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Comparing profit shares in value-added in four OECD countries: Towards more harmonised national accounts

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COMPARING PROFIT SHARES IN VALUE-ADDED IN FOUR OECD COUNTRIES: TOWARDS MORE HARMONISED NATIONAL ACCOUNTS¹

By Pierre-Alain PIONNIER and Emmanuelle GUIDETTI

ABSTRACT

This article gives methodological guidance on how best to compare the share of profits in value-added across countries using national accounts. Such comparisons are often based on accounts for institutional sectors such as non-financial corporations. It turns out that these are less internationally comparable than is usually assumed. The main issue is the allocation of certain types of self-employed workers to the corporations' sector of some countries, most notably Germany and Italy. The consequence is that the measured gross operating surplus of corporations is overstated and has to be adjusted for international comparisons. If this is not feasible, it is preferable to rely on industry accounts, focus on a subset of industries and impute a labour compensation to self-employed workers for international comparisons. Profit shares in France, Germany, Italy and the United States are then much more similar than what the accounts for non-financial corporations suggest. The claim of a global increase in the profit share in the last decades is at best debatable for Germany and not backed with the evidence presented in this paper for France and Italy. It is only for the United States that we can confirm such an increase.

<u>JEL Codes</u>: E01, E25, J30

<u>Keywords</u>: National accounts, profit share, distributed income of corporations, self-employment, quasi-corporations

RESUME

Cet article décrit d'un point du vue méthodologique comment effectuer des comparaisons internationales du partage de la valeur ajoutée en utilisant au mieux les données de comptabilité nationale. Ces comparaisons reposent souvent sur les comptes de secteurs institutionnels, en particulier les comptes des sociétés non-financières. Or, ceux-ci sont moins comparables d'un pays à l'autre que ce que l'on pense habituellement. Le problème principal est lié à la présence de travailleurs non-salariés dans les comptes des sociétés de certains pays, notamment l'Allemagne et l'Italie. Cela conduit dans ce cas à une surestimation de l'excédent brut d'exploitation et rend nécessaire un ajustement du compte des sociétés pour les comparaisons internationales. Lorsque cet ajustement s'avère impossible à réaliser, nous recommandons d'utiliser les comptes de branches, de restreindre l'analyse à certaines branches et d'imputer une rémunération du travail aux non-salariés pour les comparaisons internationales. Les taux de marge en France, en Allemagne, en Italie et aux États-Unis sont alors plus proches que ce que suggèrent les comptes des sociétés non-financières. L'hypothèse d'une hausse tendancielle du taux de profit sur les dernières décennies est au mieux contestable pour l'Allemagne et invalidée par les données pour la France et l'Italie. C'est uniquement pour les États-Unis que nous sommes en mesure de la confirmer.

Codes JEL: E01, E25, J30

Mots-clés : Comptes nationaux, taux de marge, revenus distribués des sociétés, non-salariés, quasi-sociétés

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I. Introduction and Key Findings

- 1. The focus of this paper is on the gross profit share, defined as the ratio of gross operating surplus (GOS) to value-added². Broadly speaking, this indicator shows how much of (gross) value-added is distributed as profits (capital remuneration), as opposed to as labour compensation. It can be computed at country, institutional sector and industry levels.
- 2. The long-term stability of profit and labour shares at the aggregate (country) level is a fundamental feature of most macroeconomic models. Hence, it is important to verify whether this stylised fact holds in practice in different countries. Moreover, looking at profit share evolutions across countries may be useful to isolate the effect of country-specific shocks and identify underlying structural changes common to different countries³. For instance, researchers try to understand whether increases in profit shares in some countries, most notably in the last 25 years in the U.S., may be related to capital deepening and what may explain it (see e.g. Elsby *et al.* 2013, Karabarbounis *et al.* 2014) ⁴. In other countries, such as France, it is the relative decline of the profit share in the last 10 years compared to Germany that is the focus of the economic policy debate. Analysis of profit share evolutions may also fuel debates on the adequate distribution of factor incomes between labour and capital. However, they can only be a starting point for analysis of income inequalities. Indeed, profit share evolutions do not say anything *per se* on the rate of return of capital, on inequalities in the distribution of the capital stock or on labour income inequalities (i.e. inequalities related to the way the labour share is distributed among workers). These are all important determinants of (total) income inequalities.
- 3. The intent of this paper is not to identify structural factors behind profit share evolutions but rather to provide methodological guidance on how best to use national accounts for international comparisons of profit shares. Hence, our focus is on measurement issues. This paper provides methodological guidance and descriptive statistics comparing profit share levels and evolutions in four advanced countries (France, Germany, Italy, and the United States) based on an extensive use of national accounts. We study to what extent the large differences in profit share levels across countries are

Focusing on the gross measure of the profit share that includes capital depreciation avoids difficulties related to the measurement of depreciation for which international comparability is low.

Capital deepening (i.e.: substitution of capital for labour in the production process) may first be related to capital-augmenting technical progress or to a fall in the relative price of investment goods. In these two cases, capital deepening leads to an increase in the profit share only if the elasticity of substitution between capital and labour is above 1. The fall in the relative price of investment goods is the explanation favoured by Karabarbounis and Neiman (2014) in order to explain their asserted global increase in profit shares over the last decades on a sample of 59 countries. In the present paper, we suggest that corporations' accounts on which their analysis is based lack international comparability.

The explanation favoured by Elsby *et al.* (2013) for the increase in the U.S. profit share in the last 25 years is the offshoring of the labour-intensive part of the U.S. supply chain. Capital deepening is also at work in this case but it is not related to capital-augmenting technical progress or a fall in the relative price of investment goods. It takes place because international trade allows moving the production of labour-intensive goods to countries with lower labour costs. Hence, capital deepening in this case is related to a change in the type of goods produced domestically, which does not imply a change in the input-mix for the production that is not offshored. Elsby *et al.* (2013) show that changes in import exposure significantly explain changes in profit shares at the industry level in the U.S. for the period 1987 to 2011. On the contrary, they do not find any significant relationship between changes in investment prices and changes in profit shares using the same data set.

Here, we only consider long-term evolutions of profit shares, not their pro-cyclical evolutions over business cycles. Admittedly, disentangling long-term and short-term evolutions of profit shares may be difficult in real time, especially in the aftermath of the Great Recession.

attributable to different measurement approaches in spite of the in-principle strong international convergence in accounting standards and definitions. A better understanding of the sources of cross-country differences in profit share levels is also important to ensure that measurement issues affecting level comparisons do not translate into measurement uncertainty regarding comparisons of trends over time, which are generally more closely scrutinized than levels by economists.

