The evolution of wages, labour cost and the labour share in national income: a sectoral analysis (1970-2020)

Riccardo Pariboni

Dipartimento di Economia e Statistica, Università di Siena

Walter Paternesi Meloni

Dipartimento di Economia, Management e Istituzioni, Università degli Studi di Napoli 'Federico II'

Seminario di studi presso INAPP

Roma, 4 ottobre 2022

Outline of the presentation

● Background and motivation

● What determined the fall in the labour share in advanced countries?
  - Technology, trade and market power
  - The political economy approach

● Possible factors behind the fall in Italy's labour share

● Data and methods
  - Labour share
  - Wages and productivity
  - Unit labour cost
  - Prices

● Findings and discussion

● Concluding remarks

Background and motivations

The main focus of the paper is on the evolution of the labour share. But why does the evolution of the labour share deserve attention?

Theory vs. facts
- Kaldor's stylized facts of economic growth posit that the shares of income received by labour and capital are roughly constant over long periods of time...
- ...but evidence does not corroborate that (Stockhammer, 2017; Pariboni and Tridico, 2019; Stirati and Paternesi Meloni, 2020)

Consequences for macroeconomics
- The labour share often relates to the personal income distribution (Atkinson, 2009; Glyn, 2009; Jacobson and Occhino, 2012).
- Changes in the labour share affect the composition and evolution of aggregate demand (Onaran and Galanis, 2013; Hein, 2015).
- Changes in the labour share modify the composition of the tax base.

Political dimension
- The functional distribution can be seen as "the most immediate indicator of the balance of forces between labour and capital" (Franzini and Pianta, 2015, p. 71).

3

The (adjusted) labour share in high-income economies
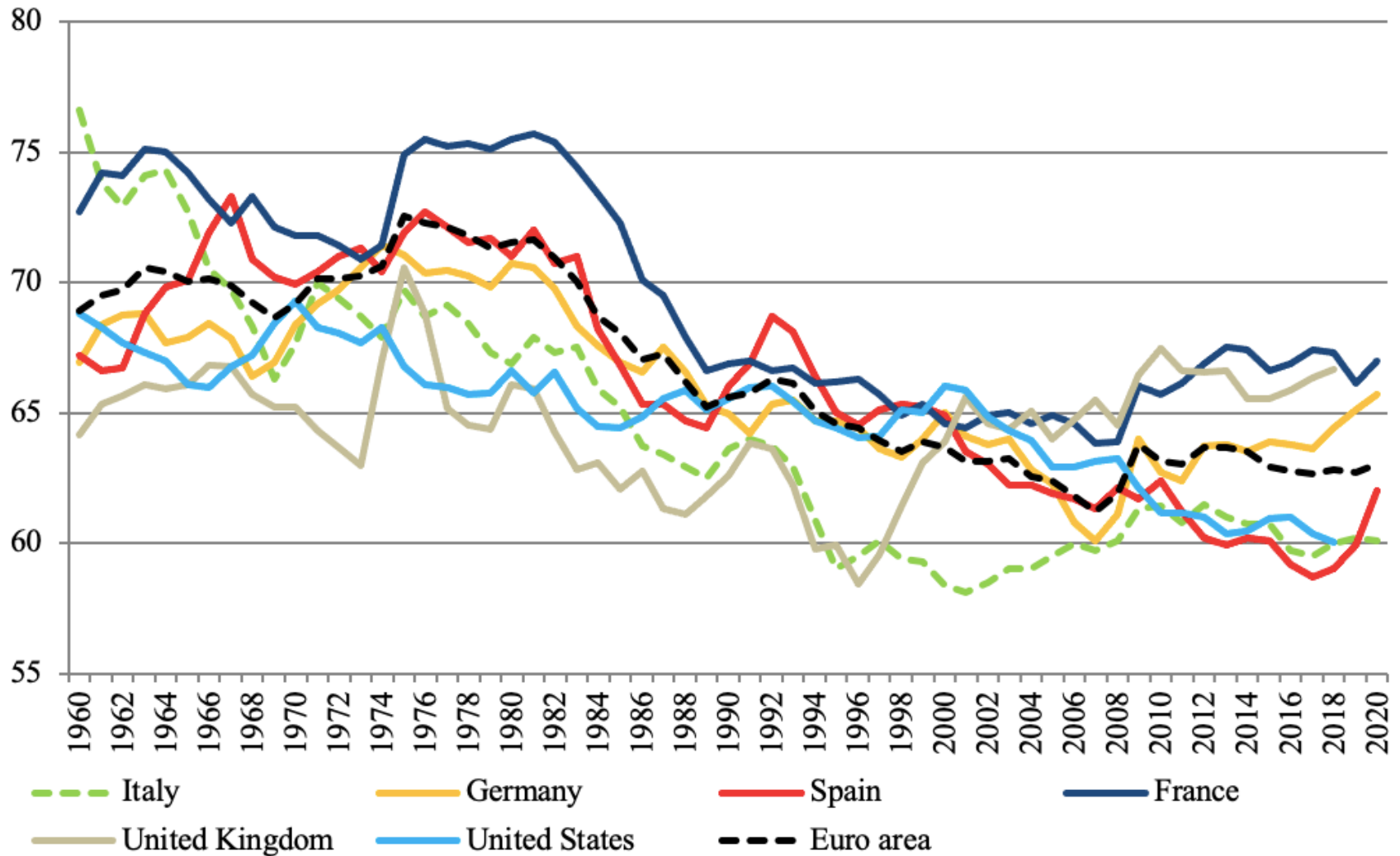
Source: AMECO

Measuring the drop – Insights from the literature

- OECD (2015): in the period 1970–2014, the most dramatic erosion of the adjusted share of labour occurred in Mediterranean countries (SPA, -14%; ITA, -12%), a milder drop in the US (-11%) and JAP (-9%), and a smaller decline in CAN, GER, FRA and the UK (about 6 to 7%).

- On the private sector of the economy uniquely (net of the primary sector and real estate), the average labour share was about 70% in the G20 countries in the early 1990s, while it was 66% in 2007.

- Schwellnus et al. (2017) focus on a panel of 24 OECD countries and find that the labour shares have declined significantly in about two-thirds countries they consider.

Factors behind the drop: technology, trade and market power

1) **Technical change** (Hogrefe and Kappler, 2013; Bassanini and Manfredi, 2014; Grossman et al., 2017; IMF, 2017).

- Technological change is **skill biased** (Autor et al., 1999; Card and Di Nardo, 2002) and **capital augmenting** (European Commission, 2007; IMF, 2007).

- Rising wage inequality proved to be associated with decreasing labour share (EC, 2008; Erauskin, 2020; Bengtsson and Waldenström, 2017).

2) **International trade**: unskilled labour would suffer the most from the integration of emerging economies, while capital and skilled labour would benefit; the reverse is expected to happen in labour-abundant economies (e.g., IMF, 2007).

3) **Role of superstar firms**: market concentration in big firms with very high profitability and profit share (Autor et al., 2017; Calligaris et al., 2018; Schwellnus et al., 2018; Gutierrez G. and Philippon, 2019).

Factors behind the drop: macroeconomics and institutions

Other factors: macroeconomic, political and institutional dimensions

1. **Change in policy orientation** from full employment towards inflation control (Pollin, 1998; Glyn, 2007; Levy and Temin, 2007; Bivens and Mishel, 2015).

2. **Globalization** (trade openness and capital mobility), with the ensuing increased the competition by low-wage countries (Rodrik, 1997; Guscina, 2006; European Commission, 2007; Onaran, 2011; Elsby et al., 2013; Fauser, 2014; Stockhammer, 2017).

3. **Increasing labour market flexibility** (Tridico, 2013; Deakin et al., 2014; Brancaccio et al., 2018; Cirillo et al., 2017; Damiani et al., 2018).

4. **Persistent slack in the labour market** (Kristal, 2010; Pariboni and Tridico, 2019; Stirati and Paternesi Meloni, 2021).

5. **Welfare state retrenchment**, privatization and fiscal consolidation (Schulten et al., 2008; Baccaro and D'Antoni, 2020).

6. **Deunionization** (Kristal, 2010; Baccaro and Howell, 2011; Bengtsson, 2014).

7. **Structural change** as a shift towards the low-pay segments of the service sector (Stockhammer, 2017; Storm, 2017; Beqiraj et al., 2019; Pariboni and Tridico, 2020).

8. **Financialization** (Stockhammer, 2017; Pariboni and Tridico, 2019; Van Treeck, 2009; 2015; Lazonick and O'Sullivan, 2000; OECD, 2012; Lazonick, 2014).

Real unit labour cost, profitability and unemployment

Euro area

Italy
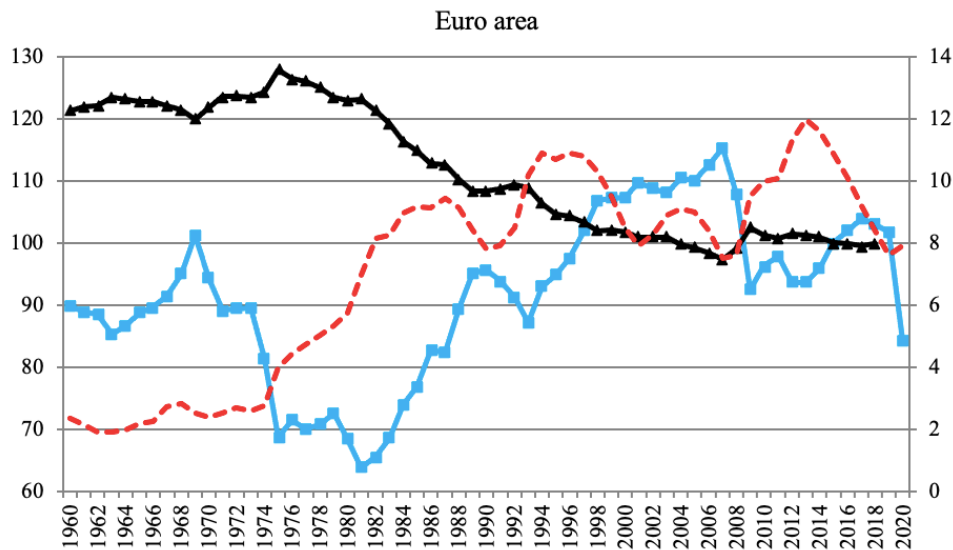
The fall in the labour share **mirrors** the growth in the *rate* of the net return on capital (the overall profits, net of depreciation *as a proportion* of the value of the capital stock).

