation (1) allows us to summarize many theories proposed by the literature to explain the evolution of the labor share. On the one hand, all things being equal, the labor share can decline because of higher markups ($\mu \nearrow$) or because of capital bias technology ($\alpha \nearrow$). On the other hand, when $\eta \neq 1$, changes in the labor share can also result from changes in factor relative prices³. In this case, the sense of the labor share variation depends on whether η is above or below 1: when $\eta > 1$, a decrease in the relative cost of capital implies a decrease in the labor share (substitution effect larger than revenue effect); when $\eta < 1$, a decrease in the relative cost of capital implies an increase in the labor share (revenue effect larger than substitution effect).

Karabarbounis and Neiman (2014) assume that $\eta > 1$ and argue that R has decreased. In that case the increase in W/R implies a large demand for K relative to N and a drop in the labor share. However, there are several issues with this explanation, the main one being the value of η . Indeed, the empirical estimates of the substitution elasticity between labor and capital usually find values in the range of 0.4-0.8 (see for instance the literature survey and original estimates on plant level US data from Oberfield and Raval, 2014, or Raval, 2019, or the recent meta-analysis from Knoblauch *et al.*, 2019, using estimates from 77 studies on the US economy). The assumption $\eta > 1$ does not get much support in the literature.

This absence of support seems confirmed by evolution of the capital coefficient (that is, the ratio of capital stock to GDP) over the period (Appendix, figure A). We observe that the capital coefficient in value is quite stable over the long 1949-2017 period, despite the decline of the equipment relative price, which suggest a substitution elasticity equal to one. We could even consider a light decline of this capital coefficient in value, when the equipment relative price is much declining, which would suggest a substitution elasticity below one.

Another strand of literature argues that η is small at least in the short to medium run. A wage push could then increase the labor share at this time horizon. Formally, W/R goes up, firms cannot substitute much capital, and so the labor share increases. This can help explain the dynamics of the labor share in Europe in the 1970s (Blanchard, 1998).

³ The case $\eta = 1$ corresponds to the Cobb Douglas function production. In that specific case, the labor share does not depend on factor relative prices but only on markup and technology: $\Lambda = \frac{1-\alpha}{\mu}$.

In the long run, technology can also change. A prime example is automation. For Acemoglu and Restrepo (2018), automation increases productivity more than real wages, which reduces the labor share. Martinez (2018) builds a model where capital and labor are complementary ($\eta < 1$) and the aggregate production function resembles a CES, but with endogenous weights influenced by automation. Opening trade to low wage countries can also lower the equilibrium wage (at least for low skilled workers) and with $\eta < 1$ can lead to a lower labor share.

2.2. Three biases

We emphasize three issues in empirical estimates of trends in labor shares.

2.2.1. Initial period

Most international studies of labor share focus on trends, not on levels. Comparison of levels across countries is complicated because of differences in industrial composition and in the statistical methodologies. In fact, we discuss two such issues below. As a result, most studies shy away from level comparisons and focus on trends.

The problem with trends is that they depend on the choice of the initial period. If shocks are small, this is not an issue. But when shocks are large, this can create severe biases.

Equation (1) assumes away adjustment costs and transition dynamics. To be more precise, consider a model with nominal rigidities. Following Blanchard (1998), let us define a “wage push” as wage inflation in excess of underlying labor productivity growth. When prices are rigid in the short term, a wage push leads to a lower markup μ . This increases the labor share. In addition, if η is less than one – the empirically relevant case as we have discussed – an increase in W/R also increases the labor share.

These effects can be large, but they are temporary. If one takes the period after the wage push as the starting point, then simple mean reversion will create the illusion of a decline in the labor share, while in fact the labor share is simply returning progressively to its initial steady state. We show below that this effect is large in the case of France and Germany. Any labor share using the period 1975-1985 as a starting point will find a spurious decline in the labor share.

2.2.2. Self-employment

The second issue is self-employment. The labor share of employees is easier to estimate than that of self-employed individuals (Elsby *et al.*, 2013). Workers who are on the payroll of employers earn wages as well as employer contributions to pension and insurance funds. Their compensation is usually well measured.

For self-employed workers, on the other hand, we do not have a direct measure of their wage, and it is usually difficult to distinguish labor and capital income. The usual way to deal with the issue is to assume that self-employed workers earn the same wage as employees in their industry (see Box). We follow the literature, but we note that the adjustment can be biased since it assumes that self-employed workers are identical to other workers. This issue matters especially when the share of self-employment varies over time or across countries.

2.2.3. Real estate

The last issue is capital income from real estate. In the model above, K represents capital used by firms to produce goods and services. It does not include residential real estate. In national accounts, however, income from residential real estate is counted as capital income.

The proper way to account for real estate income depends on the question we want to answer. Real estate capital income is indeed a form of capital income, and it has important redistributive effects within and across generations. If we are interested in the dynamics of wealth inequality, we must clearly include real estate capital.

On the other hand, if we seek to understand the impact of technology, trade or market power on the labor share evolution, we should carefully remove residential capital income from our measures. The theories discussed above emphasize the evolution of productive capital and predict how value added is shared between labor compensation and profits. To assess the impact of automation, artificial intelligence, trade, unionization, oligopoly rents, or monopsony power, we must use a measure of capital income that does not include real estate income.

There are in fact two levels of bias. First, at the country level, residential rentals are part of value added, with rentals imputed for owner occupied dwellings. This can clearly create a bias when the value added of real estate over GDP changes. A solution is to compute the labor share excluding the real estate sector. We make this correction but however, we do not apply another one. Indeed, in many countries, business firms own real estate and earn rental income. This rental income is not part of payment to productive capital and creates a bias in the measurement of the labor share even at the sector/industry level.

We will empirically confirm below that labor share developments differ depending on whether we remove real estate services from the value added.

Data sources

We chose the data sources that yield the longest time series. For France and the US, we use data from the National Statistical Institutes -- INSEE and the BEA respectively – and we can go back as far 1949.

For the eight other countries, we use the STAN database from the OECD, which provides data from different dates but at least from 1995 for all countries. The data come primarily from annual national accounts and are available via Eurostat for European countries. The OECD fills in some missing information, especially in early years and for detailed levels, so it may not reflect exactly national accounts publications.

Labor share calculation methodology

We compute the labor share as the ratio of the compensation of employees (D1)⁴ over value added at factor costs, which is gross added value (B1G) minus taxes (D29) and subvention (D39) to production. Compensation of employees is then corrected to take into account self-employment and other corrections are also implemented depending on the sectors we consider (total economy, business sector, business sector excluding real estate activities). In the case of France, the national accounts allow us to separate taxes on wages and workforce from other taxes on production, and then we consider taxes on wages as part of labor costs. In 2017, taxes on wages make for a little less than 3% of the total labor cost.