- 4. Two distinct sets of accounts are used for this purpose: accounts by industry and accounts by institutional sector. Industry accounts offer a breakdown of the total economy into homogeneous industries (e.g.: automobile industry, construction, wholesale and retail trade). Institutional sectors offer another type of breakdown of the total economy, this time into homogeneous groups of economic agents (e.g.: corporations, households, general government). Both industry and institutional sector accounts have specific advantages and disadvantages. Institutional sector accounts are attractive because they provide a complete set of transactions and balancing items, from production to finance, and from value-added to net lending/borrowing. On the contrary, industry accounts are not computed beyond value-added and its components but they offer a more disaggregated view of the economy than institutional sector accounts. For reasons mentioned below, we recommend focusing on specific industries or institutional sectors, rather than on the total economy, when comparing profit shares across countries.
- 5. There are some particularities in national accounts that are well known to distort evolutions over time, as well as international comparisons, of profits shares. For example, key issues mentioned in the literature relate to taxes and subsidies, the remuneration of self-employed workers and accounting conventions. In order to mitigate these problems and improve the cross-country comparability of profit shares, we first suggest to apply three pre-treatments to national accounts: (1) computing value-added at factor cost; (2) imputing a labour compensation to self-employed workers at a disaggregated industry level when industry data are used; and (3) focusing on two subsets of the economy: (a) non-financial corporations (NFCs), and (b) non-farm, non-financial and non-housing market industries. The first two adjustments are standard practice in the literature on profit shares. The last adjustment is motivated by our willingness to eliminate the influence of national accounting conventions that make the inclusion of some industries / institutional sectors irrelevant for the purpose of looking at profit shares.
- 6. In addition to the above adjustments, the paper also discusses a number of other differences that affect comparisons of profit shares across countries. These remaining differences are generally ignored in the literature. One of the main findings is that non-financial corporations' accounts are less harmonised across countries than what is usually assumed⁵. Indeed, in some countries, some unincorporated corporations may be considered as quasi-corporations and integrated within the non-financial corporations' sector in national accounts. Even more importantly, in some countries, for instance Germany and Italy, self-employed workers, conventionally receiving no labour compensation in national accounts, may be allocated to these quasi-corporations⁶. On the contrary, there are no self-employed workers allocated to

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Note that our conclusions regarding the lack of international comparability of corporations' accounts are reflected in the second edition of the OECD publication "Understanding National Accounts" (see Lequiller and Blades 2014, chapter 3).

In the European Union (EU), only 7 out of 28 member countries (Cyprus, France, Hungary, Luxembourg, Romania, Slovakia and Spain) do not employ the concept of quasi-corporation in their national accounts and, among the remaining 21 member countries, only the Netherlands allocate all quasi-corporations to a single institutional sector – the households' sector in this case (see Eurostat 2014). Hence 20 out 28 EU member countries have quasi-corporations in both their households' and corporations' sectors. Unfortunately, no information is available at Eurostat on how EU member countries allocate self-employed workers across institutional sectors.

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French and U.S. non-financial corporations. Since data on (self-) employment by institutional sector are usually not available, there is no obvious way to detect this problem. However, for those countries where non-financial corporations do include self-employed workers, the labour compensation, gross operating surplus and distributed income of these corporations need to be adjusted in order to ensure cross-country comparability. If this is not feasible because of a lack of information on how national accounts are compiled, then international comparisons should only be based on industry accounts. Using industry data, the imputation of a labour compensation to self-employed workers, which is possible at a disaggregated industry level, is sufficient to address the issue.

- 7. After making the various adjustments above, we compute a revised, more comparable, set of profit shares and arrive at the following conclusions regarding the distribution of value-added in Germany, France, Italy and the United States:
- The measured profit shares depend significantly on whether they are computed on the basis of data by institutional sector or data by industry. The valuation of value-added (basic prices, market prices or factor cost) plays a much smaller role.
- Once Italian non-financial corporations' (NFC) accounts are adjusted by imputing wages to self-employed workers, profit shares and net distributed income⁷ are much more similar to what is observed in France and the United States. The profit share computed with adjusted NFC accounts in Italy is also similar to the one computed with accounts by industry, in which a labour compensation is imputed to self-employed workers. The adjustment of Italian NFC accounts was only possible thanks to the provision of unpublished (self-) employment figures by ISTAT, the Italian national statistical office.
- Since such (self-) employment data are not available for Germany, we computed profit shares based on industry accounts for non-farm, non-financial and non-housing market industries. For each industry, a labour compensation was imputed to self-employed workers. NFC accounts were then aligned to these adjusted industry accounts. As a result, the net income distributed by German NFCs is closer to that observed in France and the United States.
- For all countries, the differences with Germany in the profit shares at an aggregate level mainly come from differences in profit shares by industry, not from differences in industrial composition. Profit share levels in France and Germany are closer to each other when one looks at data by industry rather than at data by institutional sector. However, in both cases, a gap starts appearing before the Great Recession, around 2003. Industry data show that this gap is mainly attributable to diverging evolutions of profit shares in the manufacturing sectors of the two countries.
- As expected, trends in profit shares are generally more robust to the choice of data than profit share levels. Nevertheless, trends in profit shares over the last decades are generally flatter or even become

In 2014, Eurostat suggested practical guidelines in order to complement the 2008 SNA and further harmonise the treatment of quasi-corporations across European countries but these guidelines will only be applied on a voluntary basis. The allocation of self-employed workers across institutional sectors has not been discussed yet.

The distributed income of corporations is the part of their profit that these corporations distribute to their owners or shareholders. It is a well-identified transaction in national accounts. We call <u>net</u> distributed income the difference between the income that corporations distribute to their owners or shareholders and the income that they receive as owners or shareholders of other corporations.

As everywhere else in the text, we only consider here the subset of industries for which profit shares are best comparable across countries (see Appendix 1 for the list of selected non-farm, non-financial and non-housing market industries).

negative when one looks at industry data. Since these data offer an improved cross-country comparability once the above-mentioned pre-treatments have been made, they constitute a preferred source for monitoring the evolution of profit shares. We find that claims of rising profit shares (such as in Karabarbounis and Neiman 2014) are at best debatable for Germany and not backed with evidence in France and Italy over the last 20 years. It is only for the United States that we can confirm such an increase.

We conclude that international comparability of profit shares would be significantly enhanced if national accountants could: (i) provide more detailed information on the mapping between data by industry and data by institutional sector; and (ii) publish data on (self-)employment by institutional sector.

II. Available national accounts data and pre-treatments necessary to compare profit shares across countries

- 8. National accounts offer two types of accounts enabling to compare how value-added is distributed in different countries' industry accounts or institutional sector accounts. Both have specific advantages and disadvantages.
- 9. Institutional sector accounts divide the economy into financial corporations, non-financial corporations, general government, households (including unincorporated enterprises), and non-profit institutions serving households (NPISHs). For each sector, these accounts describe a full sequence of transactions, from production to finance, with intermediate consumption, labour compensation, property income, taxes, transfers, consumption and investment expenditures as the main transactions. Useful balances are computed at different steps, among which value-added (B.1)⁹, gross operating surplus (GOS, B.2), saving (B.8) and net lending/borrowing (B.9).
- 10. Industry accounts offer a more disaggregated view of the economy than institutional sector accounts. Indeed, 10 to 60 different industries are typically distinguished in these accounts, thus enabling to decompose differences in profit shares across countries into differences in industry weights and differences in profit shares by industry (see Appendix 3). Moreover, industry accounts include data on employment and self-employment, contrary to institutional sector accounts. The main disadvantage of industry accounts is that they typically are not computed beyond the primary distribution of value-added.
- 11. It is important to bear in mind that some particularities of national accounts can distort trends over time as well as international comparisons of profit shares. Three pre-treatments of industry and institutional sector accounts are therefore needed in order to improve the international comparability of profit shares.
- The first applies to both institutional sector and industry accounts. Various **taxes and subsidies** may distort the computation of profit shares. First, value-added is published at market prices (VA_{MP}) in the U.S. national accounts¹⁰, both in industry and institutional sector accounts. In Germany, France and Italy, value-added is computed at basic prices. Contrary to value-added at basic prices, value-added at market prices includes taxes less subsidies on products (D.21-D.31). The U.S. accounts therefore need be adjusted. Moreover, even if value-added is computed at basic prices following the SNA guidelines, one still has to deal with another component, corresponding to taxes on production less subsidies on production (D.29-D.39). Its share in value-added is not necessarily constant over time or similar across countries. A simple way to improve international comparability is therefore to consider value-added at factor cost (VA_{FC}), which is defined as gross value-added at basic prices (VA_{BP} or B.1) minus taxes less subsidies on production (D.29-D.39). Value-added at factor cost thus only has two components: labour compensation and GOS/mixed income (see below).