Changes in income shares cannot be attributed, in an accounting sense, to an increase of the **capital-to-output ratio**, which would give rise to an increase in the profit share of income even at a given profit rate.

In parallel, we also witness **an increase in the unemployment rate**.
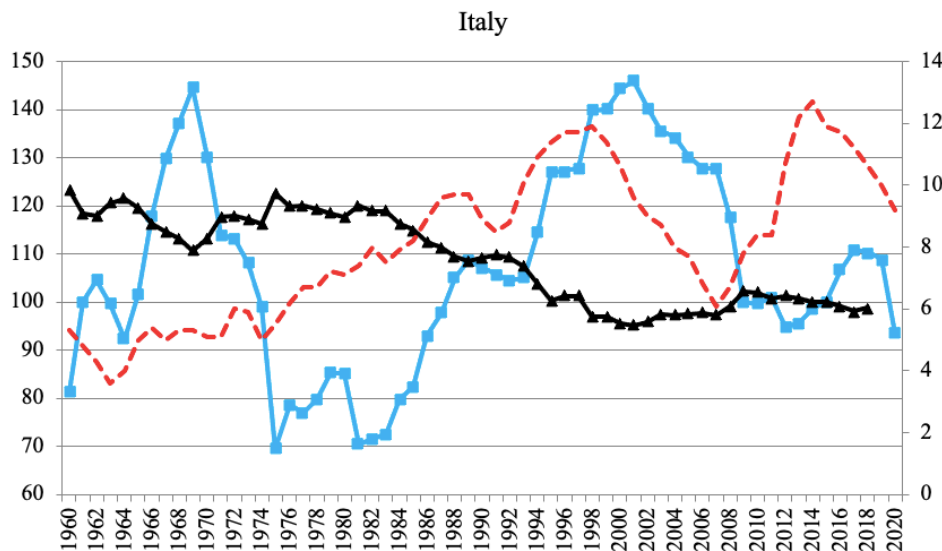
Net returns on net capital stock (2015=100)

Unemployment rate (right scale)

Real unit labour costs (2015=100)

Possible factors at work in the case of Italy (1)

- Institutional change as a continuous process of **labour market deregulation** and **flexibilization** (Deleidi and Paternesi Meloni, 2014; Tridico, 2015; Cirillo et al., 2017; Forges Davanzati and Giangrande, 2020; Baccaro and D'Antoni, 2020).

- The **erosion of trade unions' power** (Checchi and Pagani, 2005; Baccaro and Howell, 2011).

- Increasing **unemployment** (Levrero and Stirati, 2006; Stirati and Paternesi Meloni, 2021) and the likely effect on income distribution by reducing the bargaining power of workers and preventing them to share some gains in labour productivity.

- Levrero and Stirati (2006): the **decline in employment** started in the late 1970s in the manufacturing sector – the leading one in the process of wage negotiation – has significantly contributed to overall wage moderation.

- Changes in the **wage-setting process** and **wage indexation** (Zenezini, 2004; 2014; Brandolini et al., 2006).

Possible factors at work in the case of Italy (2)

- In the manufacturing sector, the **intensification of international competition** on the product market, combined with periods of significant **appreciation of the real exchange rate** (Paternesi Meloni, 2018), may have exerted a strong pressure on prices and nominal wages.

- With respect to the process of **tertiarization**, De Serres et al. (2002) and Torrini (2016) underlined the role of the structural change in favor of the service sector, and particularly towards the real estate branch, in compressing the labour share. Nevertheless, Levrero and Stirati (2005), estimated a sizable decline in the wage share since the late 1970s regardless of the process of tertiarization – a finding that is consistent with a recent work by the OECD (2012).

- Deleidi and Paternesi Meloni (2019) find that the slowdown in productivity is **not dependent on structural change**.

Possible factors at work in the case of Italy (3)

- As far as **globalization** is concerned, Bloise et al. (2021) argue that outsourcing is the main factor which plays a role in reducing the labour share along the distribution (while unionization contributes to increasing the labour share mainly at the top of its distribution).

- Concerning the process of **financialization** of the economy, Forges Davanzati et al. (2019) put the emphasis on huge profits of the biggest Italian companies through speculation after the cycle of the class struggle of the 1970s, with the ensuing effects on growth and income inequalities.

- Concerning the **technological bias**, Torrini (2016) maintained that this explanation is not consistent with the decline in the labour share from the beginning of the 1980s, while poor productivity growth may have contributed to determining the upswing of the wage share after 2000.

Our work and the existing literature

- Our work is **not intended** to identify the ultimate economic causes of the decline in the labour share in Italy.

- Less ambitiously, we analyse its evolution over time (also by looking at the dynamics of productivity and the average labour compensation, **distinctively**) and, when possible, we discuss that by putting it in connection with some macroeconomic trends and changes in the institutional setting.

- Among the contributions that have studied aggregate distributive trends in Italy, such as Bertola (1998), Zenezini (2004), Levrero and Stirati (2005), and more recently Torrini (2016), the latter is the closest to our piece in terms of data and methods, although our contribution partially differs for the identification of macro-sectors.

- The remaining works are not recent enough to pay attention to the post-2000 upswing of the labour share, which is instead discussed in Torrini (2016).

Data

- We make use of national accounts data provided by ISTAT (1970 to 2020).

- From ISTAT's website, series for the total economy and each branch

Series on:
- compensation of employees, that is gross wages *plus* social contributions paid by employers (at current prices);
- the number of employees (measured in ULA);
- total employment (measured in ULA);
- value-added at factor cost (at current prices), that is the gross income from operating activities net of indirect taxes minus subsidies to firms.

- Notably, we also make use of value-added at constant prices (chained values) from ISTAT. We use it to calculate labour productivity and the product deflator (at both the aggregate and sectoral level).

Sectoral aggregation

- We selected our level of aggregation starting from the NACE classification.

- We focus on four macro-sectors

i)   manufacturing sector;
ii) non-agricultural business sector (excluding real estate);
iii) commercial and professional services;
iv) financial and network services.

A caveat: we shall plot overlapping two series due to different classification

- the first refers to the period 1970–2010 (Nace Rev.1.1)
- the second refers to the period 1995–2020 (Nace Rev. 2).

The main difference between the two aggregates concerns the macro-sector of commercial and professional services, which in the first sub-period does not include professional services.

Methodological refinements (1)

1) We calculate the **adjusted labour share**, that is the portion of (total or sectoral) value-added effectively going to the workers: it captures the purely distributive aspects and avoids distortions related to changes in the weight of self-employment on overall employment (Gollin, 2002; Krueger, 1999).

$$\frac{\dfrac{Compensation\ of\ employees}{Number\ of\ employees\ (ULA)} \ x \ Total\ employment\ (ULA)}{Value\ added\ (at\ factor\ cost)}$$

In doing that, the average compensation of an employee is **attributed** to self-employed individuals.

A 'non-adjusted' share would reflect **also** the ratio between employees and total employment, a ratio which has grown in recent decades in all industrialized economies (often to a significant extent).

Methodological refinements (2)

2) We opt for the **value-added at factor cost** (instead of the value-added at market prices).

In official statistics value-added at market prices is obtained by adding the amount of net indirect taxes to distributed primary incomes (that is, value-added at factor cost). Therefore, for the same distributed primary income, an increase in taxes leads to an increase in value-added at market prices.
In short, while income shares at market prices reflect the trend of indirect taxes in addition to the distribution of income between workers and capitalists, the shares at factor cost do not depend on changes in indirect taxes.

3) The amount of work (both employees and total employment) is measured in ULAs, represented by **the 'normal' time of a unit of work**. This will avoid distortions due to changing weight of part-time contracts (we use ULAs also for the calculation of average labour compensation and productivity).

Findings – Trends in the labour share (total economy)

Legend: - - - 1970-2010   ——— 1995-2020

Non-agricultural business sector (excluding real estate)
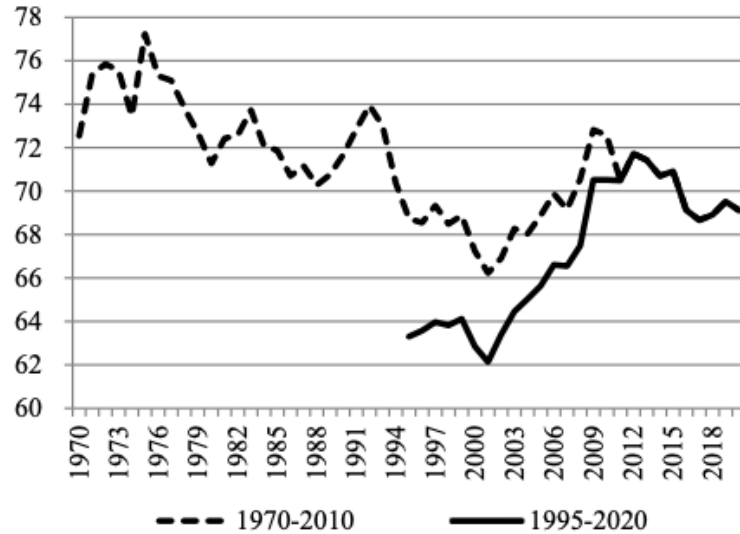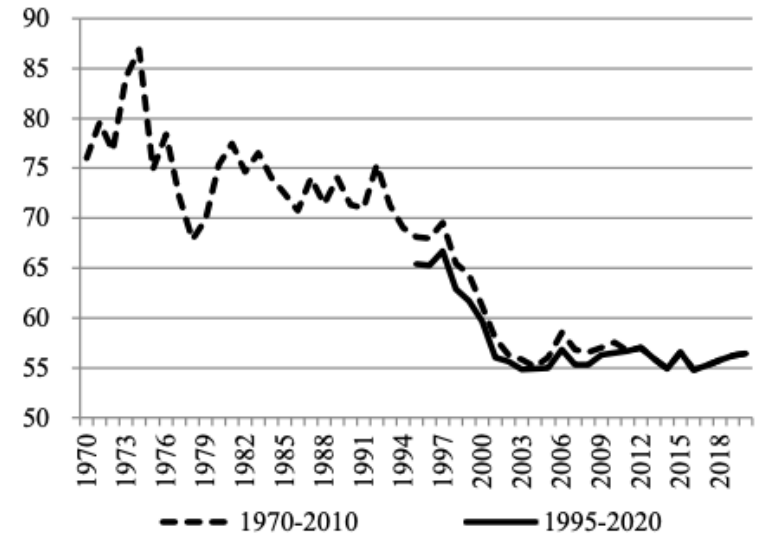
Manufacturing
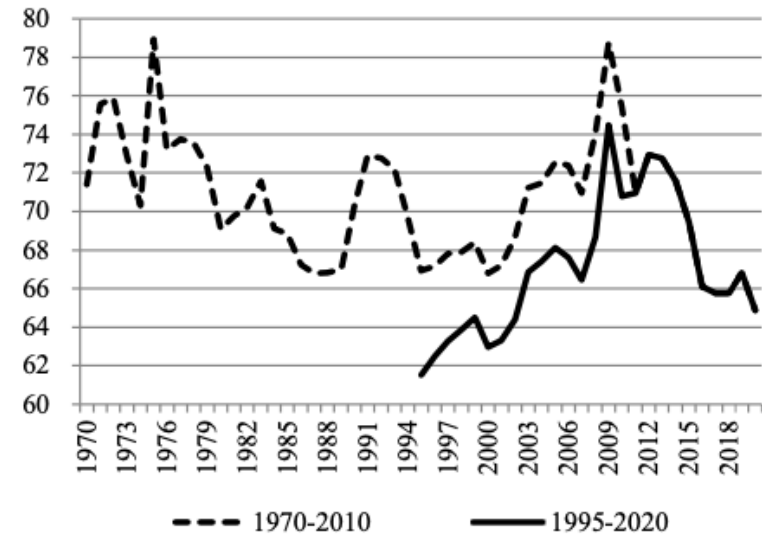
Commercial and professional services

