Norges Bank

2 | 2026

Working Paper

Understanding the Transatlantic Divide in Labor Income Shares

Norges Bank Research

Authors:
Drago Bergholt
Francesco Furlanetto
Nicolò Maffe-Faccioli
Evi Pappa

Keywords
Labor share, SVAR with common trends, secular trends

Working papers fra Norges Bank, fra 1992/1 til 2009/2 kan bestilles på e-post: servicesenter@norges-bank.no

Fra 1999 og senere er publikasjonene tilgjengelige på http://www.norges-bank.no

Working papers inneholder forskningsarbeider og utredninger som vanligvis ikke har fått sin endelige form. Hensikten er blant annet at forfatteren kan motta kommentarer fra kolleger og andre interesserte. Synspunkter og konklusjoner i arbeidene står for forfatternes regning.

Working papers from Norges Bank, from 1992/1 to 2009/2 can be ordered by e-mail: servicesenter@norges-bank.no

Working papers from 1999 onwards are available on www.norges-bank.no

Norges Bank's working papers present research projects and reports (not usually in their final form) and are intended inter alia to enable the author to benefit from the comments of colleagues and other interested parties. Views and conclusions expressed in working papers are the responsibility of the authors alone.

ISSN 1502-8143 (online)

ISBN 978-82-8379-402-1 (online)

UNDERSTANDING THE TRANSATLANTIC DIVIDE IN LABOR INCOME SHARES*

Drago Bergholt†, Francesco Furlanetto‡, Nicolò Maffei-Faccioli§, Evi Pappa¶

May 2026

Abstract

We study medium-run movements in the labor income share in major euro area economies and the United States from 1960 to 2023. Methodologically, we develop a structural VAR with common trends to identify persistent labor share dynamics and their drivers using theory-based sign restrictions. Economically, we document a Transatlantic Divide. In Europe, the labor share was stable until the 1980s, declined over the next two decades, and then stabilized, reflecting changes in labor market institutions and labor supply. In contrast, the U.S. labor share fell sharply after 2000, driven mainly by labor-saving technological change, especially automation forces.

Keywords: *Labor share, SVAR with common trends, secular trends.*
JEL Classification: *E2, D2, D4, J3, L1*

---

*First draft: June 2023. This paper should not be reported as representing the views of Norges Bank. The views expressed are those of the authors and do not necessarily reflect those of the Norges Bank. We would like to thank in particular Katja Mann for providing us with the automation data and Juanjo Dolado, Helene Rey and participants at the KOF Swiss Economic Institute, 2024 SNDE Conference in Padova, the 4th Sailing the Macro Workshop in Siracusa, the Bank of England, the Workshop on "Capital vs. Labor: Perspectives on Inequality and Taxation in the 21st Century" in St. Gallen and the Norges Bank Spring Research Institute in Venastul. Evi Pappa acknowledges financial support for grants CEX 2021-001181-M (grant PGC2018-094321-B-I00) financed by MICIU/AEI /10.13039/501100011033; and Comunidad de Madrid, grant PHS-2024/PH-HUM-126.

†Norges Bank. Email: drago.bergholt@norges-bank.no.
‡Norges Bank. Email: francesco.furlanetto@norges-bank.no.
§Norges Bank. Email: nicolo.maffei-faccioli@norges-bank.no.
¶Universidad Carlos III de Madrid and CEPR. Email: ppappa@eco.uc3m.es.

1 Introduction

The labor share is a critical macroeconomic variable, bridging the technological framework of production with the distribution of income among production factors. While Keynes (1939) was puzzled by labor's income share stability, recent economic developments have driven significant medium-run fluctuations. Blanchard (1997) documented a pronounced decline in European countries in the 1980s, contrasting with a stable U.S. labor share. Ironically, right after the publication of Blanchard's paper, the labor share stabilized in Europe and started declining rather steeply in the U.S. (see Grossman and Oberfield (2022) for a survey). Together, these episodes reveal a striking Transatlantic Divide in labor share dynamics.