4 Classification from the ESA 2010.

Self-employment adjustment

As the self-employed worker income corresponds both to labor compensation and capita income, measuring the compensation of self-employed individuals is a common problem in calculating the labor share. The national accounts provide a breakdown of value added at factor costs into employees' compensation (D1), gross operating surplus (B2g), and mixed income (B3g) at various levels of aggregation (industries, sectors, and the entire economy). Mixed income is the income of self-employed workers, but to separate in it compensation for labor services from payment to capital needs some conventional choices.

The usual way to separate the labor and capital shares in self-employed mixed income is to assume that, in the same industry, self-employed workers earn the same gross hourly wages as employees. These adjustment matter especially when the structure of employment between paid and independent workers changes. For instance, in France, the number of self-employed workers has markedly decreased since the Second World War, in particular because of the decline in the employment share of farming: the share of self-employed workers in the total employment decreased from 39% in 1949 to 13% in 2017.

Here, we compute the average hourly gross wage for employee at the detailed industry level, and we apply it to self-employed workers. We use seventeen various industries for France, seventeen for the US in the later years (after 1997) and twelve for the earlier ones (before 1997), and thirty-four for all the other countries. This difference in the level of detail is caused by the availability of data. In France and the US, we are able to go farther back in time but we had to fall back on a less detailed level than for the countries where the analysis begins later. For the US, the nomenclature changes over the considered period, going from the 1972 Standard Industrial Classification (SIC) systems to the 1987 one in 1987, and then to North American Industry Classification System (NAICS) in 1997. In consequence, the labor share curve is discontinuous in 1997 and 1987, without restatement. For these two years, we computed the labor share using two sets of data, and then we fitted the trend from the earlier year to the value given by the earlier set of data. These adjustments go from -2.7% to +3.9% of the value added at factor costs.

Branches of activities and choice of field

The labor share has been calculated on different fields: first, on the total economy (all branches of activities), second on the business sector⁵, then on business sector minus real estate services. These indicators are corrected as described above for self-employed workers. For France and the US, we have also calculated to other labor share indicators: the first on the business sector without any self-employment worker correction, to show the impact of such correction, and also on non-financial companies (NFC). The NFC scope does not include self-employed workers in France and the United States, which is not always the case for other countries (see Pionnier and Guidetti, 2015).

Are considered as non-business branches the following ones: public administration and defense services, compulsory social security services (Section O)⁶; education services (Section P); human health and social work services (Section Q); arts, entertainment and recreation services (Section R); other services (Section S) and private households as employers (Section T). This definition has been applied to all countries rather than considering non-business sector on a case-by-case basis, even though the scope of non-business activities may differ across countries. For example, human health services are evaluated⁷ as a non-business branch in France but as a business branch in the USA. Applying same definition for non-business sector provides a coherent field for all sectors.

Definition of imputed rentals

5 We consider here and in the whole paper "business sector" as equivalent to "market sector".

6 Classification NACE Rev.2

7 Market and non-business branch is a distinction based on the evaluation method in national account. A service or product is considered as non-market if it is free or sold at a non-economic significant price (less than 50% of the cost). In this case, the value of the production is estimated as the sum of production costs.

In real estate services, a significant part of reported production comes from imputed rentals: in France, in 2015, rentals make up for 97% of the total added value of real estate services, with 61% consisting in imputed rentals alone. These rentals are applied to owner-occupied dwellings. National accounts consider renting an accommodation to someone as producing a renting service. For owners occupying their own dwelling the convention is to assume that they pay a (virtual) rent to themselves.

Without this correction, it would not be relevant to compare GDP across countries with different levels of home ownership. On the other hand, the correction creates measurement issues.

3. Labor share developments in ten OECD countries

In this part, we look at the labor share trends in ten developed OECD countries for which available data allows us to analyze the biases mentioned in the previous section. These ten countries are Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden, the United Kingdom and the United States. We also look at the labor share trends in a reconstituted Euro Area comprising Germany, France, Italy, Spain, the Netherlands and Belgium.⁸ For France and the United States, data used to build labor share indicators are directly available from their National Statistical Institute over a very long period, more precisely at least from the end of the 1940s. For this reason, we look first at labor share evolution over a long period in these two countries, the following section being devoted to the evolution of the labor share over a shorter period (since the mid-1990s) in the eight other developed OECD countries. The calculation of the labor share indicators is described in the Box.

3.1. Long term focus on France and the United States

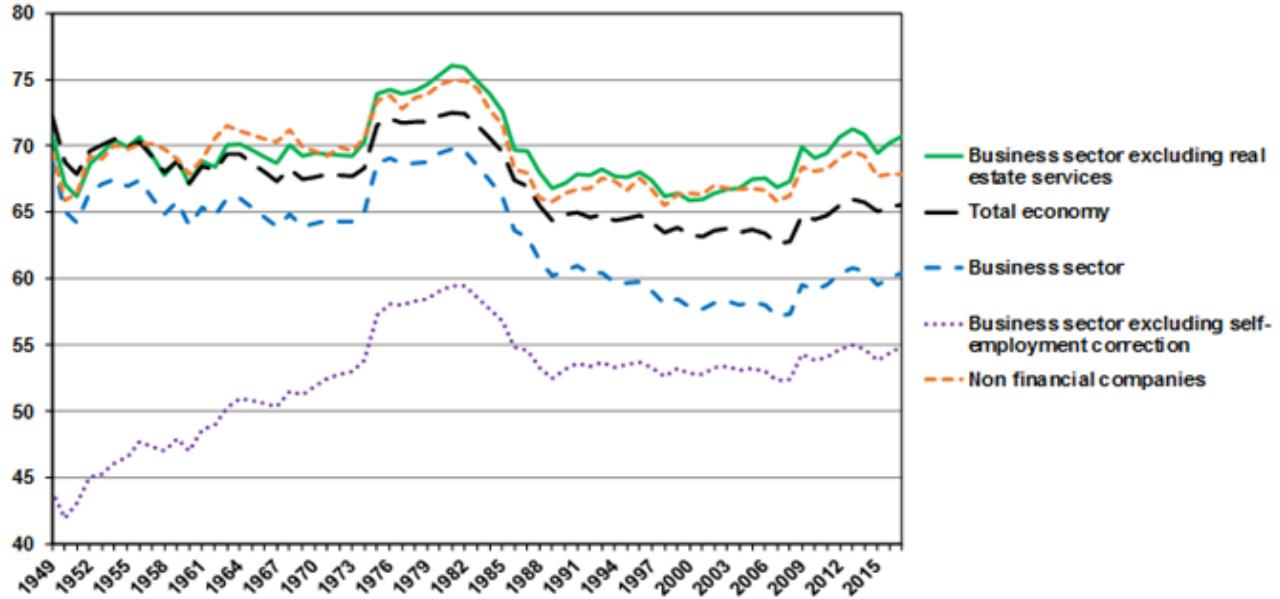
Five labor share indexes are built and compared for the two countries over the whole period 1949-2017. The first indicator is built on the whole economy. Its main advantage is to be exhaustive. But its disadvantage is to include the non-market activities, which mainly correspond to the public administration, social and health services, art services (see Box). These activities represent about a quarter of the total value added in the current period in the two countries, and their calculation, dictated by strict international accounting conventions, is very specific and relies mainly on a cost approach. The second indicator is built on the business sector and avoids this difficulty. The third indicator is also built on the business sector, but without any correction concerning self-employed workers in contrast to the two previous indicators and the next one, with the aim of illustrating how large this correction is. For the reasons indicated in the previous section, the fourth indicator is built on the business sector excluding real estate activities corresponding to 16% of the business sector value added at the end of the period in the two countries. Because the indicator is built to take into account the second and third bias, this is the one that we consider the most trustworthy. Finally, the last indicator is built on the non-financial corporation (NFC) scope, excluding self-employment⁹ and financial corporations for which the value added evaluation is fragile and strongly influenced by international accounting conventions. This NFC scope has the greatest precision and is the least influenced by accounting conventions, but only covers about half of the GDP at the end of the period in the two countries.