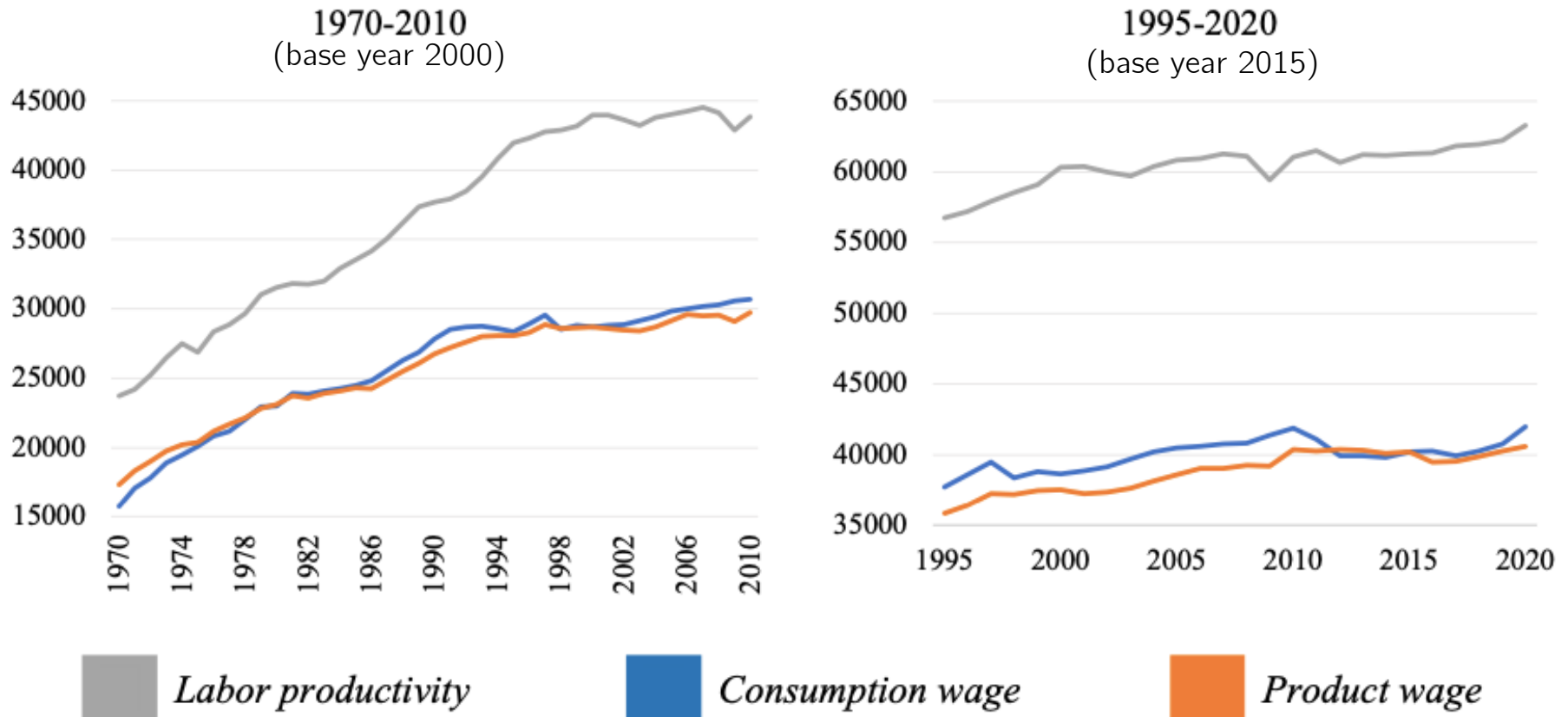Financial and network services

1970-2010   1995-2020
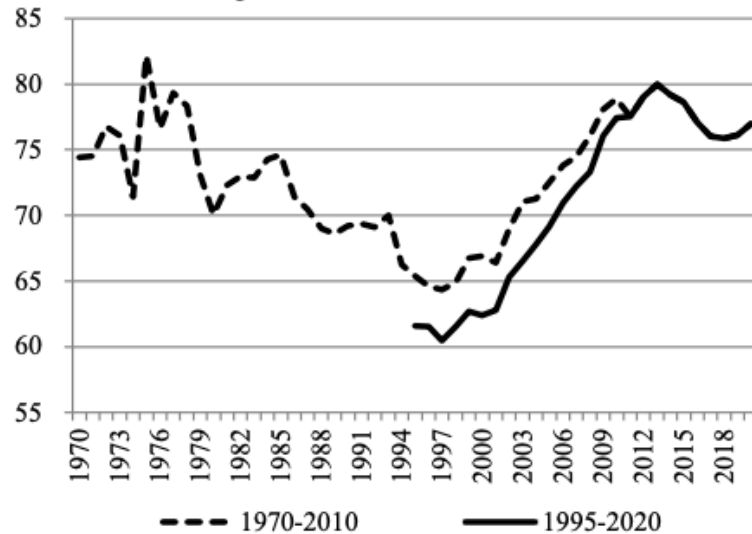
Trends in productivity and wages

- In addition to the wage share, we study the evolution of wages and productivity, separately.

→ The labour share is simultaneously affected by two distinct variables (i.e., labour productivity and pay), and this may introduce some confounding elements (procyclical fluctuations of productivity, mainly related to labour hoarding and overhead labour (Okun, 1962; Basu, 1996), may cause countercyclical movements of the labour share).

- In addition to the product wage (wage in terms of the product price), we study the evolution of the consumption wage.

→ From the point of view of workers (for preserving or increasing the purchasing power), the reference is to the CPI index.
→ From the point of view of firms, what determines profitability is the cost of labour in terms of the product price (PPI).
→ In case the CPI grew at a faster pace than the PPI, wages could stagnate or even decrease from the point of view of workers, while they could be growing from the point of view of firms.

Total economy

1970-2010
(base year 2000)

1995-2020
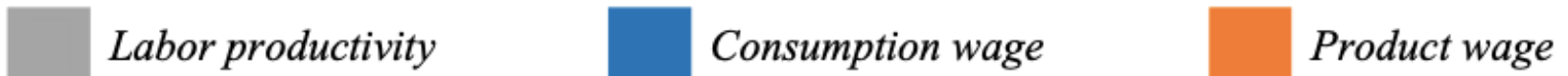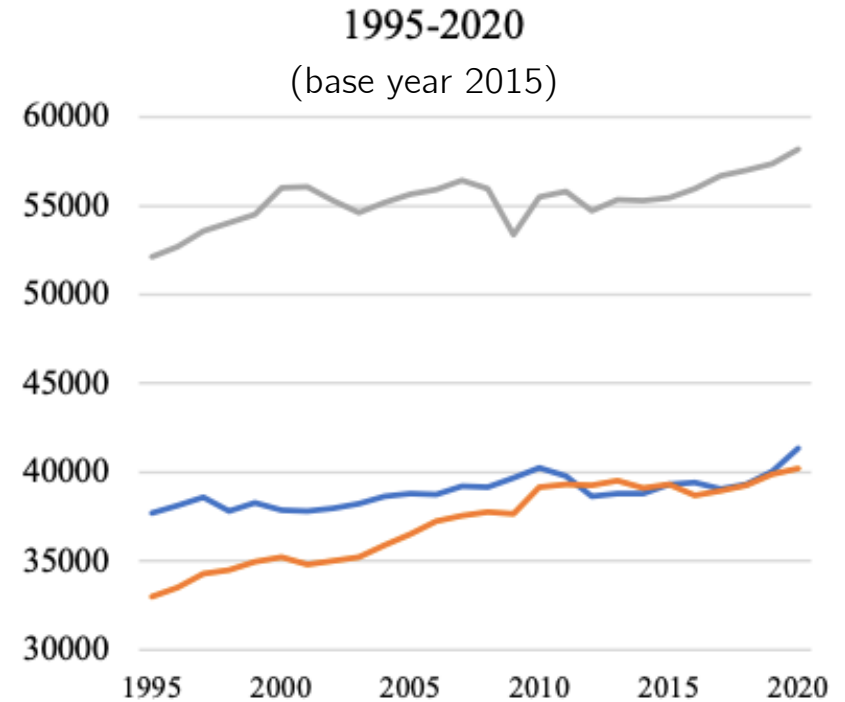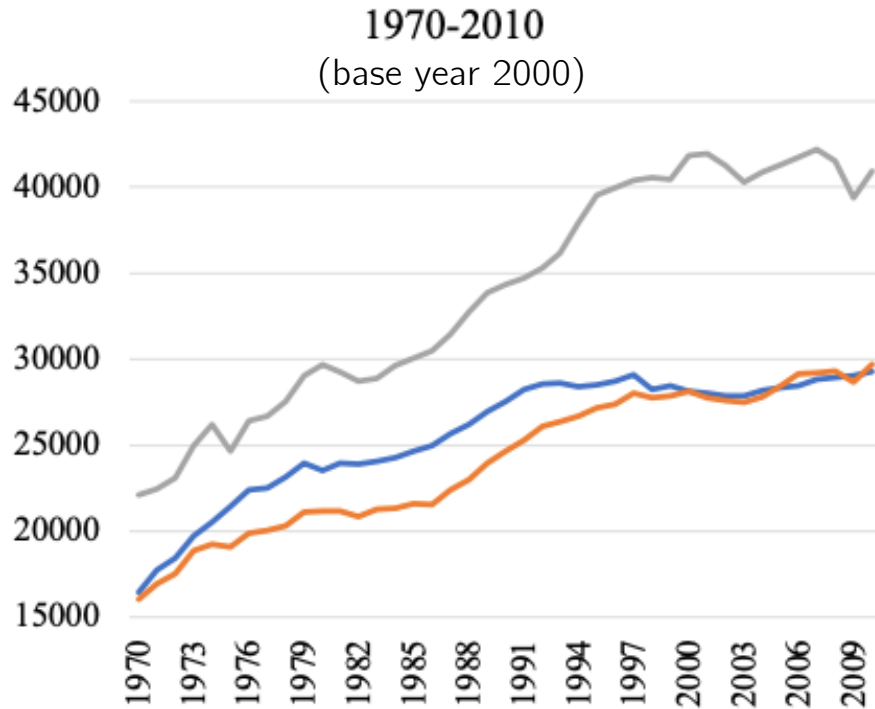(base year 2015)