This study offers a comprehensive framework that combines economic theory and time-series analysis to evaluate the factors underlying the asynchronous decline in the labor share across the U.S. and Europe. We analyze the joint dynamics of output, employment per capita, wages, and profits in Germany, France, Italy, and Spain from 1960 to 2023 using annual data from the European Commission's annual macroeconomic database (AMECO) and a flexible time-series model — a panel vector autoregression (VAR) with common trends. The econometric methodology identifies medium-run labor share dynamics and their common drivers across European economies using theoretical predictions and compares them with the U.S. trend, while remaining agnostic about relationships at other frequencies. Critically, the panel dimension improves precision since long and comparable series for most European variables are available only annually.

Encompassing the existing literature, we identify four key global structural forces affecting labor share dynamics : i) *Labor-saving technological progress* (such as automation or globalization), which increases GDP while reducing employment and wages (Acemoglu and Restrepo (2018), Autor and Salomons (2018), Leduc and Liu (2024)); ii) *Labor market factors*: Changes in labor market institutions, bargaining power of workers, participation rates or demographics that move employment and wages in opposite directions (Blanchard (1997), Piketty (2014), Blanchard and Giavazzi (2003), Ciminelli, Duval, and Furceri (2022)); iii) *Capital-augmenting technology*: Technological innovations that favor capital accumulation, increasing GDP, real wages, and profits (Karabarbounis and Neiman (2014), Bentolila and Saint-Paul (2003)); iv) *Market power*: Changes in firm markups that generate an inverse comovement between profits and GDP (Barkai (2020), De Loecker, Eeckhout, and Unger (2020), Eggertsson, Robbins, and Wold (2021) Gutierrez and Philippon (2023)).

We find that the labor share trend shows significant medium-run fluctuations from 1960 to 2023 in Europe: after being stable between 1960 and 1980, the labor share declined sharply by 10% from 1980 to 2000 before stabilizing again. Our analysis suggests that labor-saving technological progress lowered the labor share mainly in the early sample, while capital-augmenting technology and market power raised it. Initially, labor market factors increased the labor share and broadly offset labor-saving forces, but after 1980 their effect reversed. Crucially, labor market forces are the main drivers of labor share dynamics in Europe and explain most of its 1980-2000 decline. The U.S. labor share exhibits a different pattern, with a mild and gradual decline starting in the 1970s and a sharp acceleration after 2000. Labor-saving technological progress emerges as the dominant driver, complemented by rising price markups. This divergence is reflected in the divide of employment per capita dynamics: Europe experienced a steady increase in employment post-1980, while the U.S. saw a peak around 2000 before experiencing a clear decline. Notably, our findings for the early sample align with Blanchard (1997)'s narrative, linking labor market and labor-saving technological factors to European labor share dynamics. Clearly, with nearly 30 years of additional data, we can apply modern econometric techniques and jointly study *both* phases of the Transatlantic Divide.

In a second step, we try to understand what economic forces hide behind the labor market trend in Europe and the labor-saving technology trend in the U.S. Thus, we extend our baseline analysis for Europe by including the unemployment series and considering two types of labor market factors: i) *wage markup changes*, which correspond to variation in labor market frictions, unemployment benefits or bargaining power of workers that move real wages and unemployment in the same direction, and ii) *labor supply factors*, which capture demographic factors or changes in the participation rate, driven, for example, by pension reforms or immigration. We find that rising bargaining power of workers was key to the increase in the labor share in Europe between 1960 and 1980, while the subsequent large decline was driven by both higher labor supply and weaker workers' bargaining power. In the U.S., we try to disentangle i) *automation* from ii) *globalization*. In fact, both automation, as advocated by Acemoglu and Restrepo (2018) in theoretical and empirical models, and globalization and offshoring, as discussed in Elsby, Hobijn, and Sahin (2013), can be captured by the labor-saving technology trend in the baseline model. To disentangle the two, we extend our empirical model by incorporating the ratio of automation-related patents to total patents (Mann and Püttmann (2023)) and the import share in the U.S. economy. We differentiate automation from globalization by assuming that automation should increase the trend in this ratio, while globalization should move it in the opposite direction. In the U.S. data, globalization initially supported the labor share, but turned negative after 2000, while automation persistently reduced it and intensified after 2000. Thus, both automation and globalization drove the post-2000 acceleration in the U.S. labor share decline, with automation as the main force.