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Codes in brackets refer to the international classification of national accounts used in the System of National Accounts (SNA). The SNA provides internationally-agreed guidelines to compile national accounts.

All OECD countries follow the SNA, except the U.S that follow the National Income and Product Accounts (NIPA) system. However, in order to allow international comparability, the U.S. Bureau of Economic Analysis (BEA) also produces estimates following the SNA guidelines, available at http://www.bea.gov/national/sna.htm. These are the estimates for the U.S. that we use in this paper. Nevertheless, some differences between U.S. and other countries' accounts remain, one of those concerning the valuation of output and value-added. Some other remaining differences are considered in Section IV.

- The second pre-treatment is related to the remuneration of non-salaried, or self-employed, workers¹¹. In national accounts, the so-called mixed income (B.3) combines two kinds of remuneration for self-employed people working in unincorporated enterprises: their labour compensation and the share of the profit that they receive as the owner of their enterprise. In order to avoid biases in international comparisons, this mixed income needs to be split into labour compensation and gross operating surplus. A convenient solution is to impute a per capita compensation to non-salaried workers that is equal to the compensation of salaried workers in the same industry. Contrary to the treatment proposed by Krueger (1999) who conventionally adds two thirds of proprietor's income to labour income at the aggregate level, our proposed treatment takes into account that the structure of the non-salaried workforce may vary over time, and that it may differ across countries. For instance, non-salaried workers involved in construction should probably be imputed a lower wage than those involved in high value-added services. The impact of this adjustment on industry data is shown in Appendix 2. Since the System of National Accounts (SNA) only uses the notion of mixed income for unincorporated enterprises belonging to the household sector¹², it is usually believed that this adjustment is irrelevant for the corporate sector, see Karabarbounis and Neiman (2014) for a recent example. But this is not true for all countries, in particular for Germany and Italy, as we will explain in the next section.
- 14. The following equations sum up the preceding discussion on taxes and subsidies, GOS and mixed income:

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\begin{split} VA_{FC} &= VA_{BP}(B.1) - Taxes \ less \ subsidies \ on \ production \ (D.29\text{-}D.39) \\ &\Rightarrow VA_{FC} = Compensation \ of \ employees \ (D.1) + GOS \ (B.2) + Mixed \ income \ (B.3) \\ VA_{MP} &= VA_{BP}(B.1) + Taxes \ less \ subsidies \ on \ products \ (D.21\text{-}D.31) \end{split}
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15. The third pre-treatment is related to the fact that some institutional sectors or industries are especially prone to **accounting conventions** and should therefore preferably be excluded, in order to be able to better interpret profit share evolutions and compare them across countries. For instance, one cannot observe market prices for many services provided by general government (S.13) and non-profit institutions serving households (NPISHs, S.15), in particular health and education services. Hence, the output value of non-market services (P.13) is defined in national accounts as the sum of the related intermediate consumption (P.2), labour compensation (D.1) and consumption of fixed capital (K.1), thus arriving at a net operating surplus equal to zero. Moreover capital gains and losses are not included in the definition of output according to national accounts, whatever the institutional sector. This exclusion is difficult to justify when analysing the profits of financial corporations (S.12) as they may constitute an important part of their revenues and justify a high compensation for their employees. It is therefore better to exclude financial corporations from the analysis in order to avoid biases in international comparisons. Lastly, the output of "pure households" (S.143+S.144)¹³ mainly consists of housing services, of which the main part relates to

The terms non-salaried workers and self-employed workers are used interchangeably throughout the paper...

See 2008 SNA, §7.9: "The balancing item [closing the generation of income account] is described as operating surplus except for unincorporated enterprises owned by households in which the owner(s) or members of the same household may contribute unpaid labour inputs of a similar kind to those that could be provided by paid employees. In the latter case, the balancing item is described as mixed income because it implicitly contains an element of remuneration for work done by the owner, or other members of the household, that cannot be separately identified from the return to the owner as entrepreneur. [...]. In practice, all unincorporated enterprises owned by households that are not quasi-corporations are deemed to have mixed income as their balancing item, except for owner-occupiers in their capacity as producers of housing services for own final consumption, households leasing dwellings and households employing paid domestic staff. [...]."

The 2008 SNA did not change accounting rules in relation to the definition of mixed income. Similar guidelines may be found in the 1993 SNA, §7.81.

[&]quot;Pure households" refer to employees (S.143) and to recipients of property and transfer incomes (S.144).

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owner-occupied housing for which the output is imputed (imputed rents). On the expenditure side, wages paid by "pure households" only relate to the compensation of domestic workers, leading to a very high profit share in the "pure household" sector (e.g. more than 90% in France). Both because a large share of its value-added is imputed and because wages paid for housing are relatively insignificant, we also exclude the "pure household" sector from the analysis.

16. Taking into account the three above-mentioned adjustments (taxes and subsidies, remuneration of self-employed workers, and accounting conventions), two subsets of the economy are most relevant for comparing profit shares across countries: (a) non-financial corporations (NFCs, S.11) and (b) non-farm, non-financial and non-housing market industries, i.e. the subset of industries which is the most comparable to non-financial corporations ¹⁴. In both cases, value- added will be considered at factor cost, and the mixed income will be split between labour compensation and GOS.

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The complete list of non-farm, non-financial and non-housing market industries that we suggest to cover can be found in Appendix 1. They typically represent about 2/3 of total value-added in the four countries considered in this analysis (France, Germany, Italy and the United States).

III. Additional considerations related to cross-country differences in complying to the SNA guidelines

- 17. While most countries follow the SNA guidelines, industry and institutional sector accounts may nevertheless not be fully comparable, for the following reasons:
- Heterogeneity of firms being classified in a given industry. To the best of our knowledge, no international reference document exists which includes a detailed comparison of how exactly data by industry are being compiled. In France, for example, a lot a resources are devoted to arrive at homogeneous industries ("branches d'activité"), starting from non-homogeneous ones ("secteurs d'activité")¹⁵. We have not been able to find information on whether other countries do the same. More information on compilation practices in OECD countries is clearly needed. In the following, we will assume that the exploitation of business statistics at the establishment level, where activities are more homogeneous than at the corporate level, allows computing reasonably homogeneous industry accounts in the four countries we focus on.
- Heterogeneity of institutional sector accounts across countries. Different economies do not necessarily have the same structural specialisation by type of industry. However, as shown in Appendix 3, differences in industry weights only have a marginal influence on differences in profit shares across countries. In practice, the international comparability of institutional sector accounts is mainly affected by the following classification issues:
 - classification of (majority) government-owned firms, notably large utility enterprises (energy and transportation providers). The allocation of these enterprises to either corporations (S.11+S.12) or general government (S.13) depends on several criteria which may be fulfilled or not depending on the country. For a government-owned firm to be classified in the corporations' sector, it must have a large autonomy of decision and charge prices that are "economically significant" (see SNA 2008, §4.117 to 4.123¹⁶, and INSEE 2012a for further details). Depending for instance on the level of subsidies received from the government in a given country, a particular firm may typically belong to one institutional sector or the other.
 - classification of enterprises between corporations (S.11+S.12) and the household sector (S.14) is also subject to interpretation when it comes to the distinction between quasi-corporations to be allocated to the corporations' sector, and unincorporated enterprises belonging to households¹⁷. Actually, this turns out to be the most challenging practical issue for the comparison of profit share levels and evolutions across countries. The SNA 2008 (§4.42 to 4.46) defines quasi-corporations as unincorporated enterprises "that

For example, a firm producing different kinds of products would belong to one single "secteur d'activité", corresponding to its main activity, but would be split between different "branches d'activité", corresponding to different homogeneous activities. For further details on the sources and methods used by French national accountants, see INSEE (2012b).