Legend: Labor productivity — Consumption wage — Product wage

From 1970 to 1995, CW +80% (in line with LP, +70%), while the PW +62%. From 1995 to 2004, stagnating wages (about 28.000 Euros, it reaches 30.000 in 2007). Stagnating productivity and wages also in recent years.

Non-agricultural business sector (excluding real estate)

1970-2010
(base year 2000)

1995-2020
(base year 2015)

Labor productivity   Consumption wage   Product wage

From 1970 to 2000, LP +89% PW +75%, CW +71% ➔ -8 p.p. in the labour share.
The slowdown in real wages seems to follow the changes in the wage-setting framework (1992) and starts before the slowdown in productivity. After 2000, PW +12.5%, but CW + 5.5%. Fall in productivity (-3%) from 2001-2003 and increase in LS: emersion of irregular workers?

Manufacturing

1970-2010 (base year 2000)

1995-2020 (base year 2015)

Labor productivity   Consumption wage   Product wage
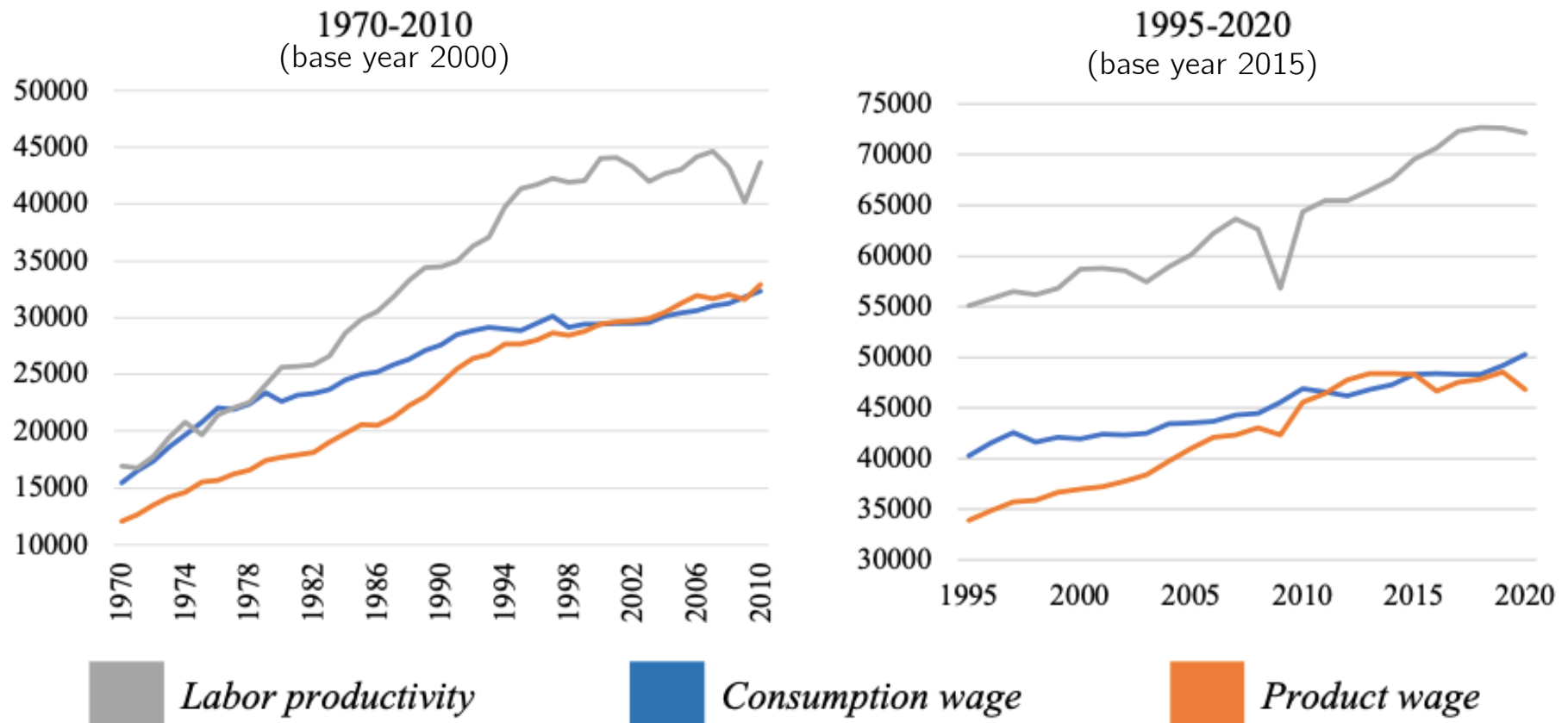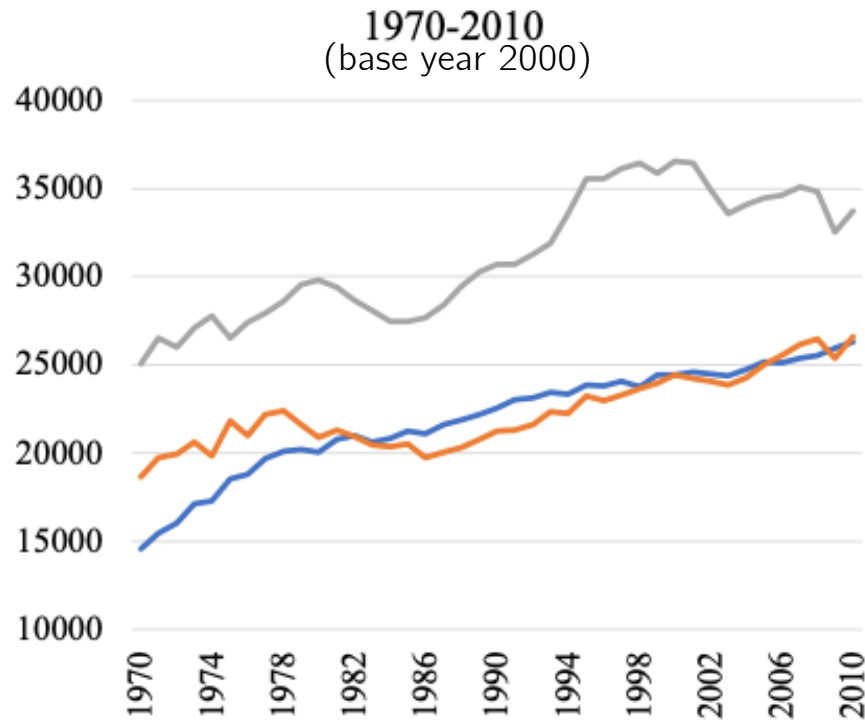
From 1970 to 2000, LP +158% (3.3% yearly average), PW +143%, but CW +89% → drop of 8 p.p. in the labour share (decline in employment and weakened unions since the '80s, intensification of international competition + periods of real exchange appreciation). The increase in the labour share after 2008 seems to be a cyclical phenomenon.

Commercial and professional services

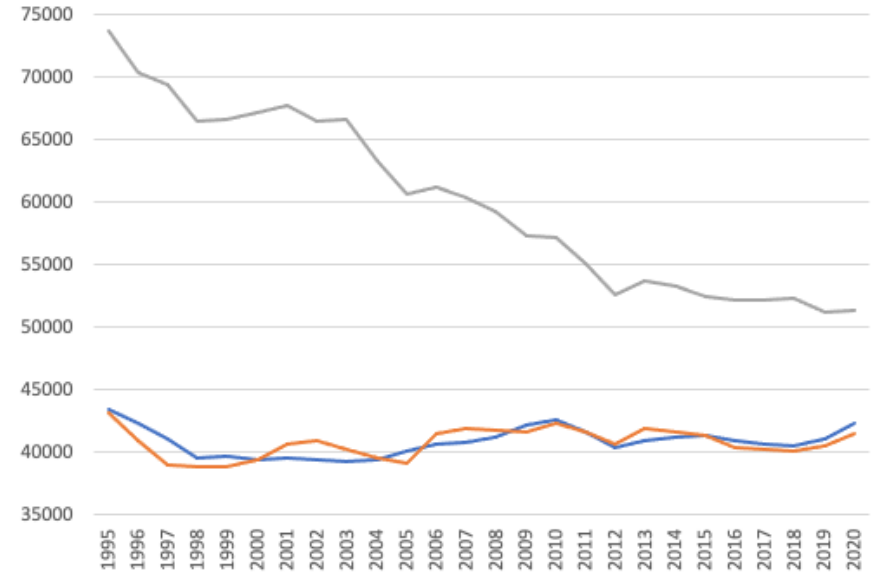Between the mid-1980s and the mid-1990s, the CW grew less (+14%) than LP (+28%) ➔ -17 p.p. in the labour share (the increase in the PPI was more marked here than in the remaining sectors). Strong decrease in productivity 2000-2012 (-10%) with moderate wage growth.