Our study contributes to the existing literature in three key ways. First, we analyze labor share dynamics using a VAR with common trends. This framework has mainly been used to estimate the so-called "star variables", like the natural interest rate, trend inflation, trend growth, or potential output (Del Negro, Giannone, Giannoni, and Tambalotti (2017), Hasenzagl, Pellegrino, Reichlin, and Ricco (2022) Ascari and Fosso (2024), Maffei-Faccioli (2025), and Bianchi, Nicolò, and Song (2025)), and the effects of gender convergence on U.S. growth (Bergholt, Fosso, and Furlanetto (2024)). To our knowledge, the application to study labor share dynamics is novel. Second, our framework compares labor share dynamics in Europe and in the U.S. Aside from Blanchard (1997), no other study has explored the Transatlantic Divide in labor share dynamics in a unified framework explaining the distinct medium-run swings in labor shares and employment per capita across the two continents. Third, we extend the model by allowing for a panel structure. This is novel and especially convenient since the relevant data for Europe are typically short at quarterly frequency.

The rest of the paper is organized as follows: Section 2 describes the econometric methodology. Section 3 discusses the main findings. Section 4 extends the baseline model. Finally, Section 5 concludes.

2 Econometric methodology

This section discusses the empirical methodology used to extract common low-frequency movements in labor shares across main euro area countries and identify their underlying structural drivers.

2.1 The Model

To study the common trends dynamics in Europe we consider a panel of K countries and N observable variables. Let $y_t^{(k)} = \left[y_{1,t}^{(k)}, ..., y_{N,t}^{(k)}\right]'$ represent observable data from country k, and let $y_t = \left[y_t^{(1)}, ..., y_t^{(K)}\right]'$ collect variables across countries. Our goal is to infer the cyclical and permanent components, denoted by $\tilde{y}_t$ and $\bar{y}_t$, respectively:

$$y_t = \tilde{y}_t + \bar{y}_t \tag{1}$$

The *cyclical* component is given by:

$$\underbrace{\tilde{y}_t}_{NK\times 1} = \underbrace{A_1}_{NK\times NK} \tilde{y}_{t-1} + ... + A_p\tilde{y}_{t-p} + \underbrace{u_t}_{NK\times 1}, \quad u_t \sim N(0, \Sigma) \tag{2}$$

where $A_1, ..., A_p$ are the $NK \times NK$ matrices of coefficients associated with the p lags of the stationary component $\tilde{y}_t$ and u_t are cyclical shocks (reduced-form residuals) that are left unidentified. Although we focus on the trend component of the VAR, the time series model we propose is flexible and does not require particular restrictions on $A_1, ..., A_p$. Also, this structure implies that country-specific cycles jointly affect each other.

For the *trend* block we make two important assumptions. First, we assume the presence of $Q < N$ structural trends that are *common across countries*:

$$\underbrace{\bar{y}_t}_{NK\times 1} = (\underbrace{\mathbf{1}_K}_{K\times 1} \otimes \underbrace{\Lambda(\lambda))}_{N\times Q} \underbrace{\bar{x}_t}_{Q\times 1}. \tag{3}$$

$\Lambda(\lambda)$ is a $N \times Q$ matrix of loadings, which maps the trend component $\bar{x}_t$ to the dependent variable y_t. It is restricted depending on the choice of cointegrating relations between the variables in the system, and depends on the vector of free parameters λ. It has rank Q, thus the number of cointegrating relations are $N - Q$.

Second, we assume that the structural trends follow (orthogonal) unit root processes:

$$\bar{x}_t = c + \bar{x}_{t-1} + \varepsilon_t, \quad \varepsilon_t \sim N(0, \Omega) \tag{4}$$

In the baseline specification, y_t contains four macroeconomic variables per country ($N = 4$): the logarithm of real GDP (GDP at factor cost), real wages per employee, total employment (including the self-employed), and real gross operating surplus (GOS) for the total economy. All variables are deflated by the GDP deflator and scaled by the working-age population over 1960–2023. The adjusted labor share is real wages times employment per capita divided by real GDP per capita. y_t includes four major European economies ($K = 4$): Germany, France, Italy and Spain that together compose on average approximately 70% of the Euro area GDP in our sample. The data are drawn from the

AMECO database of the European Commission, which provides coverage for all euro area countries. To extract a common component, it is natural to focus on the four largest economies, which are also relatively comparable in size. For comparison, U.S. data are obtained from the same source.