⁸ In 2017, these six countries represented 86% of the GDP of the whole Euro Area.

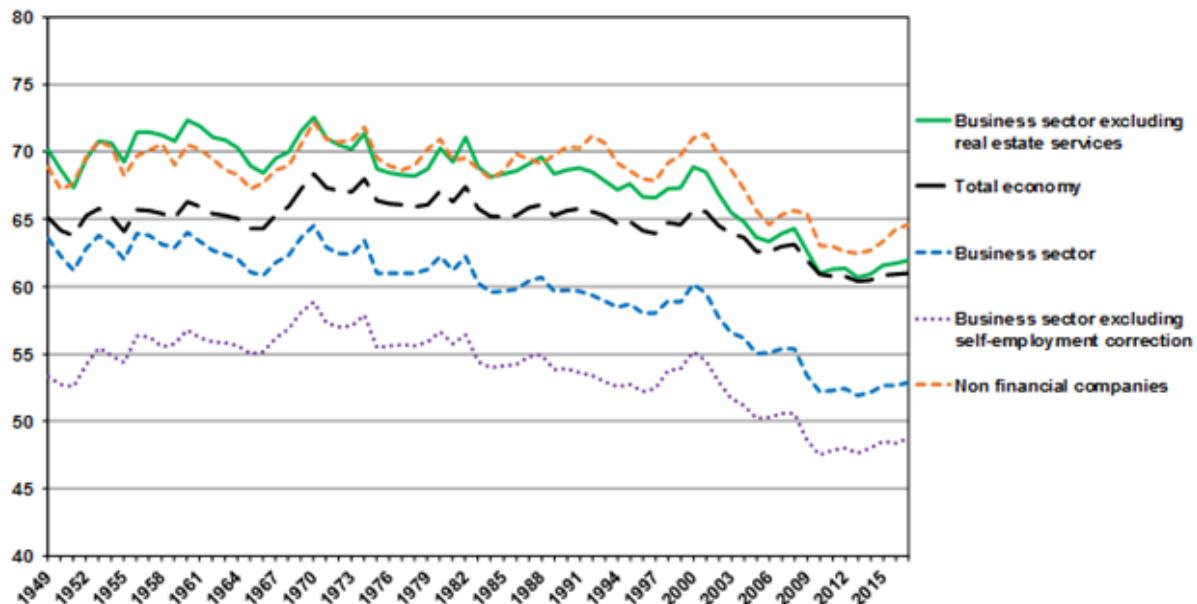
⁹ The fact that the NFC scope does not include self-employed workers is specific to a few countries, such as France and the United States (see Pionnier and Guidetti, 2015). For this reason, we do not calculate and analyse its evolution for other developed countries in the next section.

Figure 1
Labor share – In % of the value added

A – France



B – United States



Sources: Author's calculation from national accounts.

3.1.1. The labor share in France

Figure 1-A presents the five labor share indicators for France. The case of France illustrates perfectly the three biases mentioned in the previous section.¹⁰

¹⁰ Of these three possible biases, the two first were recently analyzed by Cette and Ouvrard (2018).

Concerning the first bias, we see that the diagnosis of the labor share trend depends largely on the initial period. Over the last decades, the labor share in the total economy or in the business sector exhibits no clear trend from the end of the 1980s, and on the contrary exhibits a clear decrease from the end of the 1970s or the early 1980s. The two oil shocks of the 1970s provoked a wage push and, as a consequence of price inertia, a dramatic increase of the labor share. From the mid-1980s, the strategy of “competitive disinflation” (*désinflation compétitive*) implemented by the French government managed to slow down the wages and to help a decrease in the labor share. This strategy was successful and from the end of the 1980s the labor share seemed to have reached a new equilibrium which lasted two decades, until the financial crisis emerged in 2008. The French story suggests that to evaluate the trend of the labor share, the initial period must be chosen before or after (but not during) a labor share temporarily changed by specific large shocks as, for instance, the two oil shocks of the 1970s and the following ten year adjustment.

Concerning the second bias, it appears that self-employment largely impacts the level and the trend of the labor share in France. The non-corrected labor share indicator is lower and grows more rapidly than the corrected one. The growth gap comes from the fact that the share of self-employed in the total employment decreased continuously from about 39% at the end of the 1940s to about 10% in the early 2000s (see Figure 3). Then, it was quite stable until the end of the 2000s to increase slightly by about 1 percentage point thereafter, as a result of the creation of a specific status of auto-self-employed (“auto-entrepreneur”) in 2008. From these changes in the share of self-employed in total employment, the gap between the corrected and the non-corrected labor share indicators decreased from about 25 percentage points at the end of the 1940s to about 5 percentage points in the early 2000s to remain relatively stable thereafter. It seems then necessary to consider corrected indicators to analyze the trends of the labor share.