The 2008 SNA did not introduce new accounting rules in relation to the classification of publicly owned firms. Similar guidelines may be found in the 1993 SNA, §4.104 to 4.110.

The treatment of quasi-corporations, unincorporated businesses and sole proprietorships and their delineation between corporation and household sectors in member countries of the European Union is currently being tackled by the Eurostat Task Force on Quarterly Sectoral Accounts (see Eurostat 2014).

function in all (or almost all) respects as if they were incorporated" ¹⁸. More precisely, quasi-corporations take their decisions in an autonomous way (the SNA describes the relationship to their owner as that of a corporation to its shareholders) and, as a necessary condition, must keep a complete set of accounts. Quasi-corporations, even if they are owned by households, are grouped with corporations in the non-financial or financial corporations' sectors. In countries where the share of unincorporated enterprises is significant, the decision to classify some of them into one sector or the other, especially if some industries are over-represented in this classification process, can distort international comparisons of profit shares based on institutional sector accounts. More importantly however, the share of self-employed workers in quasi-corporations can be substantial in some countries¹⁹. In these cases, GOS of quasi-corporations is actually similar to mixed income, even if this terminology is reserved to the households' sector in the SNA. To arrive at an appropriate international comparison of profit shares, this income should be split into "pure GOS" and labour compensation. This problem is quite difficult to identify and also to solve in practice, because employment data by institutional sector are not available for most countries.

18. For the above reasons, we advise either to adjust institutional sector accounts or, if this option is not feasible, to rely on industry accounts, in order to deal with potential self-employment issues in non-financial quasi-corporations. Given that data on (self-) employment are normally available by industry, it is possible to split the original mixed income into additional GOS and labour compensation imputed to self-employed workers. In section 4, the gross profit share of the non-financial corporations' sector in Italy is adjusted for the presence of self-employed workers (see Figure 1). This however could only be done because ISTAT kindly provided us additional, unpublished employment data, allowing the allocation of the same compensation to non-salaried workers as to salaried workers in this sector. This was not possible for Germany, leaving no other option than relying on industry accounts in order to derive an adjusted and more internationally comparable level and evolution of the profit share.

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The 2008 SNA did not introduce new accounting rules in relation to quasi-corporations. Similar guidelines may be found in the 1993 SNA, §4.49 to 4.53. Hence, the problem is not specific to the most recent data vintages based on SNA 2008.

We received confirmation from ISTAT and DESTATIS that Italy and Germany had self-employed workers allocated to their non-financial corporation sectors (S.11). Hence, for reasons of international comparison, gross operating surplus of this sector had to be split between labour compensation and "pure" GOS for Italy and Germany. On the contrary, no self-employed workers are allocated to the non-financial corporations' sector (S.11) in the French and in the U.S. national accounts released by the OECD. They are all allocated to the households' sector (S.14).

IV. Considerations specific to the United States

19. Even if the BEA has progressively moved its production of national accounts towards improved consistency with the SNA, the NIPA-system remains somewhat different from the SNA. As mentioned above, to allow for a better international comparability, the U.S. Bureau of Economic Analysis (BEA) also produces estimates following the SNA guidelines. These estimates include two important adjustments: (i) the use of the International Standard Industrial Classification (ISIC) rather than the North American Industry Classification System (NAICS), and (ii) the adjustment of NIPA institutional sectors to SNA definitions²⁰. Admittedly, the reclassification of institutional sectors from the NIPA-system to the SNA guidelines may be limited by data availability, in particular for government enterprises, but this probably only has a limited impact on the computation of profit shares.

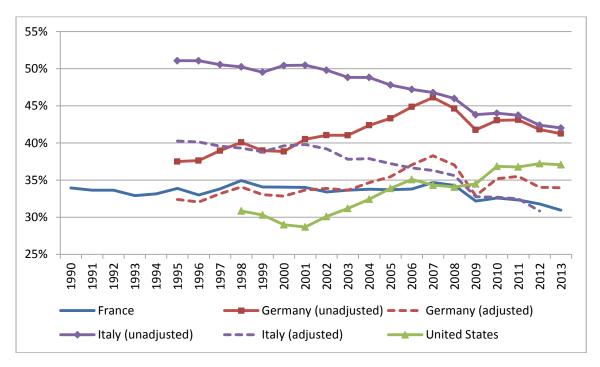
In particular, the NIPAs include estimates of value-added for the "business" and "corporation" sectors but none of them matches the corporations' sector as defined in the SNA. For example, the NIPA business sector includes all unincorporated enterprises, including those belonging to the households' sector in the SNA. Moreover, the NIPA corporations' sector does not include Federal Government enterprises nor state and local utility enterprises, which in the NIPA-system are allocated to the government sector, whereas in the SNA such corporations are classified as corporations if several criteria are met (see section 2 above).

V. Trends in gross profit share across countries

20. Figure 1 compares gross profit shares of non-financial corporations in France, Germany, Italy and the United States, both non-adjusted and with an imputed labour compensation to self-employed workers in Germany and Italy, as discussed previously. Without any adjustment to German and Italian data, differences in profit share levels across countries are important, reaching 20 percentage points at the beginning of the 2000s. The adjustment reduces the Italian profit share by about 10 percentage points and the German profit share by about 5 percentage points. The adjustment also mitigates the increase in the German profit share in the last 20 years²¹.

Figure 1: Adjusted and non-adjusted gross profit shares of non-financial corporations (NFCs) in France, Germany, Italy and the United States

(VA at factor cost)



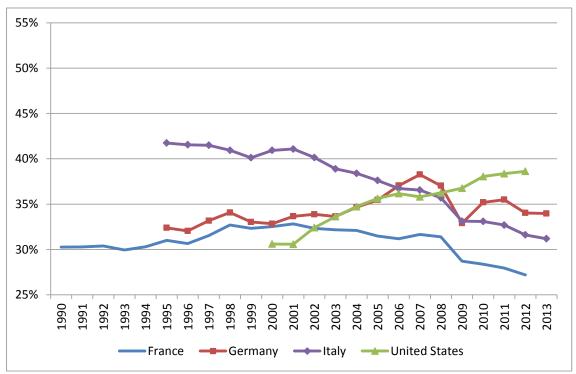
Source: Annual national accounts and authors' computations.

21. Figure 2 compares gross profit shares for the same countries but using industry data and, as usually done in the literature, imputing a labour compensation to self-employed workers. In this case, profit share levels in all four countries are closer. Similarly to Figure 1, Figure 2 shows a clear upward trend in the profit share only for the United States.

Since employment data by institutional sector are not available for Germany, industry accounts were used to derive an internationally comparable level and evolution of the profit share in this country. The adjusted profit share for German NFCs is taken equal to the adjusted profit share for non-farm, non-financial and non-housing market industries.