The low-frequency components are specified as unit roots, reflecting permanent changes to the levels in the context of the model. In practice, we can think of these as representing the slow-moving or medium-run evolution in data, covering horizons substantially longer than the typical business cycle. We also consider four empirical trends that are common across european countries. The first is the *real GDP trend*, the second is the *real wage trend*, the third is the *employment trend* and the fourth is the *real GOS trend*.

2.2 Inference

In order to estimate the model, we need to specify a distribution for the initial conditions of the trend and cycle components:

$$\begin{aligned} \bar{x}_0 &\sim N(\bar{x}_0, I) \\ \tilde{y}_{0:-p+1} &\sim N(0, \Omega_0) \end{aligned} \tag{5}$$

where the prior mean $\bar{x}_0$ is set as the cross-country average of the first observation of the variables of interest and Ω_0 is the unconditional variance of $\tilde{y}_{0:-p+1}$ implied by the third equation (3). The model described in (1) - (4) is a linear, Gaussian state-space model. Bayesian estimation is particularly convenient for the question at hand, as the approach is flexible to the inclusion of additional variables and trends, it allows to discipline econometrically the low-frequency components and to incorporate priors on both cyclical and trend components.

We specify the following priors for the VAR coefficients, $A = (A_1, ..., A_p)'$, and the covariance matrices of the transitory and trend components, Ω and Σ respectively:

$$\begin{aligned} p(vec(A)|\Omega) &\sim N(vec(\underline{A}), \Omega \otimes \underline{\Omega}) I(vec(A)) \\ \Omega &\sim IW(\kappa_u, (\kappa_u + n + 1)\underline{\Omega}) \\ \Sigma &\sim IW(\kappa_v, (\kappa_v + n + 1)\underline{\Sigma}) \end{aligned} \tag{6}$$

where $I(vec(A))$ is an indicator function which takes value 1 if the system is stable, and 0 otherwise, and $IW(\kappa, (\kappa + n + 1)\underline{\Omega})$ denotes an inverse Wishart distribution with mode $\underline{\Omega}$ and κ degrees of freedom. We include one lag for the transitory component, in order to cover one year of data. The priors on the VAR coefficients are standard Minnesota priors with the hyperparameter of the overall tightness set to 0.2, a common value in VAR studies, see Giannone, Lenza, and Primiceri (2015). The choice of the priors for the stationary components follows Del Negro et al. (2017).

We use conservative priors on the trend components to ensure these do not reflect business cycle fluctuations. The tightness κ_v is set to 10. The prior on the variance-covariance matrix is set to the cross-country mean of the variance of the HP filter of the actual data in differences following Del Negro et al. (2017). Therefore, we specify rather tight priors on the trend components fluctuating little over the sample considered. It could be the case that these trends fluctuate substantially more than what the priors suggest. However, we do not impose the priors dogmatically. In the case that the actual data favored relevant movements in the low-frequency components, posterior estimates would move away from the prior assumptions.

2.3 Identification

In our baseline model, we identify four structural drivers of the statistical trends by means of sign restriction identification. The identification assumptions are based on the medium-run co-movements of macroeconomic variables in the neoclassical model, following Bergholt, Furlanetto, and Maffei-Faccioli (2022). The implementation of sign restrictions in a VAR with common trends is based on Maffei-Faccioli (2025).