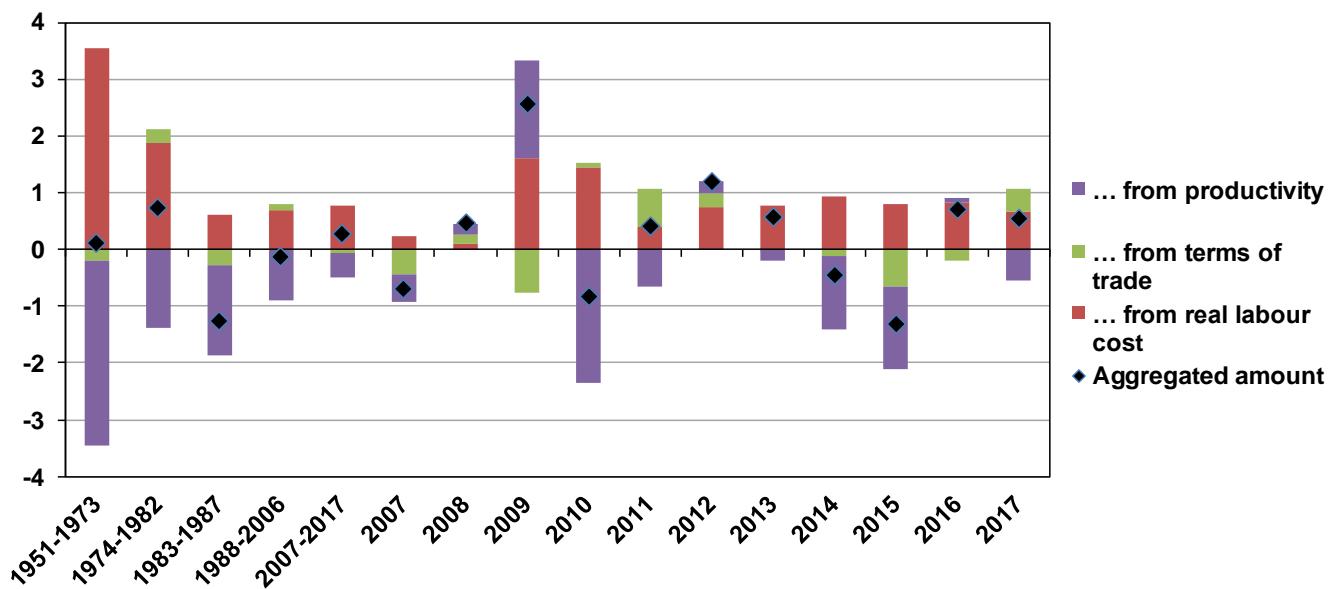
Concerning the third bias, it appears that to remove the real estate services changes the diagnosis of the trend of the labor share. Except the long decade affected by the oil shocks from the mid-1970s to the mid-1980s, the labor share in the business sector exhibited a decreasing trend until the financial crisis in 2008, followed by an increase afterwards. From the end of the 1940s to the financial crisis, the decrease was about 12 percentage points and the following increase until the current period has been about three 3 percentage points. The business sector labor share indicator excluding real estate services has exhibited a quite different evolution: the labor share has witnessed very large fluctuations at around a quite stable level of about 70%. From the end of the 1940s to the first oil shock, it fluctuated around this stable level, then it was above during the long decade from the mid-1970s to the mid-1980s, then it was below for two decades until the financial crisis of 2008 and since then it has fluctuated again around this stable level. The gap between the two labor share indicators comes from the increasing share of real estate services in the total value added, from about 3½% at the end of the 1940s to about 16% in 2008, this share remaining quite stable afterwards (see Figure 4). In the field of non-financial companies, the diagnosis is very similar to that in the business sector excluding real estate services.

The correction of the three biases appears to be necessary to build a diagnosis on the labor share trend in France. From the preceding, it appears that in France, the diagnosis after correction is that, over a very long period of seven decades from the end of the 1940s, the labor share has experienced large fluctuations around a quite stable level. But a false diagnosis of an increase could be made without the correction of self-employment and, in contrast, an opposite false diagnosis of a decrease could be made without removing real estate services or if the initial period is chosen during the decade mid-1970s to mid-1980s...

To better understand the evolution of the labor share, we use an accounting analysis to break down it between the contributions of apparent labor productivity, terms of trade and real labor cost¹¹. Figure 2 presents these three contributions to the evolution of the labor share in the business sector excluding real estate services in France from early 1950's to 2017. During this period, real labor costs contributes positively to the evolution of the labor share, while productivity tends to contribute negatively, in the same order. While terms of trade contribute in a way or the other, depending on the conjuncture, and from times to times significantly, it does not explain a large part of the evolution of the labor share. The increase in the labor share from 1973 to 1982 reflects real labor costs increasing at a higher rate than apparent labor productivity. This situation was reversed in the 1980's, resulting in a sharp drop of the labor share. From 1988 to 2016, the labor share is relatively stable. The sharp increase in 2009 is explained by the positive contribution of real cost and productivity and the decrease and increase observed since are caused by the discrepancies between real labor costs and apparent labor productivity's contributions. From this accounting analysis, we can conclude that in the short term the evolution of labor share reflects from times to times the condition of terms of trade, for example in 2007 or 2015, but mainly the difference in the contributions of apparent labor productivity and real labor costs. The increase of the labor share over the period 2007-2017 comes from a higher growth of labor costs than of productivity growth.

Figure 2

Contributions to labor share variations in the business sector excluding real estate services (in percentage points)



3.1.2. The labor share in the United States

Figure 1-B presents the five labor share indicators for the US. These five labor share indicators exhibit similar trends over the whole period: stability from the end of the 1940s to the early 1970s, then a decrease until the financial crisis, in 2009, and then quasi-stability. The three biases appear to be a lot smaller in the US than in France, for particular reasons.

¹¹ That is, with the notation of 2.1, $(WN) / (PY) = (W / P_c) (P_c / P) (Y / N)^{-1}$ where P_c is the household final consumption price. The apparent labor productivity is defined as (Y/N) , terms of trade as (P_c / P) and real labor cost as (W / P_c) .

Concerning the first bias, the oil shocks of the 1970s did not have a significant impact on the labor share indicators, contrary to France. The reason is that the US was at this period a large producer of petrol and gas, and the oil shocks were mainly a transfer from energy user sectors to the petrol and gas producer sector, and not as in France from all sectors to petrol and gas foreign country producers.¹² The share of the petrol and gas extraction in the total value added increased in the US from about 1% in the early 1970s to a maximum of 4% in the early 1980s, to fall back to 1% in the early 1990s.

Concerning the second bias, we observe that the self-employment correction has an effective impact on the labor share indicators mainly before the early 1970s, and not really afterwards: during this sub-period 1949-1970, the business sector non-corrected labor share indicator increased by 5 percentage points when the corrected indicator remained quite stable. The reason is that the share of self-employed workers in the total employment decreased from about 17% to about 9% during this sub-period, to remain stable thereafter until the early 1990s and then to decrease again very slightly to about 7% until the current period (see Figure 3). The large decrease of the self-employed worker share in the total employment observed in France until the early 2000s happened mainly before the Second World War in the US.