Figure 2: Gross profit shares of non-farm, non-financial and non-housing market industries in France, Germany, Italy and the United States

(VA at factor cost, with imputed labour compensation to self-employed workers)



Source: Annual national accounts and authors' computations.

22. Figures 3 to 6 compare gross profit shares of NFCs and non-farm, non-financial and non-housing market industries, relying on the same data as in Figures 1 and 2 but plotting them country by country. It appears that results for profit shares mainly depend on whether data by institutional sector or data by industry are being used and to a lesser extent on how value-added is defined (basic prices, market prices or factor cost).

23. Figures 4 and 5 show that profit share levels in Germany and Italy are significantly different for non-financial corporations (without adjustment) and for the total of non-farm, non-financial and non-housing market industries. The proposed mapping between institutional sector and industry data may be imperfect²² but the discrepancy is mainly due to the fact that self-employed workers are allocated to non-financial quasi-corporations in these two countries. Indeed, the adjustment of the Italian gross profit share to take care of the self-employed is very significant and leads to more similar results. This adjustment does not take into account composition effects within the Italian non-financial corporations' sector, as the same wage is imputed to all non-employed workers. But Figure 5 shows that the adjusted profit shares for the Italian non-financial corporations' sector are consistent with the adjusted profit shares obtained from the industry accounts which actually take into account some of the composition effects (i.e. heterogeneity of wages across industries). Since employment data by institutional sector are not available for Germany,

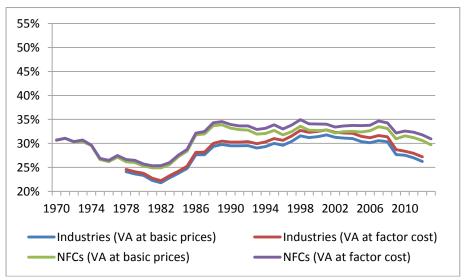
National accounts tables linking institutional sectors and industries are not publicly available for any of the four countries included in this study. We believe that national accounts' users would benefit from a more transparent mapping between institutional sectors and industries.

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industry accounts were used to derive an internationally comparable level and evolution of the profit share in this country.

Making use of disaggregated industry data, Appendix 3 shows that, for all countries, differences in profit shares with Germany at the aggregate level mainly come from differences in profit shares by industry, not from differences in industrial specialisation (i.e., industry weights). Profit share levels in France and Germany are closer when one looks at industry rather than at institutional sector data. However, in both cases, a gap starts to appear around 2003, before the Great Recession. Industry data show that this gap is mainly attributable to diverging evolutions in both countries' profit shares in manufacturing, with profit shares increasing more in Germany than in France. Both industry and institutional sector data show that the profit in Germany is higher than the profit share in France since the mid-2000s at the latest.

Figure 3: Profit shares of NFCs and non-farm, non-financial and non-housing market industries – <u>France</u> (VA at basic prices or factor cost)



55% 50% 45% 40% 35% 30% 25% 20% 1990 1994 1998 2002 2006 2010 Industries (VA at basic prices) Industries (VA at factor cost) NFCs (VA at basic prices) NFCs (VA at factor cost)

Figure 4: Profit shares of NFCs and non-farm, non-financial and non-housing market industries – <u>Germany</u> (VA at basic prices or factor cost)

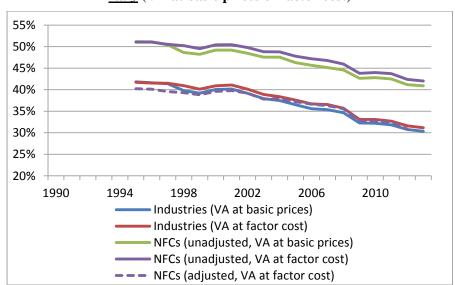


Figure 5: Profit shares of NFCs and non-farm, non-financial and non-housing market industries – <u>Italy</u> (VA at basic prices or factor cost)

50%

40%

30%

20%

1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012

— Industries (VA at market prices)

— NFCs (VA at market prices)

— NFCs (VA at factor cost)

Figure 6: Profit shares of NFCs and non-farm, non-financial and non-housing market industries – <u>United States</u> (VA at market prices or factor cost)

25. Table 1 presents trends in gross profit shares in France, Germany, Italy and the United States. As expected, changes in profit shares over time are generally more robust to the choice of source data than profit share levels, thus confirming the graphical evidence of Figures 3 to 6. Nevertheless, trends in profit shares in the four countries considered are generally flatter or become more negative when one looks at industry data. Since these data offer an improved cross-country and cross-time comparability, after the three pre-treatments advocated in section 1 are implemented, they are they are the most relevant to reassess Karabarbounis' and Neiman's (2014) claim of a global increase in the profit share²³. The above results show that this claim is at best debatable for Germany and not backed by evidence in France and Italy over the past 20 years. It only holds for the United States.

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Their claim is actually in terms of the symmetric "global decline in the labor share".

Table 1: Trends in gross profit shares in France, Germany, Italy and the United States (% points)²⁴

	1995-2000	2000-2005	2005-2010	Longest common sample starting in 1990
NFCs (without adjustment)	1.4	4.5	-0.3	3.8 (1995-2013)
NFCs (with adjustment)	0.5	2.6	-0.3	1.6 (1995-2013)
Selected industries	0.5	2.6	-0.3	1.6 (1995-2013)
NFCs	0.2	-0.3	-1.1	-2.1 (1990-2012)
Selected industries	1.5	-1.0	-3.1	-3.1 (1990-2012)
NFCs (without adjustment)	-0.6	-2.6	-3.8	-8.7 (1995-2012)
NFCs (with adjustment)	-0.6	-2.4	-4.5	-9.4 (1995-2012)
Selected industries	-0.8	-3.3	-4.5	-10.1 (1995-2012)
NFCs	n.a.	4.9	3.0	8.2 (2000-2012)
Selected industries	n.a.	5.0	2.4	8.0 (2000-2012)
	adjustment) NFCs (with adjustment) Selected industries NFCs Selected industries NFCs (without adjustment) NFCs (with adjustment) Selected industries NFCs Selected	NFCs (without adjustment) 1.4 NFCs (with adjustment) 0.5 Selected industries 0.5 NFCs 0.2 Selected industries 1.5 NFCs (without adjustment) -0.6 NFCs (with adjustment) -0.6 Selected industries -0.8 NFCs n.a. Selected n.a. Selected n.a.	NFCs (without adjustment) 1.4 4.5 NFCs (with adjustment) 0.5 2.6 Selected industries 0.5 2.6 NFCs 0.2 -0.3 Selected industries 1.5 -1.0 NFCs (without adjustment) -0.6 -2.6 NFCs (with adjustment) -0.6 -2.4 Selected industries -0.8 -3.3 NFCs n.a. 4.9 Selected n.a. 4.9 Selected n.a. 4.9	NFCs (without adjustment) 1.4 4.5 -0.3 NFCs (with adjustment) 0.5 2.6 -0.3 Selected industries 0.5 2.6 -0.3 NFCs 0.2 -0.3 -1.1 Selected industries 1.5 -1.0 -3.1 NFCs (without adjustment) -0.6 -2.6 -3.8 NFCs (with adjustment) -0.6 -2.4 -4.5 Selected industries -0.8 -3.3 -4.5 NFCs n.a. 4.9 3.0 Selected n.a. 4.9 3.0 Selected n.a. 4.9 3.0

For NFCs in Germany and Italy, results are provided either with or without adjustment, i.e. with or without imputation of a labour compensation to self-employed workers. By construction, results for adjusted NFCs are identical to results for selected industries in Germany since industry data are used to adjust data for NFCs. No adjustment needs to be made for NFCs in France and the U.S. since no self-employed workers are allocated to NFCs in these countries.