Findings – Trends in productivity and wages (4.2)

Commercial services (1995-2020)
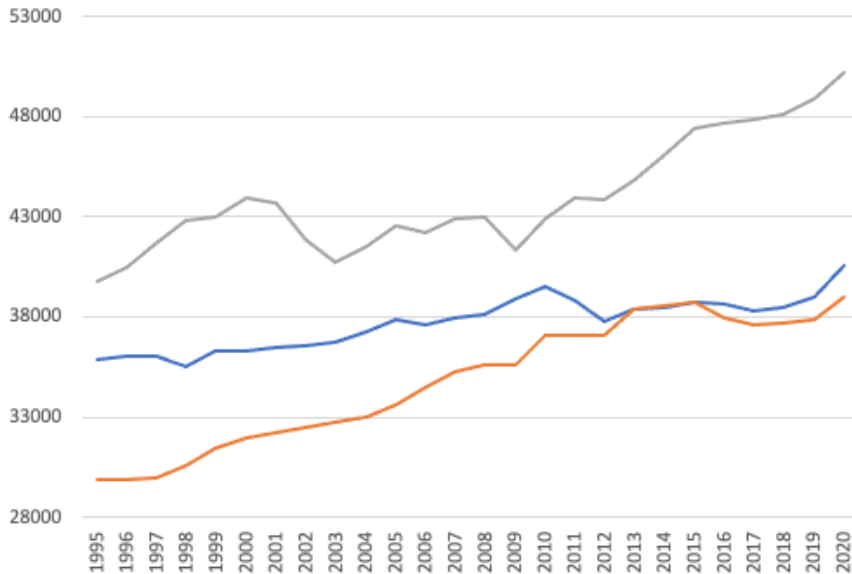
Professional services (1995-2020)

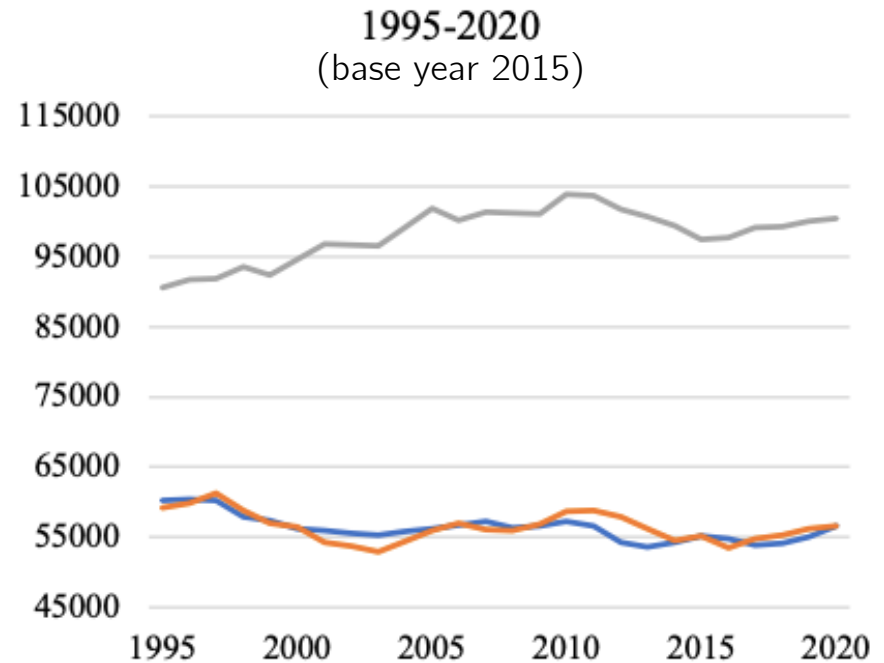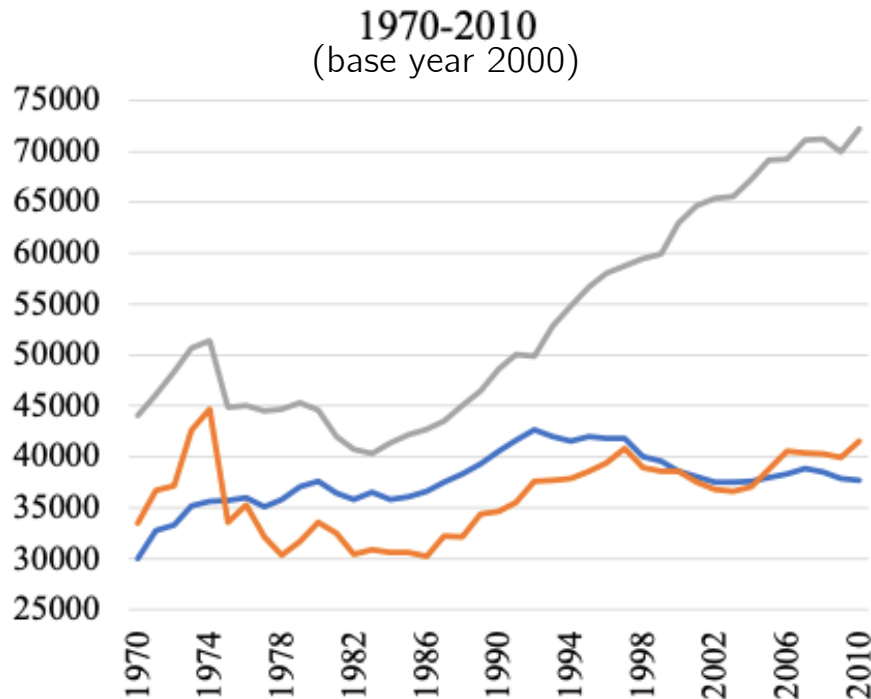■ Labor productivity   ■ Consumption wage   ■ Product wage

The drop in LP is mainly ascribed to the professional services (-22% from 2000 to 2012), while it is constant in the commercial services (increase after 2013) → statistical emersion of irregular workers, but also the existence of self-employed with low value-added and low incomes that would be otherwise unemployed (co.co.co. and *finte* partite IVA?)
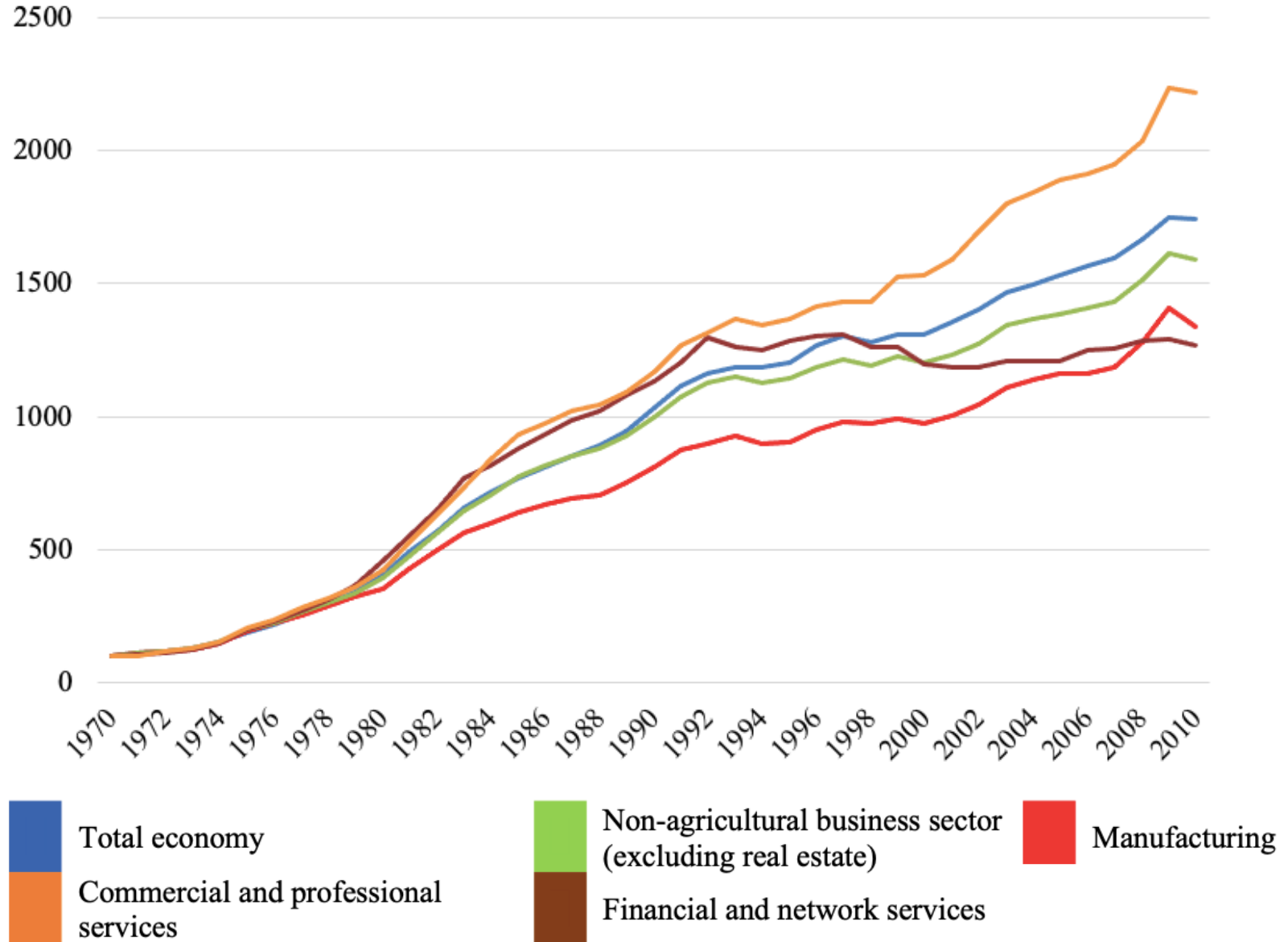
Financial and network services

