Labor share

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1. Introduction
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1. Introduction

- Accepted wisdom among economists: there has been a global and quasi general gradual **decline in the labor share** over the last decades in developed countries. “The shift in aggregate factor shares has been seen in the data for many countries, especially among the advanced countries.” Grossman et al. (2017).

  IMF (2017) and OECD (2018): **downward trend in a large majority of developed countries** since the early 1990s.

- This general decline is **independent of the post adjustment to the “wage push” phenomenon** described by Blanchard (1998).

  During the 1970s, in Europe mainly, wages failed to adjust to:
  - the decline of the terms of trade from the petrol/gas price shocks;
  - the decline of underlying factor productivity growth.

  From that, **labor share increase, followed by a decrease.**
1. Introduction

➢ Numerous explanations. Among others:

   o **Technological factors**, driven by a *decline in the relative price of investment goods*. Karabarbounis and Neiman (2014), ...
   But need a substitution elasticity superior to one, which we challenge.

   o **Expansion of global value chains** and of *offshoring of the most labor intensive tasks*. Elsby *et al.* (2013), Acemoglu and Autor (2010), ...

   o **Emergence of large superstar firms** (such as the GAFA) in specific activities. In these activities, from high entry costs and low marginal production costs, there is a “*winner takes most*” mechanism => average labor share decline. Autor *et al.* (2017), ...

   o **Decrease of the wage bargaining power** from the decline of unionisation, lower labor market regulation, threat of offshoring ... IMF (2017), Kramarz (2016).

   o The **imputation of labor income for the self-employed** could partly explain the measured decline in the labor share. Elsby *et al.* (2013), ...

   o ....
1. Introduction

- In this paper, we challenge the common wisdom of a general labor share decline. We show that **three important issues** have plagued the existing literature:
  - **biases from improper choice of starting periods;**
  - **accounting for self-employment;**
  - **accounting for residential real estate income.**
    To assess the impact of technology, trade, market power or unionization we must use a measure of capital income that does not include real estate income.

- A **theoretical model** is proposed.

- **Empirical descriptive analysis in the whole euro area and in 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, data availability allows us to build labor share indicators from the end of the 1940s.

- **Main result: 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.
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2. A theoretical model

- **Production function:** \( Y = [(1 - \alpha)^{\eta} N^{\eta - 1} + \alpha^{\eta} K^{\eta - 1}]^{\eta - 1} \)
  
  Where \( Y, N, K \): volume of output, labor and capital

- **Substitution elasticity:** \( \sigma = \eta \)

- **Marginal production cost:** \( \chi = [(1 - \alpha)W^{1-\eta} + \alpha R^{1-\eta}]^{1/(1-\eta)} \)
  
  Where \( W, R \): wage and rental rate, exogenous

- **Price:** \( P = \mu \chi \)
  
  Where \( \mu \): mark up rate

- **Labor share:** \( \Lambda = \frac{WN}{PY} = \frac{(1-\alpha)^{\eta}}{\mu} \left( \frac{Y}{N} \right)^{\frac{1-\eta}{\eta}} \)

- **At the productor optimum:** \( \Lambda = \frac{1}{\mu} \cdot \frac{1}{1 + \frac{\alpha}{1-\alpha} \left( \frac{W}{R} \right)^{\eta-1}} \)

  In case of a Cobb-Douglas, \( \eta = 1 \) and then \( \Lambda = \frac{1-\alpha}{\mu} \)
2. A theoretical model

- Labor share: \[ \Lambda = \frac{1}{\mu} \frac{1}{1 + \frac{\alpha}{1-\alpha} \left( \frac{W}{R} \right)^{\eta-1}} \]

- Higher markups (\( \mu \nearrow \)) => labor share decline

- Offshoring labor intensive tasks (\( \alpha \nearrow \)) => labor share decline

- Capital bias technology from decline in investment price (\( R \searrow \))
  - If \( \eta > 1 \) => labor share decline
  - If \( \eta = 1 \) => no change in the labor share
  - If \( \eta < 1 \) => labor share increase

Karabarbounis and Neiman (2014) assume the first situation with \( \eta > 1 \).

Empirical estimates of the substitution elasticity usually find \( \eta \) in the range of 0.4-0.8. See for instance Oberfield and Raval (2014); Raval (2019); ...
2. A theoretical model

- 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

- Decline of the relative equipment price
- Mainly from ICT relative price decline
- Mainly during the decade 1995-2005 - The total investment price is declining
2. A theoretical model

➢ **Capital coefficient (ratio capital / GDP) – Equipment**


- Quasi-stability of the capital coefficient in value, over a long period
- Slight decrease of the capital coefficient during the highest decline of the investment relative price
- Suggest a substitution elasticity close to but inferior to the unity
- Empirical literature suggests also a substitution elasticity inferior to the unity
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3. Data sources

- **Data sources**
  - National statistical institutes for France and the US.
  - Database STAN (Structural Analysis) of the OECD for the other eight countries.