Concerning the third bias, it appears that the impact of the real estate services on the labor share trend is a lot smaller in the US than in France. The reason is that, over the whole 1949-2017 period, the share of real estate services in the total value added increased by about 6 percentage points (from about 10% to about 16%) when the increase was about twice as much in France (see Figure 4). For this reason, to remove real estate services diminishes the decrease of the business sector labor share but does not reverse or even cancel it. From its maximum in 1970 to its current level in 2017, the business sector labor share decreased by about 12 percentage points (from 64½% to 52½%) for the non-corrected indicator and by about 10 percentage points (from 72% to 62%) for the corrected one. Nevertheless, for the non-financial companies, the labor share has fluctuated around a stable level of about 70% from the end of the 1940s to the early 2000s, to decrease thereafter by about 5 percentage points until the current period, this decrease being observed only before 2010. So, the labor share decrease seems confirmed in the US, but mainly during the first decade of the century, this orientation being less obvious before and after.

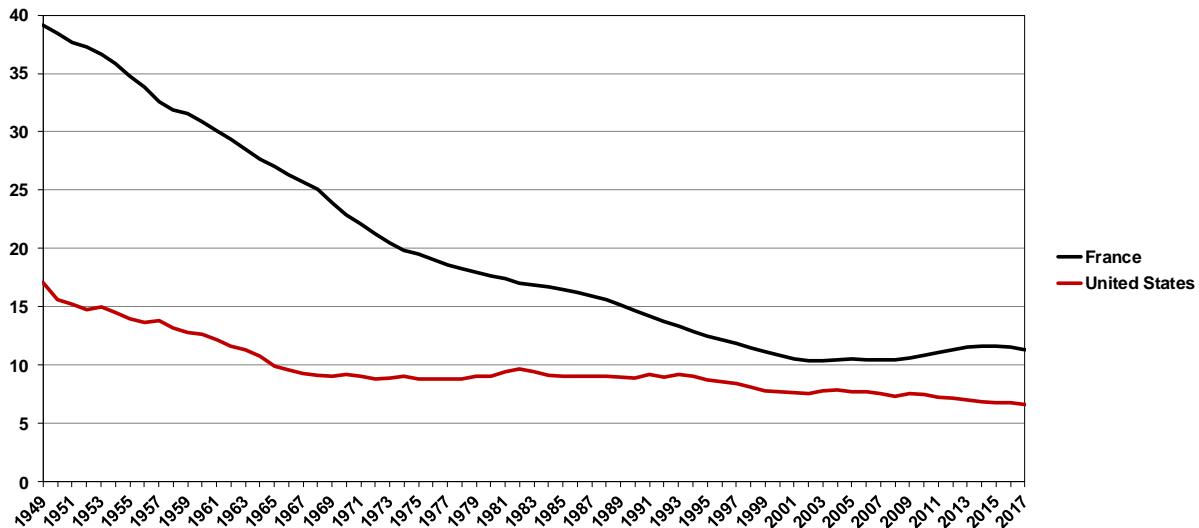
Thus, the diagnosis concerning the labor share trend differs for France and the US. When we take into account the three biases, it appears that, in France, we don't observe any structural decrease and we could even consider that the labor share could have increased over the last two decades.

In the US, we observe a decrease after 2000. The decrease in the US labor share coincides with three other evolutions in the US economy: industry concentration and profits have increased, while investment has fallen relative to output. We can also note that the timing of the decrease in the relative price of investment does not match the timing of the decrease in the labor share. Figure B (Appendix) presents the growth rate of the investment price relative to the GDP price in the US. We see that the relative price of investment has been decreasing for several decades, but this decrease was stronger in the 1980s and 1990s while the labor share only declines in the 2000s. Covarrubias, Gutiérrez and Philippon (2019) discuss the relative importance of competition, barriers to entry, technology and trade. Trade plays an important role in manufacturing. Overall, however, the evidence suggests that an increase in market power in most industries in the 2000s explains the dynamics of concentration, profits, investment and the labor share. Market power comes from rising barriers to entry, weak antitrust enforcement, and lobbying by incumbents.

¹²

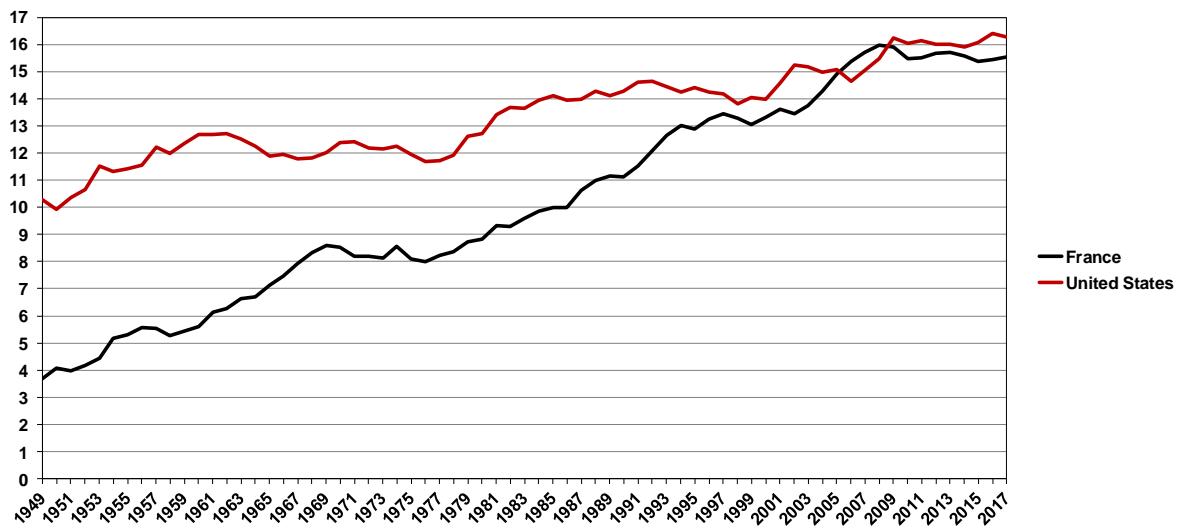
This explanation was already given by Baghli, Cette and Sylvain (2003).

Figure 3
Share of self-employed workers in the total employment – In % (full time equivalent)



Sources: Author's calculation from national accounts.

Figure 4
Share of real estate services in the total value added – In %



Sources: Author's calculation from national accounts.

3.2. The labor share developments in eight other developed countries

We look now at the labor share orientation for eight other developed countries for which data from the STAN OECD database is available with enough details to build our indicators: Belgium, Denmark, Germany, Italy, Netherlands, Spain, Sweden and the United Kingdom. We compare the labor share evolution from the earliest possible year, but at least from 1995, to the current period for two fields: the business sector and the business sector excluding real estate services. The indicators are adjusted for self-employment mixed income. As value added sharing between labor and capital does not really make sense in the public sector (see above), we don't comment here upon the labor share orientation in the total economy.¹³ Moreover, as the orientation of the labor share does not change when financial activities are removed from the value added, we don't consider here the NFC indicator. Depending on the country, the last observation corresponds to 2015, 2016 or 2017. We look also at the labor share at the level of a reconstituted Euro Area (EA) comprising Germany, France, Italy, Spain, Netherlands and Belgium.