Productivity +2.3% yearly from 1980 to 2000 (below manufacturing). Product wage +0.58% yearly ➔ drop in the labour share of 15 p.p. Decline in the consumption wage since 1992 (-14%). Sector featured by a strong process of privatization.
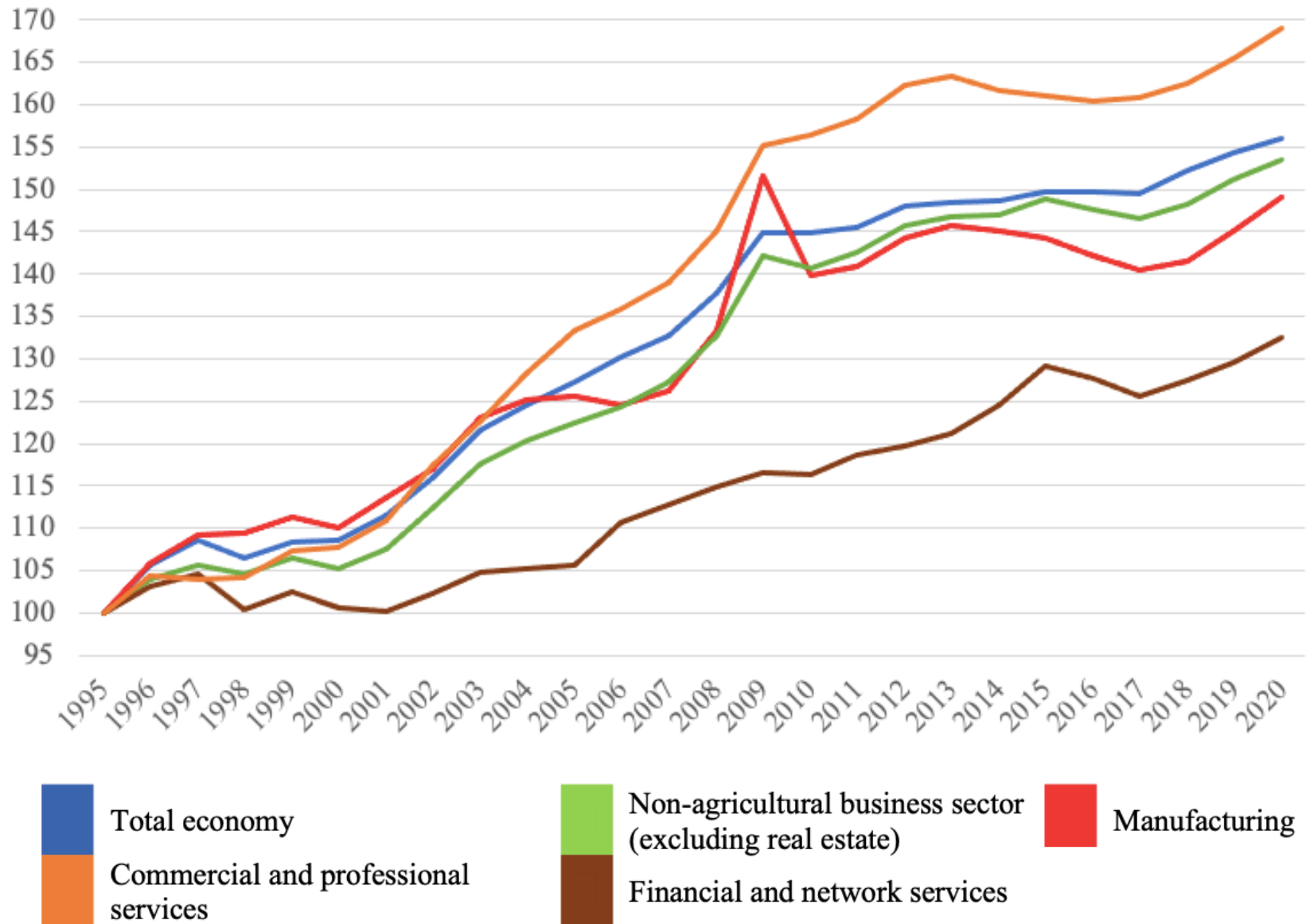
Unit labour cost

$$ULC = \frac{\dfrac{Compensation\ of\ employees\ (at\ current\ prices)}{Number\ of\ employees\ (ULA)}}{\dfrac{Value\ added\ (at\ factor\ cost,\ at\ constant\ prices)}{Total\ employment\ (ULA)}}$$

- The numerator is in nominal terms, while the denominator is at real terms → a measure of (international) price competitiveness.

- ULC provides an indication of the incidence of the cost of a specific factor (labour) on a unit of product.

- The magnitude can also be influenced by variations that may occur in labour productivity.
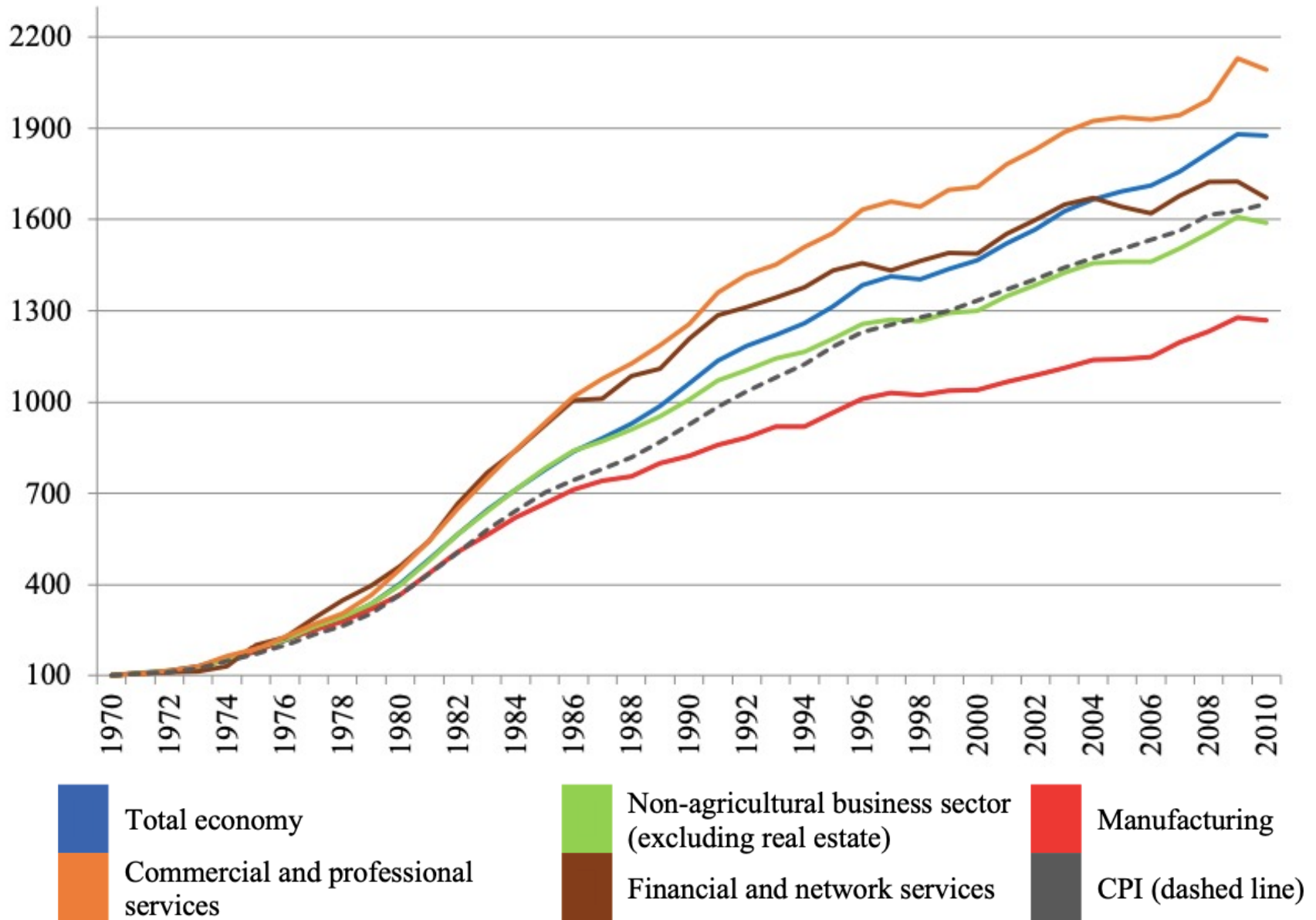
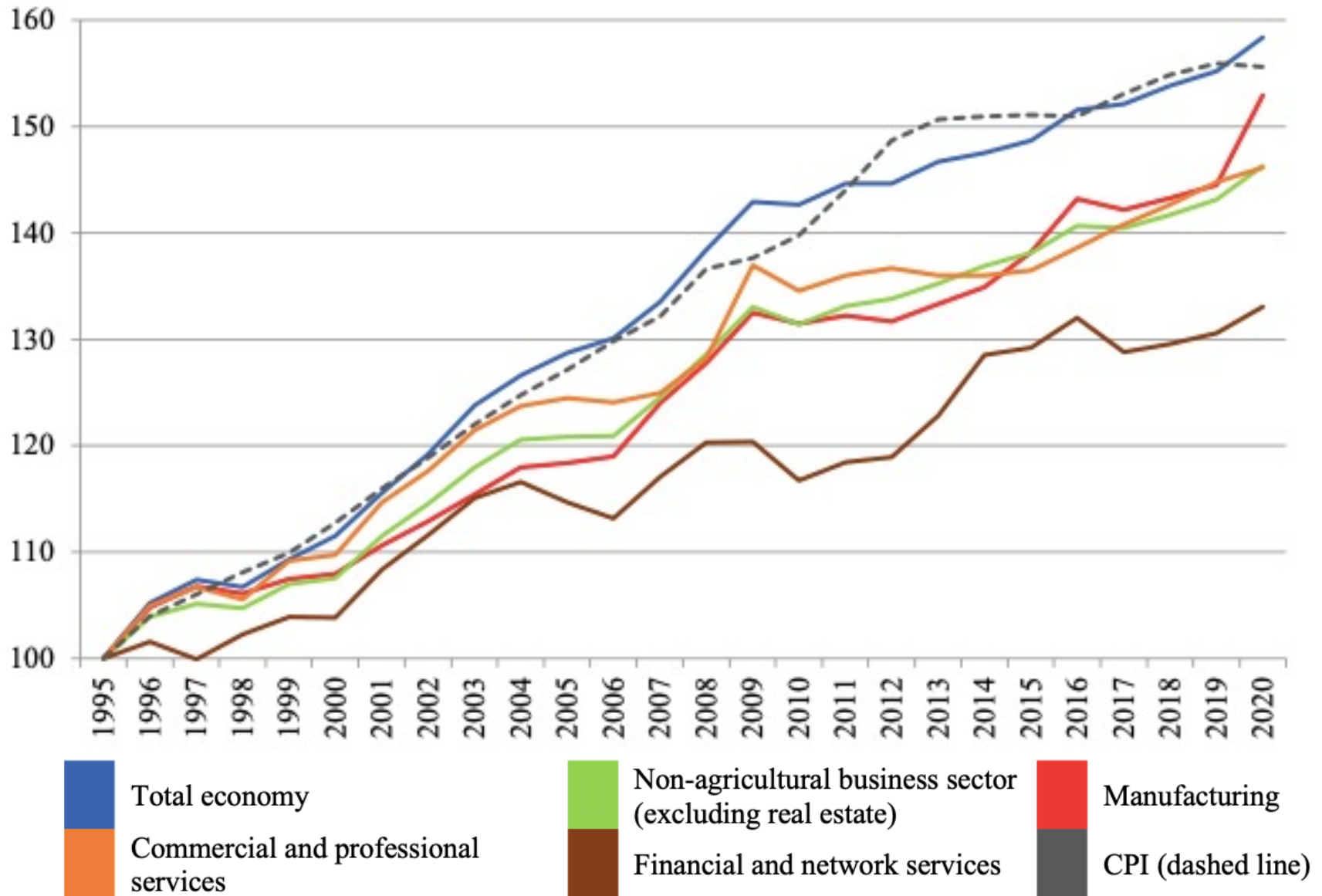# Findings – Trends in unit labour cost (1970-2010, 1970=100)