- **Labor share calculation methodology**
  - We computed the labor share as the remuneration of labor in the value added at factor costs. As such, it is equal to remuneration of employees (D.1) divided by value added (B.1G) minus taxes (D.29) less subsidies on production (D.39).

\[
\text{LS} = \frac{D.1}{B.1-(D.29-D.39)}
\]

  - We made an exception for France, where we allocated taxes paid on wage to the labor share.
3. Data sources

- **Two adjustments** to the labor share calculation.

  - **Self-employment adjustment**
    - Self-employed’s mixed income constitutes remuneration for both capital and labor;
    - In France, share of self-employed drops from 39% in 1949 to 13% in 2017;
    - Labor share for self-employed is computed by attributing to them the mean hourly wage of their industry;
    - Level of detail in industries is 17 for France and the US in recent years, 12 for earlier years in the US and 34 for the eight other countries.
    - Non financial companies: no self-employment in France and US, but contains self-employment in other countries (Pionnier and Guidetti, 2015)

  - **Curves continuation**
    - Adjustments for the US in 1987 and 1997: two breaks in series due to a change in the basis of the national accounts (changing from 1972 SIC to 1987 SIC in 1987, and from SIC to NAICS in 1997);
    - For the two years, computation of labor share with two sets of data; trend of earlier years, then fitted to the value of later years by applying the difference between the labor share computed for the key year;
3. **Data sources**

- **Branches of activities and choice of field**
  - Three different fields: total, business sector and business sector excluding housing services.
  - Non-Business industries: Public administration and defense services, Compulsory social security services (Section O), 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).

- **Housing services and imputed rentals**
  - In France, in 2015, real estate services’ value added is composed at 97% by total rentals, with 61% made up of imputed rentals alone.
  - Imputed rentals are applied to owner-occupied dwellings, assuming they are paying a virtual rent to themselves.
  - Imputed rentals correct bias coming from different levels of home ownership.
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4. Empirical results

- **Labor share in France – In %**
  Source: Author’s calculation from national account data

- Large impacts of the self-employment and real estate service corrections
- Large impact of the starting point on LS evolution diagnosis
- LS orientation: Stability over the long period; increase over the last two decades
4. Empirical results

- **Labor share in the US – In %**
  
  Source: Author’s calculation from national account data

- **Medium impacts of the self-employment and real estate service corrections**

- **No “wage push” effect**

- **LS orientation: decrease, mainly over the decade 2000-2010**
4. Empirical results

- Share of self-employed workers in the total employment – In %
  
  Source: Author’s calculation from national account data

- Large decrease in France, smaller in the US
- Slight increase in France from 2008 (auto-entrepreneurship status)
4. Empirical results

- **Share of real estate services in the total value added** – In %
  
  Source: Author’s calculation from national account data

- Large increase in France, smaller in the US
- Stabilisation from the early 2000s
4. Empirical results

- Annual contribution to labor share variations in the business sector excluding real estate services – In percentage points
  Source: Author’s calculation from national account data

- Productivity and real labor costs are the main factors of LS changes
- Since 2007, in average, LS has increased from productivity (negative) contribution lower than (positive) labor cost one
4. Empirical results

- Labor share in the Euro Area— In %
  Sources: Author’s calculation from the STAN OECD database

Euro Area contains: France, Germany, Italy, Spain, the Netherlands and Belgium. In 2017, these six countries corresponded to 86% of the GDP of the whole Euro Area.

- LS orientation: slight decrease in business sector, stability if excluding real estate services
4. Empirical results

- **Labor share in Belgium, Denmark, Germany and Italy — In %**

  Sources: Author’s calculation from the STAN OECD database

- LS orientation: Increase in Italy; decrease in Belgium, Denmark, Germany
- In Germany, the break corresponds to the reunification event
4. Empirical results

- Labor share in The Netherlands, Spain, Sweden and the United Kingdom – In %
  Sources: Author’s calculation from the STAN OECD database

- LS orientation: Increase in Spain, Sweden, United Kingdom; decrease in The Netherlands
- Excluding real estate services changes the LS orientation in Spain
4. Empirical results

- Share of real estate services in the business sector value added – In %
  Source: Author’s calculation from the STAN OECD database

- Increase in Spain and Italy
- Quasi stability in other countries
4. Empirical results

- Labor share orientation in the business sector, from the earlier available data to the current period ...
  
  Source: Author’s calculation from national accounts and the STAN OECD database

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<tr>
<th>... Without real estate services</th>
<th>... With real estate services</th>
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<td><strong>Decrease</strong></td>
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<td>Denmark</td>
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<td><strong>Stability</strong></td>
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<td><strong>Increase</strong></td>
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We consider that the labor share increases (decreases) if the slope of the linear trend over the available period is above (below) 0.02 (-0.02) percentage points per year.

- To remove real estate services decreases the number of countries where LS declines
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5. Conclusion

- No real support for the technological explanation of a possible labor share decline.

- Three important aspects influence the labor share orientation diagnosis:
  - The choice of starting periods;
  - The accounting for self-employment;
  - The accounting for residential real estate income.

- **When we remove real estate services, 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.**