Figures 6 and 7 present the evolution of the labor share indicators respectively in the reconstituted EA and in the eight countries. Table 1 presents the main results from the comparison. We have included France and the United States in this table to enlarge the comparison. As much as the comparison is possible (and on comparable period), the orientation of the labor share over the period in the different countries seems consistent in the business sector with the one described in recent international analyses, as for instance IMF (2017) or OECD (2018).

It appears that over the period, the labor share increased more or decreased less when we remove real estate services from the value added than when we don't, in seven of the ten considered countries and in the reconstituted EA. The three exceptions are Belgium, the Netherlands and Sweden. This stems from the fact that in these three countries, the share of real estate services in the business sector value added decreased slightly whereas it increased in the seven other countries (see Figure 5). In Spain, the increase was large enough to change the sign of the labor share evolution, this evolution being, from 1995 to 2016, about -2 percentage points with real estate services kept in the value added and +1 percentage points without. The share of the real estate services in the business sector value added increased from 6.4% to 12.4% over this period in this country, which was the biggest increase observed over the ten countries in our analysis. In France, the labor share evolution changed from a decrease with real estate services kept in value added to a stability without.

Table 1
Labor share orientation in the business sector, from the earliest year to the current period ...

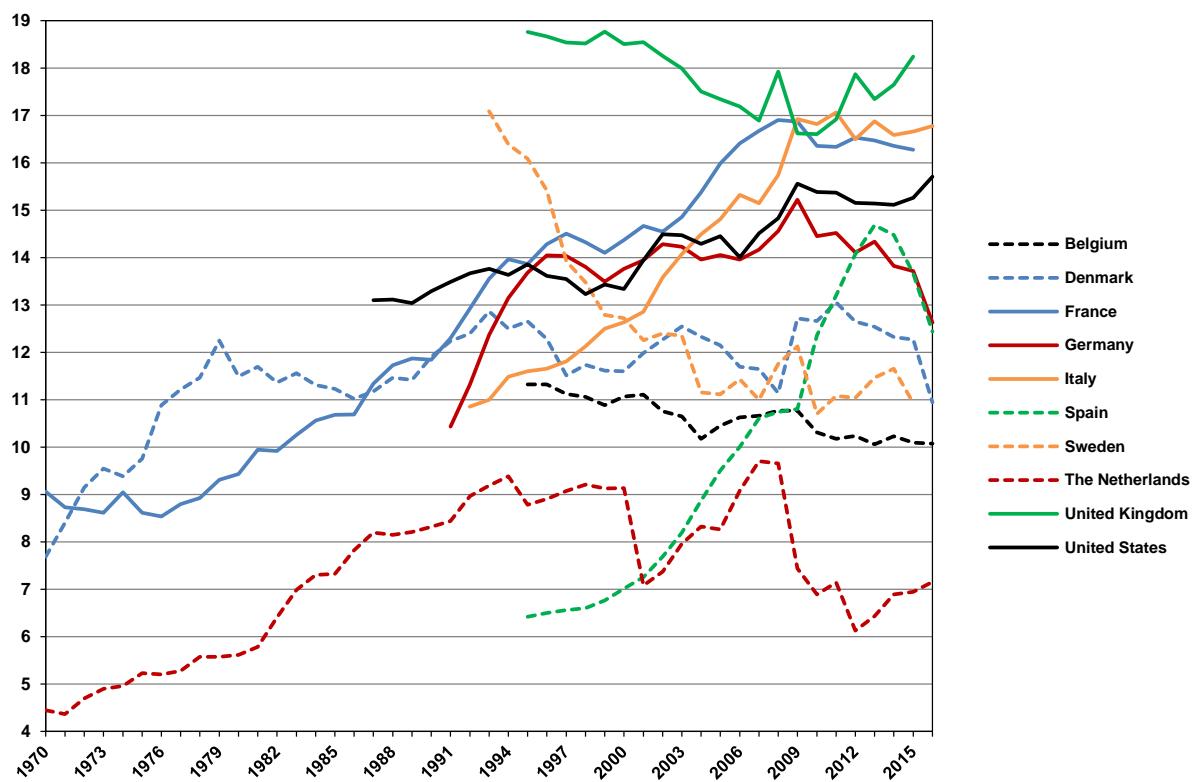
		... with real estate services		
		decrease	stability	increase
... without real estate services	decrease	Belgium Denmark Germany Netherlands United States		
	stability	France Reconstituted EA		Sweden
	increase	Spain	Italy	United Kingdom

¹³ Labor share level in the total economy is always superior to labor share level in the business sector, but the trends of the two indicators are similar in the eight countries (see figure 7).

Note: we consider that the labor share increases (decreases) if the slope of the linear trend over the available period is above (below) 0.025 (-0.025) percentage point per year. The periods considered in this table correspond to those of Figures 1 and 7: 1949 to 2017 for France and the United States; 1970 to 2016 for Denmark and the Netherlands; 1992-2016 for Italy; 1993 to 2015 for Sweden; 1991-2015 for Germany; 1995-2015 for Spain and the United Kingdom and 1995-2016 for Belgium.