Legend:
- Total economy
- Commercial and professional services
- Non-agricultural business sector (excluding real estate)
- Financial and network services
- Manufacturing

Findings – Trends in unit labour cost (1995-2020, 1995=100)

Legend:
- Total economy (blue)
- Commercial and professional services (orange)
- Non-agricultural business sector (excluding real estate) (green)
- Financial and network services (brown)
- Manufacturing (red)

Findings – Trends in prices (1970-2010, 1970=100)

Legend:
- Total economy
- Commercial and professional services
- Non-agricultural business sector (excluding real estate)
- Financial and network services
- Manufacturing
- CPI (dashed line)

Findings – Trends in prices (1995-2020, 1995=100)

Legend:
- Total economy
- Commercial and professional services
- Non-agricultural business sector (excluding real estate)
- Financial and network services
- Manufacturing
- CPI (dashed line)

Concluding remarks (1)

- **First period (1970-2000)** → wage moderation in all sectors;
- Emergence of higher profit margins in network and financial services.
- Increase in prices and profit margins and prices of commercial and professional services → CPI growth in the total economy (higher than manufacturing) → boost in the product wage much greater than in the consumption wage.

- **Second period (after 2000)** → stagnation in labour income and productivity
- The poor dynamics of productivity (even a drop in professional services) contributed to a moderate increase in the labour share between 2000 and 2006; after 2008, increase in the labour share, in correspondence with a reduction in productivity and production prices (particularly in manufacturing).
- Moderate recovery in real wages, followed by a worsening in terms of purchasing power since the biennium of strong austerity measures of 2011–2013 (which involved the increase of the average VAT rate and the CPI).
- The increase in the labour share is likely to be a cyclical phenomenon, rather than a persistent distribution.

Concluding remarks (2)

On the ongoing debate on the ultimate causes of the decline in labour income share in Italy.

- The decline cannot be attributed only or mainly to the increase in property (mostly imputed) incomes in the real estate sector, since there is a sizable decline even when we keep this sector out of the picture.

- The timing and sectoral features of the changes provide support to the view already advanced in earlier studies that **institutional changes**, such as the privatization process in the 1990s, the changes in wage-setting in the early 1990s, and the weakening of trade union's bargaining power in the 1980s played a role.

- Further developments of the work: directly assess the potential influence of specific factors (institutional change, wage-indexation system, globalization, deunionization, etc.)

Thank you for your attention.

riccardo.pariboni@unisi.it
walter.paternesimeloni@unina.it

# Sectoral details (1970-2010) – Nace Rev. 1.1

i) Manufacturing	DA) Manufacture of food products, beverages and tobacco DB) Manufacture of textiles and textile products DC) Manufacture of leather and leather products DD) Manufacture of wood and wood products DE) Manufacture of pulp, paper and paper products; publishing and printing DF) Manufacture of coke, refined petroleum products and nuclear fuel DG) Manufacture of chemicals, chemical products and man-made fibres DH) Manufacture of rubber and plastic products DI) Manufacture of other non-metallic mineral products DJ) Manufacture of basic metals and fabricated metal DK) Manufacture of machinery and equipment n.e.c. DL) Manufacture of electrical and optical equipment DM) Manufacture of transport equipment DN) Manufacturing n.e.c.
ii) Non-agricultural business sector (excluding real estate)	Total economy net of: A) Agriculture, hunting and forestry B) Fishing K) Real estate, renting and business activities L) Public administration and defence; compulsory social security M) Education N) Health and social work O) Other community, social and personal service activities
iii) Commercial and professional services	G) Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods H) Hotels and restaurants
iv) Financial and network services	E) Electricity, gas and water supply I) Transport, storage and communication J) Financial intermediation

# Sectoral details (1995-2020) – Nace Rev. 2

i) Manufacturing	C. Manufacturing (from 10 to 33)
ii) Non-agricultural business sector (excluding real estate)	Total economy net of: A. Agriculture, forest and fishing (from 01 to 03) L. Real estate activities (68) O. Public administration and defence; compulsory social security (84) P. Education (85) Q. Human health and social work activities (from 86 to 88)
iii) Commercial and professional services	G. Wholesale and retail trade; repair of motor vehicles and motorcycles (from 45 to 47) I. Accommodation and food service activities (from 55 to 56) M. Professional, scientific and technical activities (from 69 to 75) R. Arts, entertainment and recreation (from 90 to 93)
iv) Financial and network services	D. Electricity, gas, steam and air conditioning supply (35) E. Water supply; sewerage, waste management and remediation activities (from 36 to 39) H. Transportation and storage (from 49 to 53) J. Information and communication (from 58 to 63) K. Financial and insurance activities (from 64 to 66)