[&]quot;Selected industries" correspond to non-farm, non-financial and non-housing market industries whose precise list in given in Appendix 1.

VI. How do firms allocate their gross operating surplus: a cross-country comparisons

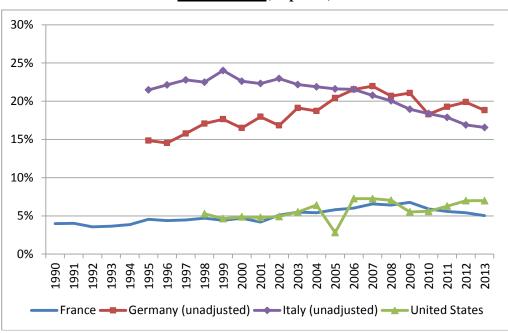
- 26. The existence of quasi-corporations also has direct consequences on firms' distribution of GOS in the allocation of primary income account. Typically, corporations mainly pay interest and distribute income to their capital owners. The transaction "distributed income of corporations" (D.42) in the national accounts sums up dividends (D.421) and withdrawals from income of quasi-corporations (D.422). Following the 2008 SNA (§7.133)²⁵, "withdrawal of income from a quasi-corporation consists of that part of distributable income that the owner withdraws from the quasi-corporation. [It] is analogous to the income withdrawn from corporations by paying out dividends to their shareholders. [It] needs to be identified in order to be able to establish a full set of accounts for the entity and to treat it as an institutional unit separate from that of its owner."
- 27. International comparisons may be biased when the owner of the quasi-corporation is a self-employed worker. As previously discussed, such cases are encountered in countries like Germany and Italy. In those cases, withdrawals from income of quasi-corporations (D.422) include both a compensation for the input of labour and a payment which is conceptually equivalent to a dividend. For this reason, in both countries, we have adjusted the distributed income of corporations (D.42) by subtracting the labour compensation imputed to the self-employed workers (working in quasi-corporations). For Italy, the adjustment relies on the unpublished employment figures provided by ISTAT: the same amount is added to labour compensation and subtracted from distributed income of corporations. In the case of Germany, we have assumed that the relevant profit share was equal to the "total" profit share observed in the data by industry²⁶. The mapping between non-financial corporations and our selected set of industries is necessarily imperfect, but it can nevertheless be considered as a good approximation.
- 28. Overall, once these adjustments have been made for Italy and Germany, net distributed income of non-financial corporations expressed as a share of their value-added is much closer across countries. Admittedly, Germany and Italy remain somewhat above after adjustment, maybe reflecting differences in the financial structure of corporations (see Figures 7 and 8).

The 2008 SNA did not introduce new accounting rules in relation to withdrawals from income of quasi-corporations. Similar guidelines may be found in the 1993 SNA, §7.115 to 7.118.

The "total" profit share is the one obtained after adding to the original GOS the residual part of the mixed income that we do not consider as labour compensation of self-employed workers (see Appendix 2 for details). Note that only industries that are most closely comparable with NFCs: non-farm, non-financial and non-housing market industries have been included (see Appendix 1 for details).

Figure 7: Net distributed income²⁷ of non-financial corporations as a share of value-added at factor cost in France, Italy, Germany and the United States

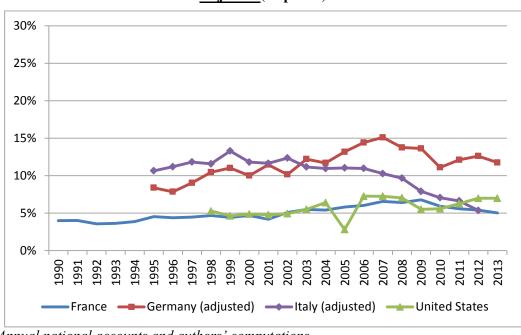
Non-adjusted (% points)



Source: Annual national accounts and authors' computations.

Figure 8: Net distributed income of non-financial corporations as a share of value-added at factor cost in France, Italy, Germany and the United States

Adjusted (% points)



Source: Annual national accounts and authors' computations.

27

Net distributed income is defined as the difference between income (D.42) distributed and received by nonfinancial corporations.

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Appendix 1: List of selected non-farm, non-financial and non-housing market industries

The breakdown by industry has been derived from the OECD STAN Database. STAN is primarily based on Member countries' tables on annual national accounts by activity, but it may also use data from other sources, such as national industrial surveys/censuses, to estimate any missing data (see: http://stats.oecd.org/Index.aspx?DataSetCode=STANI4). The current version of STAN uses the International Standard Industrial Classification of all economic activities, Revision 4 (ISIC Rev. 4), and covers all activities including services. The complete list of industries is available at http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27.

Selected non-farm, non-financial and non-housing market industries are the following:

-		
Industry	B - Mining and quarrying	
(B - C - D - E)	C - Manufacturing	
	D - Electricity, gas, steam and air conditioning supply	
	E - Water supply; sewerage, waste management and remediation activities	
Construction (F)	F - Construction	
Trade (G)	G - Wholesale and retail trade, repair of motor vehicles and motorcycles	
Transportation (H)	H - Transportation and storage	
Other market	I - Accommodation and food service activities	
services	J - Information and communication	
(I - J - M - N - R -	M - Professional, scientific and technical activities	
S)	N - Administrative and support service activities	
	R - Arts, entertainment and recreation	
	S - Other service activities	

Figures 9 to 12 below show the share of the selected non-farm, non-financial and non-housing market industries and the share of non-financial corporations (S.11) in total value-added of France, Germany, Italy and the United States.

Figure 9: Share of non-farm, non-financial and non-housing market industries and share of NFCs in the value-added – <u>Germany</u>



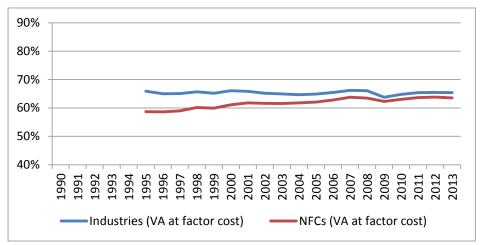


Figure 10: Share of non-farm, non-financial and non-housing market industries and share of NFCs in the value-added— <u>France</u>

Total economy, %

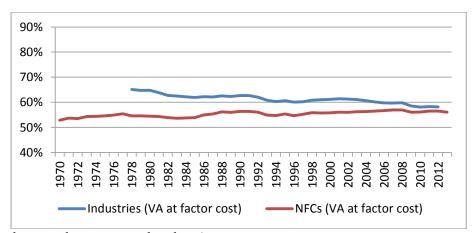


Figure 11: Share of non-farm, non-financial and non-housing market industries and share of NFCs in the value-added—<u>Italy</u>



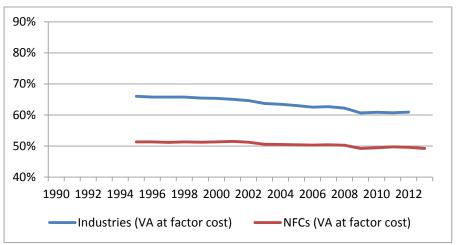
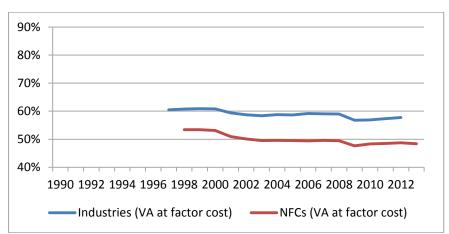


Figure 12: Share of non-farm, non-financial and non-housing market industries and share of NFCs in the value-added— <u>United States</u>

Total economy, %



Appendix 2: <u>Impact of imputing a labour compensation to self-employed workers on aggregate</u> profit shares

The imputation of a labour compensation to self-employed workers has a significant impact on aggregate profit shares. This imputation also makes profit shares look more similar across countries. In what follows, the term "total GOS" is used for the original GOS plus the residual part of the mixed income that we do not consider as labour compensation of self-employed workers.