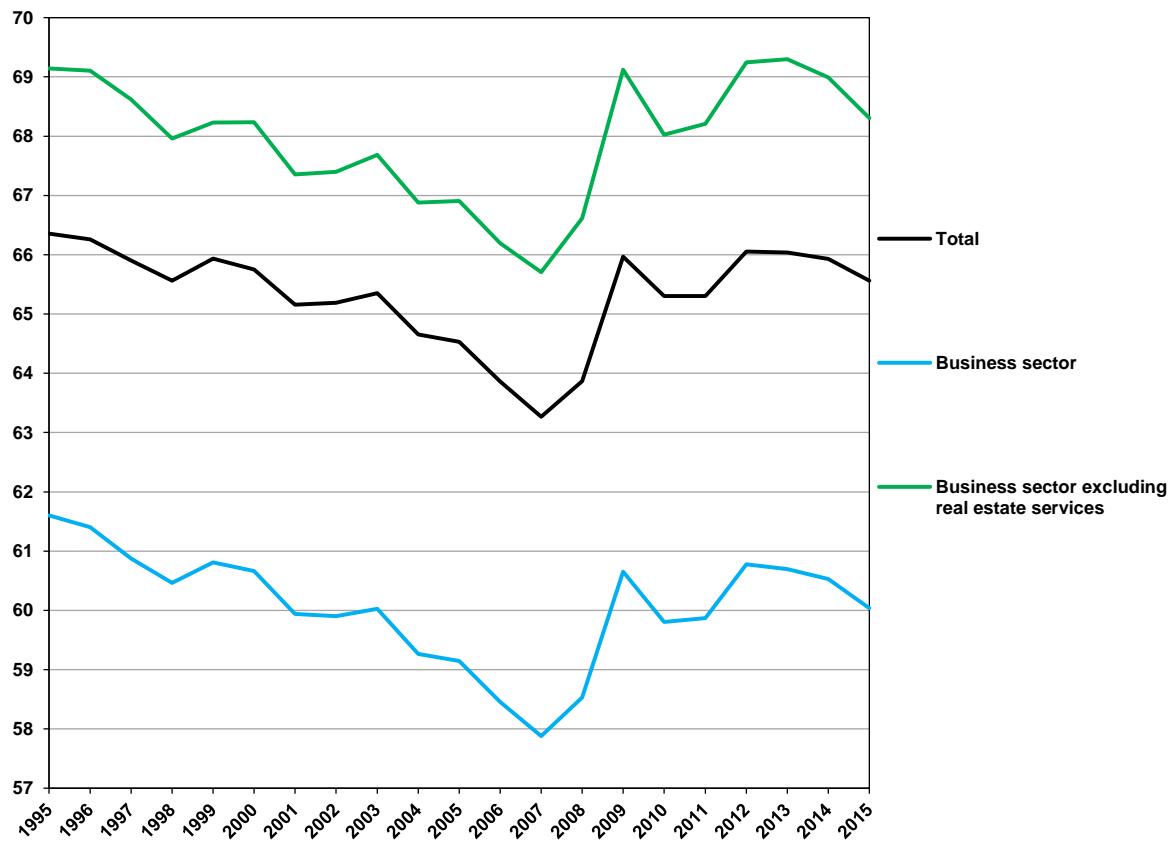
On our dataset of the ten developed countries and the reconstituted EA, the orientation of the labor share in the business sector is not a general downward or upward one. With real estate services included in the value added, it is a clear downward one in seven countries and in the reconstituted EA, a clear upward one in two countries and a quasi-stability in the last country. When real estate services are removed from the value added, it becomes a clear downward one in five countries, a clear upward one in three countries and a quasi-stability in two countries and in the reconstituted EA. Then, the usual diagnosis of a general downward orientation of the labor share in the developed countries over the last decades is not confirmed on our dataset of ten developed countries and the reconstituted EA. Even, as commented before, the downward trend is not so clear concerning the US. The relevant real estate services correction decreases the number of countries with a clear downward orientation of the labor share.

Figure 5
Share of real estate services in the business sector value added – In %



Source: Author's calculation from the STAN OECD database.

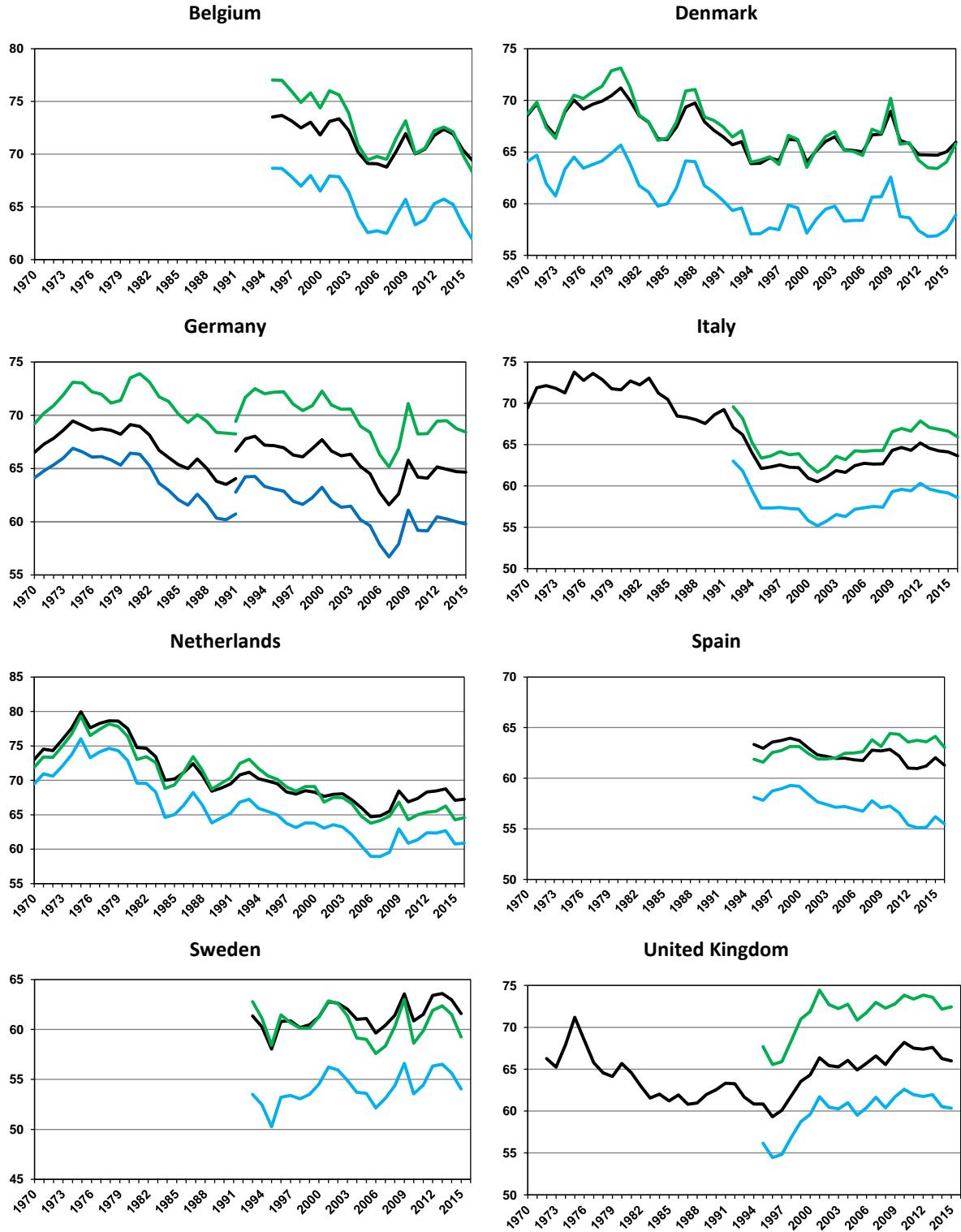
Figure 6
Labor share in the Euro Area – In % of the value added



The Euro Area in this Figure comprises Germany, France, Italy, Spain, The Netherlands and Belgium. In 2017, these six countries represented 86% of the GDP of the whole Euro Area.

Sources: Author's calculation from the STAN OECD database.

Figure 7
Labor share – In % of the value added



— : Total economy; — : Business sector; — : Business sector excluding real estate services

In Germany, the break corresponds to the reunification event.

Sources: Author's calculation from the STAN OECD database.