Employment shares

1970-2010   1995-2020
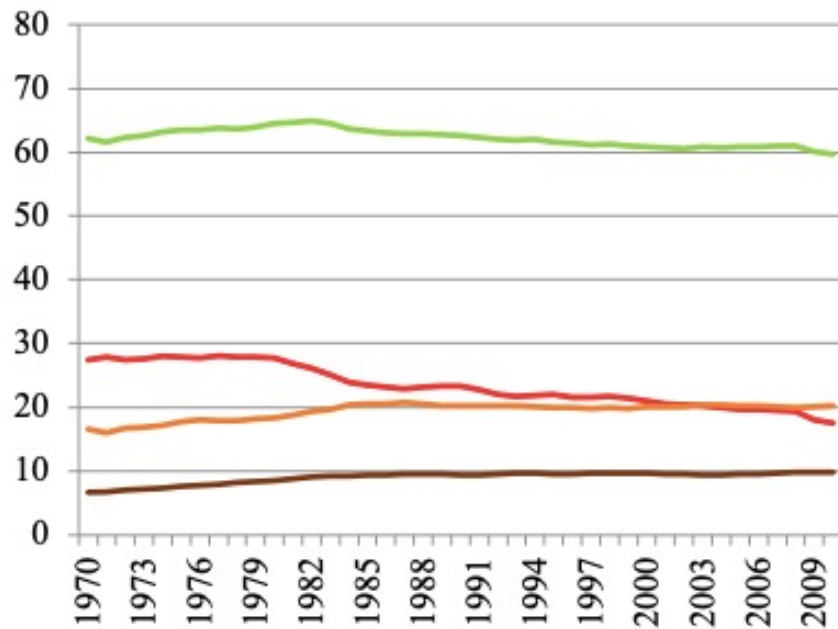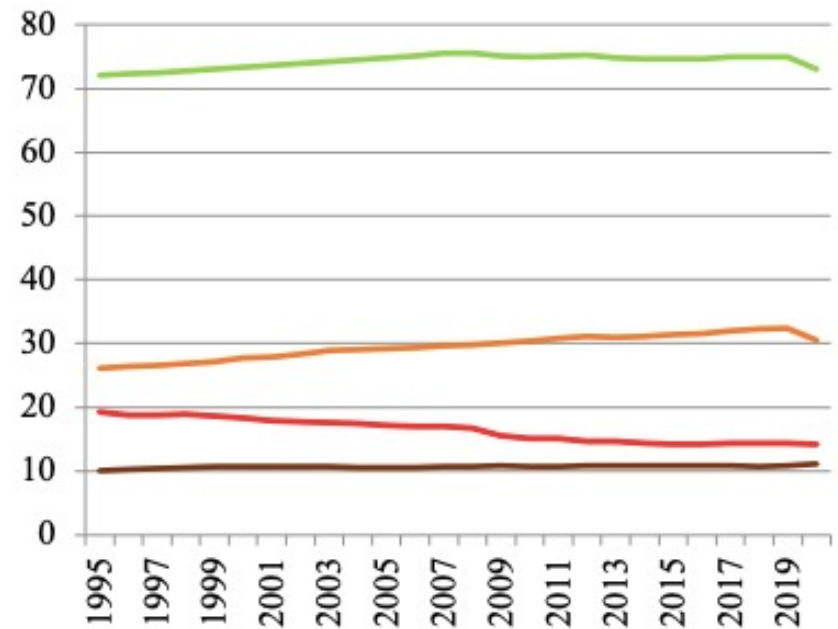
Legend:
- Non-agricultural business sector (excluding real estate)
- Commercial and professional services
- Manufacturing
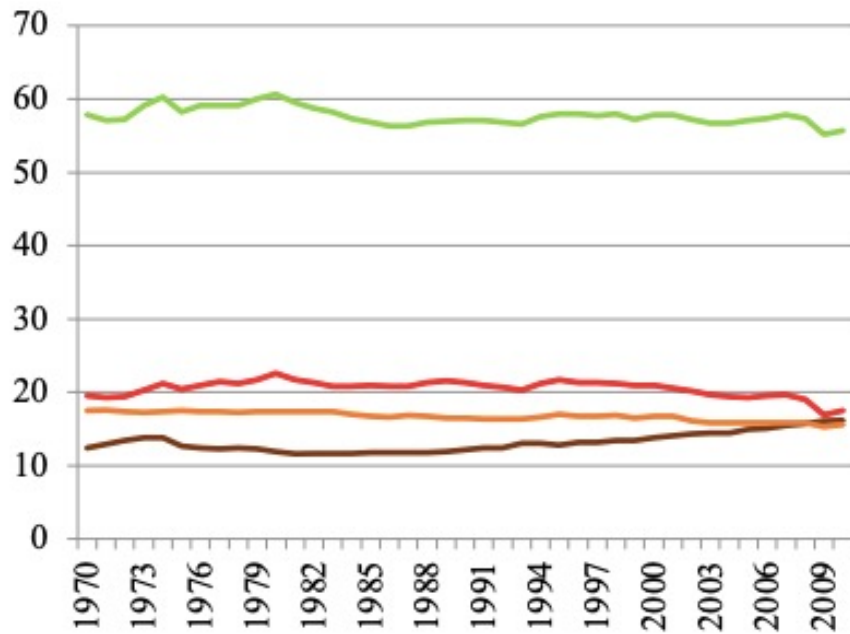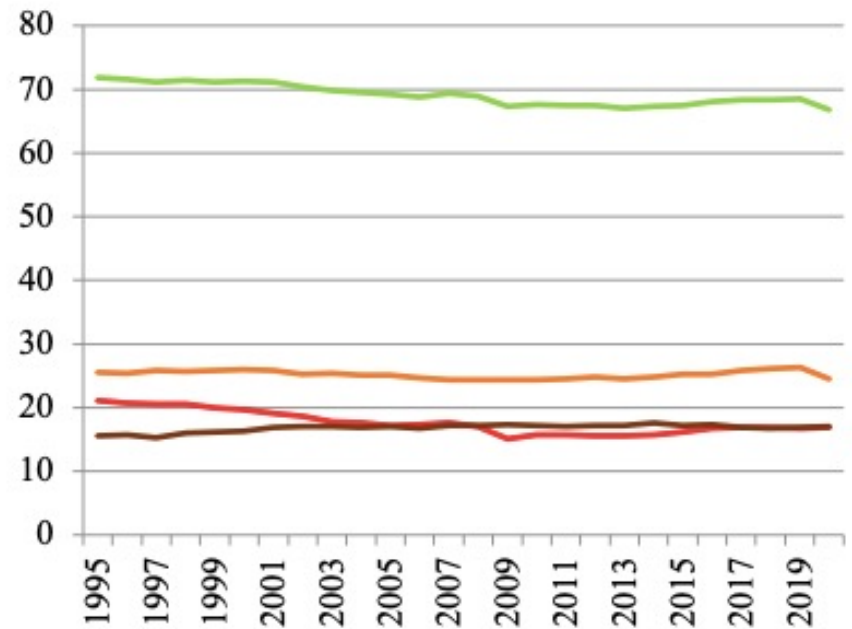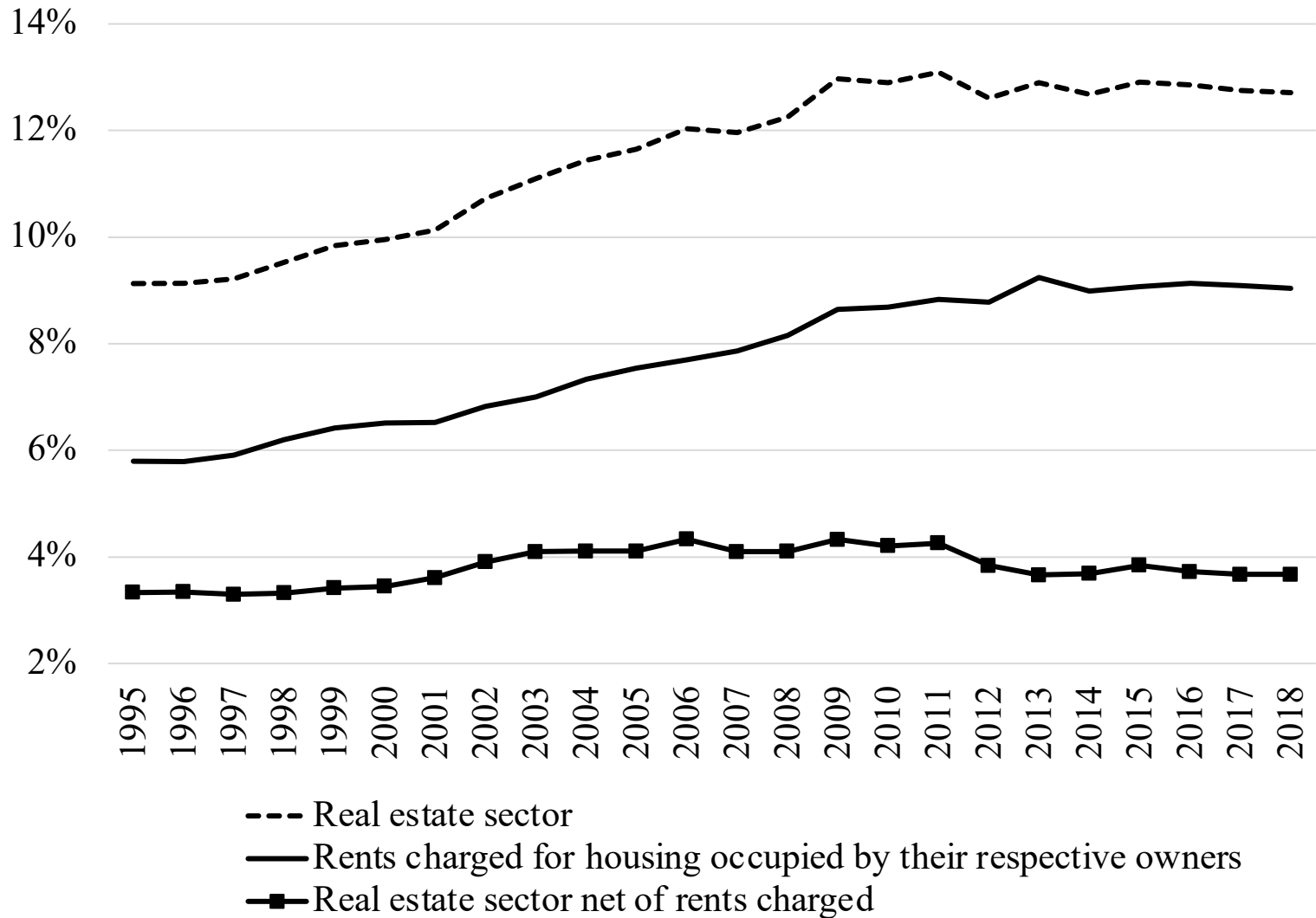- Financial and network services

Value–added shares

1970-2010

1995-2020
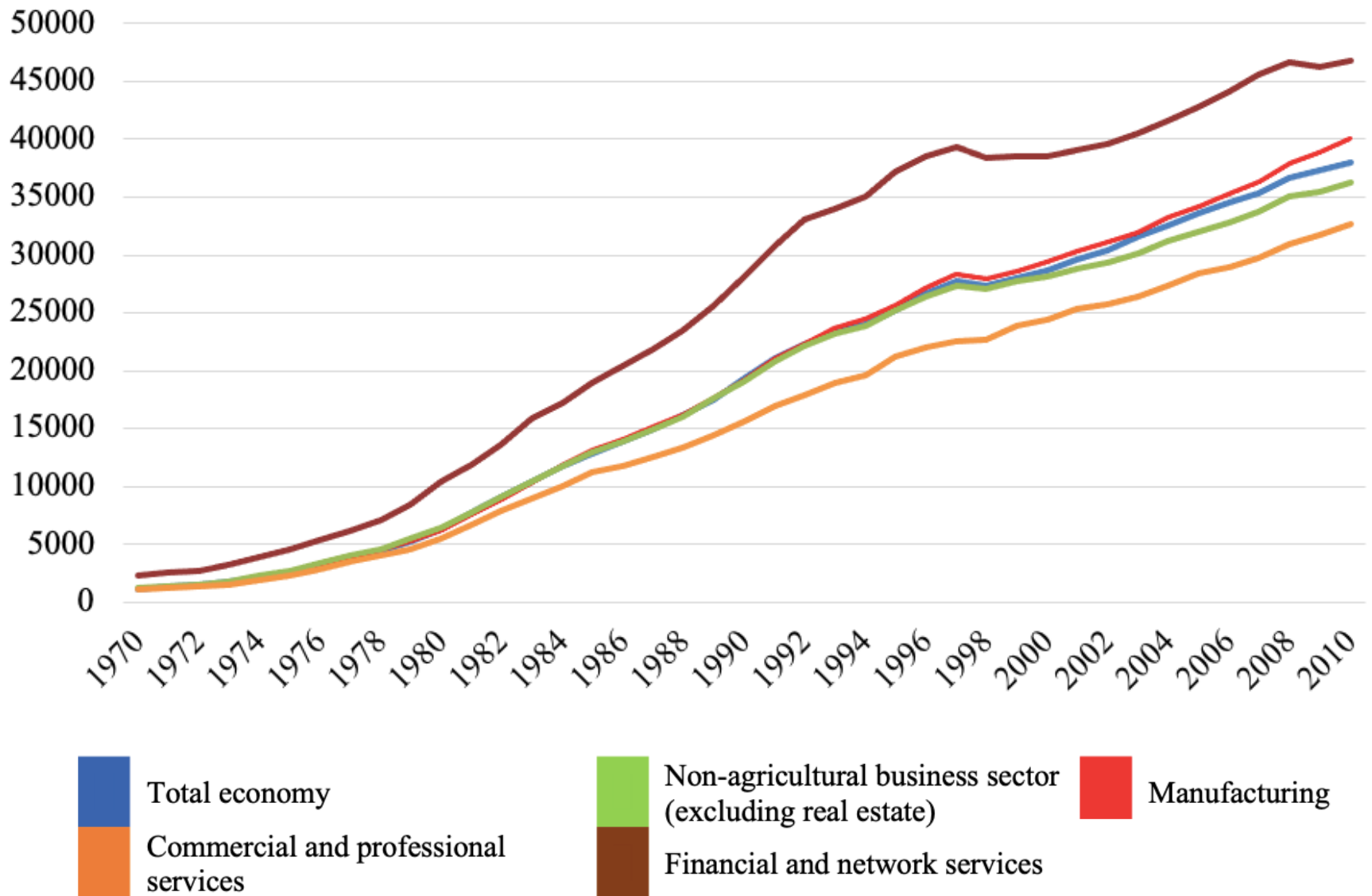
Non-agricultural business sector (excluding real estate)
Commercial and professional services
Manufacturing
Financial and network services

The real estate sector

Legend:
- - - - Real estate sector
——— Rents charged for housing occupied by their respective owners
—■— Real estate sector net of rents charged

Average labour compensation at current prices (1970-2010)

Average labour compensation at current prices (1995-2020)