In Germany, the profit share in the non-financial corporations' sector (S.11) is very close to the ratio of the sum of GOS and mixed income (i.e. B.2+B.3) over value-added for the selected set of industries, suggesting that there are self-employed workers allocated to the German NFC sector (see Figure 13). This was also confirmed during direct communications with the German statistical office, DESTATIS.

In Italy, the imputation of labour compensation to self-employed workers has a very significant impact on the data by industry. Using unpublished employment data for the NFC sector that was kindly provided by ISTAT allows doing a similar imputation for NFCs. After imputation, profit shares in Italian NFCs and "total GOS" over value-added for the non-farm, non-financial and non-housing market industries look very similar (see Figure 15).

In France and the United States, the imputation also has a significant impact on profit shares by industry. The resulting profit shares are similar to what is observed for NFCs (see Figures 14 and 16). Note that in the case of NFCs an adjustment for compensation of employees is not needed for these two countries.

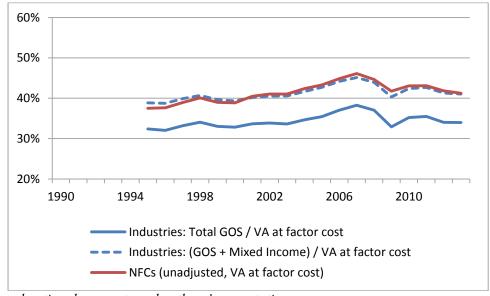


Figure 13: Impact of labour compensation imputation on profit shares in Germany

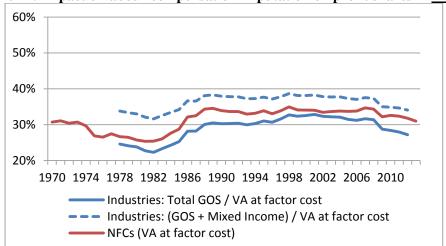


Figure 14: Impact of labour compensation imputation on profit shares in France

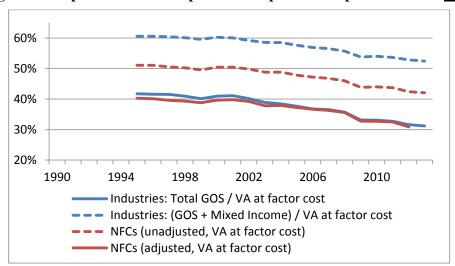
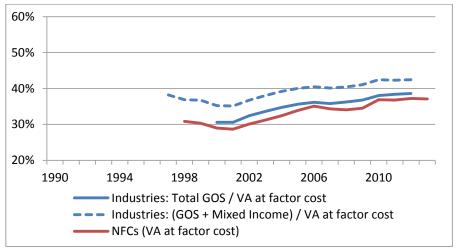


Figure 15: Impact of labour compensation imputation on profit shares in <u>Italy</u>

Figure 16: Impact of the labour compensation imputation on profit shares in the $\underline{\text{United States}}$



Appendix 3: <u>Disentangling differences in industry weights from differences in profit shares by</u> industry

This Appendix investigates whether the differences in profit shares across countries are related to differences in industrial specialisation. We consider two countries, i and j, and n industries, subscripted by k, in each of them. For both countries, the aggregate profit share can be expressed as the sum of the weighted profit shares in each industry (Y corresponds to value-added and Π corresponds to "total" GOS, i.e. original GOS plus the residual part of mixed income that we do not consider as labour compensation of self-employed workers):

$$\frac{\Pi_i}{Y_i} = \frac{\sum_{k=1}^n \pi_{i,k}}{\sum_{k=1}^n y_{i,k}} = \sum_{k=1}^n \frac{y_{i,k}}{Y_i} \cdot \frac{\pi_{i,k}}{y_{i,k}}$$

Hence, the difference in profit shares between countries i and j depends on the difference in profit shares for each industry and on differences in industry weights.

$$\Rightarrow \frac{\Pi_i}{Y_i} - \frac{\Pi_j}{Y_j} = \underbrace{\sum_{k=1}^n \frac{y_{i,k}}{Y_i} \left(\frac{\pi_{i,k}}{y_{i,k}} - \frac{\pi_{j,k}}{y_{j,k}} \right)}_{\text{Contribution of differences in profit shares}} + \underbrace{\sum_{k=1}^n \left(\frac{y_{i,k}}{Y_i} - \frac{y_{j,k}}{Y_j} \right) \frac{\pi_{j,k}}{y_{j,k}}}_{\text{Contribution of differences in industry weights}}$$

The first term of the decomposition corresponds to differences in profit shares by industry and the second to differences in industry weights. Using this formula enables to decompose the differences in profit rates between each country i ($i \neq j$) and country j, let's say Germany. Figures 17 to 19 show how both terms sum up for five industry groups (n = 5) ²⁸:

- The contribution of each industry group $k = \frac{y_{i,k}}{Y_i} \left(\frac{\pi_{i,k}}{y_{i,k}} \frac{\pi_{GER,k}}{y_{GER,k}} \right) + \left(\frac{y_{i,k}}{Y_i} \frac{y_{GER,k}}{Y_{GER}} \right) \frac{\pi_{GER,k}}{y_{GER,k}}$, resulting both from differences in profit shares by industry and from differences in industry weights, is represented with coloured histograms. For each country i, the histograms sum up to the aggregate difference in profit share with Germany $\frac{\Pi_i}{Y_i} \frac{\Pi_{GER}}{Y_{GER}}$.
- The contribution of differences in profit shares by industry, summed up over all industries, $\sum_{k=1}^{n} \frac{y_{i,k}}{Y_i} \left(\frac{\pi_{i,k}}{y_{i,k}} \frac{\pi_{GER,k}}{y_{GER,k}} \right) \text{ is represented with a dotted line.}$
- For each country *i*, the aggregate difference in profit share with Germany $\frac{\Pi_i}{Y_i} \frac{\Pi_{GER}}{Y_{GER}}$ is represented with a solid line.

Given current national accounts data availability, the preceding methodology can only be applied to data by industry (*i.e.* on non-farm, non-financial and non-housing market industries), not to the data on non-financial corporations, as the latter sectors are not broken down by industry.

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These five industry groups (industry, construction, trade, transportation and other market services) fully cover our selected set of industries, i.e. all non-farm, non-financial and non-housing market industries (see Appendix 1).