4. Conclusion

This analysis has challenged the accepted wisdom of a general labor share decline. A simple theoretical model was proposed to raise the main factors of labor share changes. And an empirical analysis was carried out on ten developed countries: Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden, the United Kingdom and the United States. For France and the United States we were able to construct measures of the labor share for the entire post-war period. For the reconstituted EA and the other countries, the analysis started at least in the 1990s.

Three important biases appear to have plagued much of the existing literature: (i) starting periods for the empirical analysis; (ii) accounting for self-employment; and (iii) accounting for residential real estate income. When these three potential biases are set aside, the orientation of the labor share in the business sector appears not to be a general downward or upward one. With real estate services included in the value added, it is a clear downward one in the reconstituted EA and in seven countries, a clear upward one in two countries and a quasi-stability in the last country. When real estate services are removed from the value added, it becomes a clear downward one in five countries, a clear upward one in three countries and a quasi-stability in two countries and in the reconstituted EA.

Being a type of capital income, real estate income has important redistributive effects and must be included to analyse income inequalities. But it seems to us appropriate to exclude it to analyse how value added is shared between labor compensation and profits. Usual explanations of labor share trends (technology, trade, market power, unionization...) have nothing to do with real estate income. And as shown in this paper, to remove real estate income changes markedly the diagnosis concerning the labor share trends...

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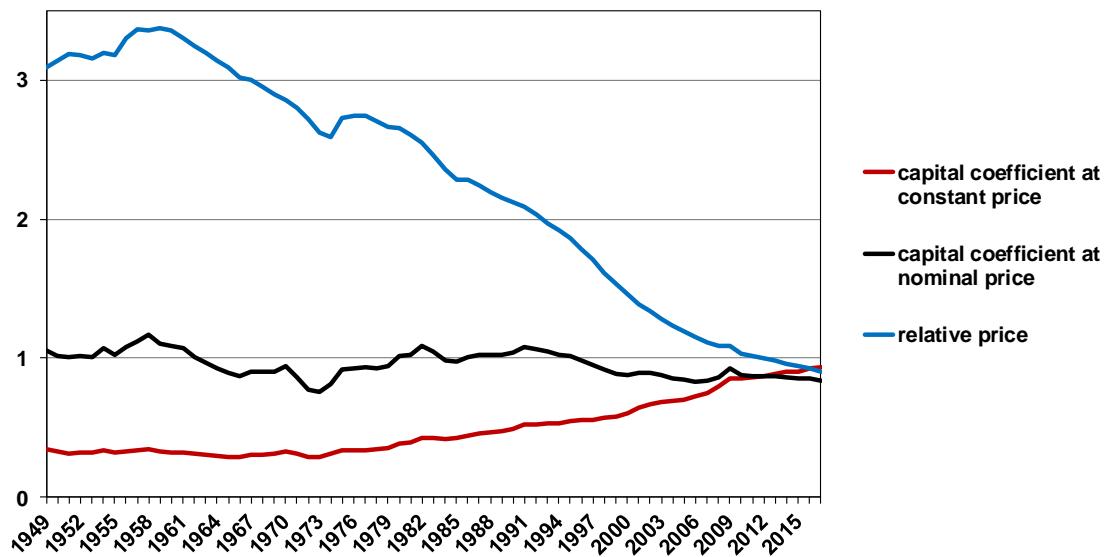
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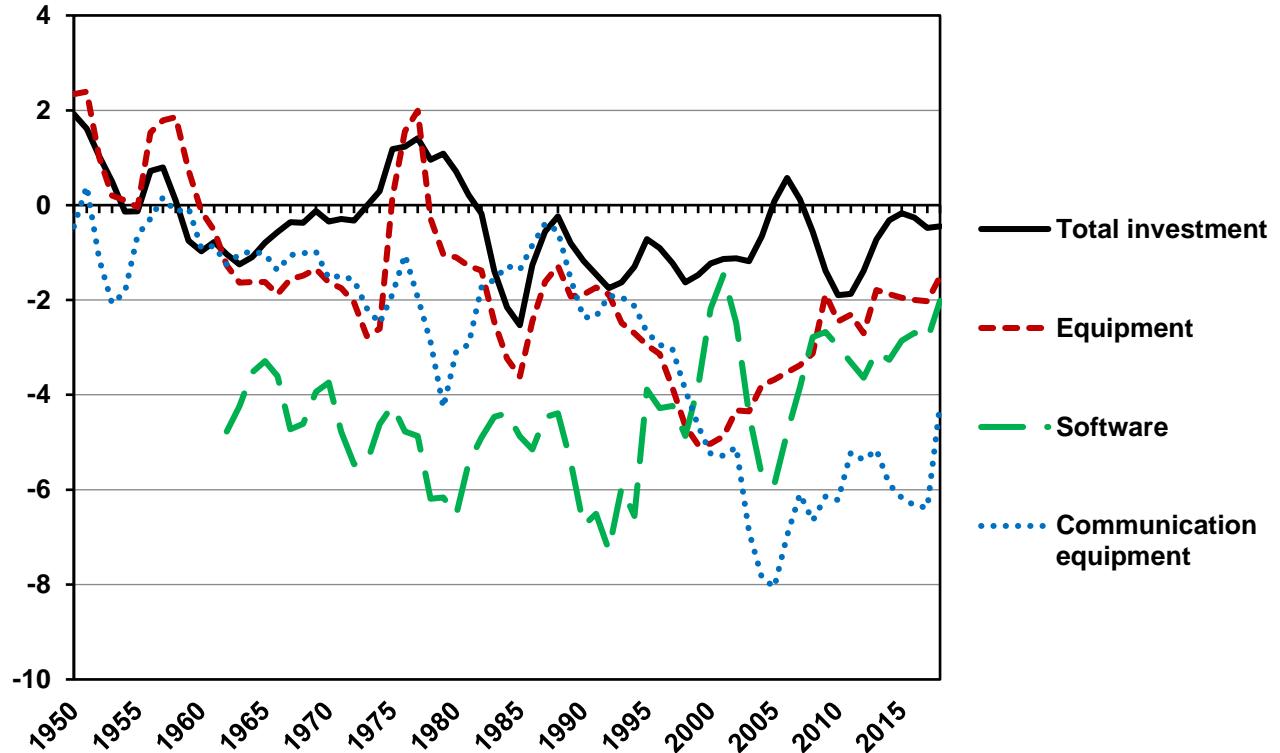
Appendix:

Figure A
Capital coefficient (ratio capital / GDP) – Equipment



Source : GDP in constant price, investment and GDP price: National accounts – BEA; Equipment capital in constant price: Bergeaud, Cette and Lecat (2016) calculation, from national accounts – BEA investment data. See www.longtermproductivity.com.

Figure B
Growth rate of the investment price relative to the GDP price in the US – In %



Source: Author's calculation from US BEA data.

These growth rates are smoothed using a three-year moving average. Total investment price includes construction price, which is not represented in this Graph.

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