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Three conclusions emerge:

- For all countries, the aggregate difference with Germany mainly comes from differences in profit rates by industry, not from differences in industry weights. The fact that differences in industry weights are not a major contributor to the aggregate difference in profit share with Germany does not mean that all four economies have exactly the same structure, nor that this structure does not evolve over time (see Figure 21). It only shows that contributions related to differences in industry weights tend to compensate each other, so that composition effects do not play a major role at the aggregate level. In 2012 for instance, the weight of "industry" in France is significantly lower than the one in Germany, but this is partly compensated by the higher weight of "other market services" in France. In Germany the profit share of these services is roughly the same as the one in "industry" (see Figure 20).
- In France, the group "industry" is the main contributor to the decline in the aggregate profit share, compared to Germany, since the beginning of the 2000s (see Figure 17). This may be explained by the fact that the profit share of "industry" increased in Germany, whereas it declined in France (see Figure 20), but also by the fact that the weight of "industry" in the economy remained stable in Germany while it declined in France (see Figure 21).
- In Italy, both "industry" and "trade" contribute to the decline in the aggregate profit share compared to Germany since the beginning of the 2000s (see Figure 18)²⁹. The contribution of "industry" to the difference with Germany becomes more and more negative, mainly because of the decline in the Italian profit share in "industry". Contrary to France, the weight of "industry" in the Italian economy remains roughly stable.

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Note that the output of the trade industry in national accounts is equal to the sum of trade margins that are charged by retailers when they sell goods. By convention, there are trade margins on goods only, not on services. It may be difficult to disentangle the trade activity from the production of goods in an economy. Indeed, trade margins are part of the difference between basic prices and market prices. In case of measurement errors on trade margins, part of the difference in profit share with Germany could be shifted from trade to industry, or vice versa. For further details on the computation of trade margins in French national accounts, see INSEE (2008).

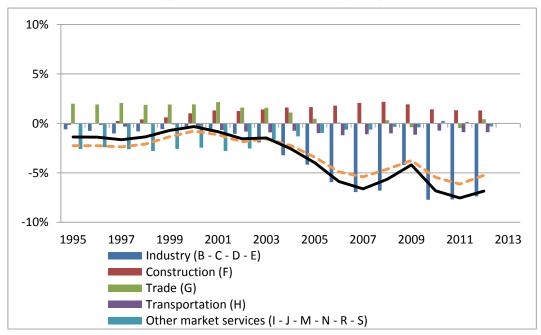


Figure 17: France - Decomposition of the difference in gross profit share with Germany

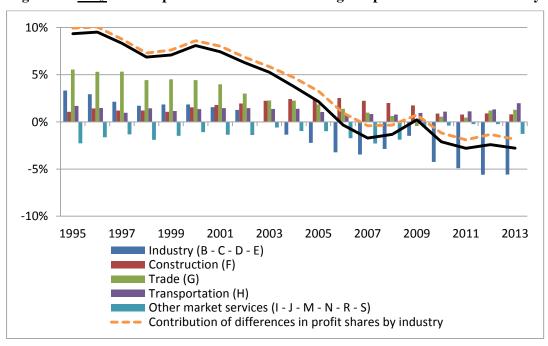
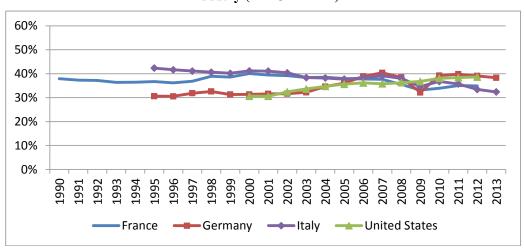


Figure 18: <u>Italy</u> - Decomposition of the difference in gross profit share with Germany

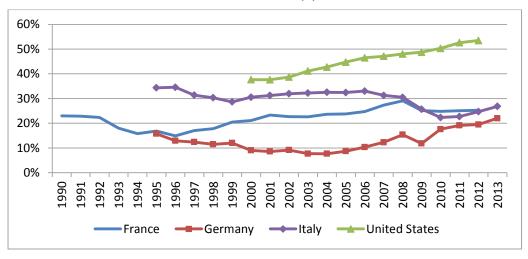
10% 5% 0% -5% -10% 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 Industry (B - C - D - E) Construction (F) Trade (G) ■ Transportation (H) Other market services (I - J - M - N - R - S) --- Contribution of differences in profit shares by industry

Figure 19: <u>United States</u> - Decomposition of the difference in gross profit share with Germany

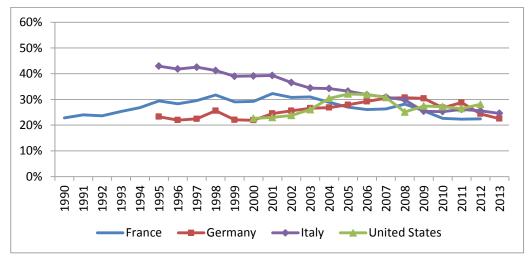
Figure 20: Profit shares by industry (VA at factor cost) $Industry \ (B-C-D-E)$



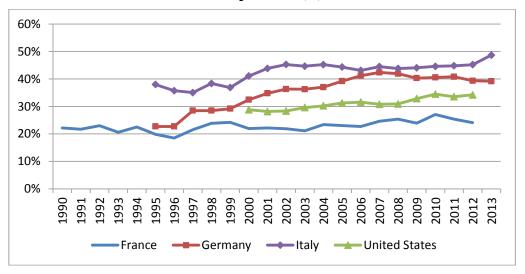
Construction (F)



Trade (G)



Transportation (H)



Other services (I - J - M - N - R - S)

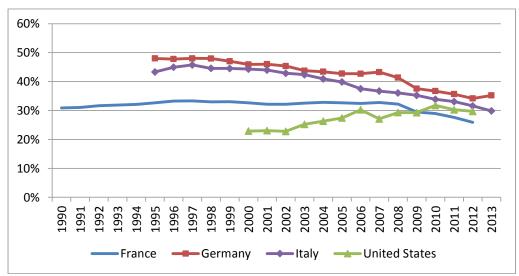
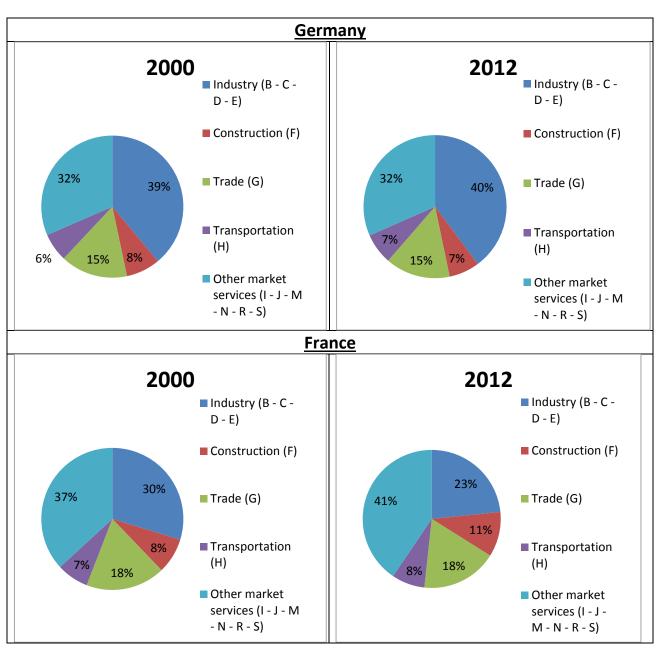


Figure 21: Weight of industries in the non-farm, non-financial and non-housing market economy in France and Germany 30 (VA at factor cost)



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Results for Italy and the United States are available from the authors upon request.