Consider the trend component of y_t (abstracting the constant term):

$$\bar{y}_t = \Lambda \bar{x}_t = \Lambda\Big(\bar{x}_0 + \sum_{j=0}^{t-1} v_{t-j}\Big) \tag{7}$$

Since $v_t \sim N(0, \Sigma)$, where Σ is not imposed to be diagonal, meaning that the residuals of the trend components are potentially correlated. In this setup, the estimated reduced-form trends are not independent of one another. At this stage, we cannot give a proper structural interpretation to the trends in equation (7), unless we make additional assumptions. In order to map the economically meaningful structural shocks from the estimated reduced-form residuals, we need to impose restrictions on the variance-covariance matrix Σ. Let the mapping between reduced-form and structural trend residuals be $v_t = B\epsilon_t$, where B is a non-singular matrix such that $BB' = \Sigma$ and $\epsilon_t \sim N(0, I)$ are the structural shocks to the trend components normalized, without loss of generality, to have unit variance. We can rewrite equation (4) as follows:

$$\bar{y}_t = \Lambda \bar{x}_t = \Lambda\Big(\bar{x}_0 + \sum_{j=0}^{t-1} B\epsilon_{t-j}\Big) \tag{8}$$

Notice that ΛB represents the impact effect of the structural shock ϵ_t on the low-frequency component $\bar{y}_t$, since:

$$\frac{\partial \bar{y}_t}{\partial \epsilon_t'} = \Lambda B \tag{9}$$

Therefore, structural shocks can be separately identified by restricting the elements in ΛB corresponding to the variables of interest. Then, the structural contributors are backed out from equation (8). To side-step the identification issue, we use robust theory based medium-run sign-restrictions informed by the neo-classical growth model. Both the model and the methodology for extracting the restrictions are standard (see the Online Appendix for details).

In the baseline exercise, we identify four drivers of the labor share. Panel (a) of Table 1 illustrates the set of sign restrictions imposed on the trend components in response to each identified factor. The labor-saving technology factor is the only shock that generates a negative comovement of GDP with both employment and wages, as in Acemoglu and Restrepo (2018) and Acemoglu and Restrepo (2020): an expansionary shock propagates as a negative labor demand shock. In contrast, an expansionary labor market factors shock propagates like a positive labor supply shock, thus generating an inverse comovement between wages and employment. In contrast with the first two shocks,

Table 1: Sign restrictions

Panel (a): Baseline restrictions

	Labor market factors	Labor-saving technology	Technology	Price markup
GDP	+	+	+	+
Wages	−	−	+	+
Employment	+	−	/	+
GOS	/	+	+	−

Panel (b): Disentangling the labor market factors shock - Europe

	Labor market factors		Labor-saving technology	Technology	Price markup
	Labor supply	Wage bargaining			
GDP	+	+	+	+	+
Wages	−	−	−	+	+
Employment	+	+	−	/	+
GOS	/	/	+	+	−
Unemployment	+	−	/	/	/

Panel (c): Disentangling the labor-saving technology shock - United States

	Labor market factors	Labor-saving technology		Technology	Price markup
		Globalization	Automation		
GDP	+	+	+	+	+
Wages	−	−	−	+	+
Employment	+	−	−	/	+
GOS	/	+	+	+	−
$\frac{\text{Automation patents share}}{\text{Import share}}$	/	−	+	/	/

both capital-augmenting technology and markup shocks generate a positive comovement between GDP and wages. What sets them apart is the comovement between GDP and profits. An increase in productivity leads to higher output and higher profits while a decline in markups increases output but leads to a decline in profits.

All these co-movements are standard in the neoclassical model in the medium-run which we broadly define as 8 years (32 quarters) after the shock has impacted the economy. Conveniently, for our purposes, they are sufficient to separately identify the four key drivers of labor share dynamics. Theoretical impulse-response functions to the four shocks at 32-quarter-horizon are presented in the Online Appendix.[1]

Two additional considerations are in order. First, we impose two overidentification restrictions in the system: GDP and gross operating surplus positively comove conditional on labor-saving technology shocks while GDP and employment positively comove in response to markup shocks. While not strictly needed for identification purposes, these

[1] Note that while our theoretical analysis is based on the now standard neoclassical model, Blanchard (1997) relied on a set of demand and supply equations for labor and capital.

restrictions are very robust in theory (see Online Appendix) and facilitate the estimation of the trends. Second, the response of the labor share to shocks is obtained easily by combining the responses of GDP, wages, and employment. Our restrictions imply that positive labor-saving technological progress lowers the labor share while decreases in the price markup increase the labor share. Note, however, that the *sign* of the labor share response to the two shocks is uncontroversial also in theory while its *magnitude* is left totally unrestricted. In contrast, the identification scheme does not impose any restriction on the response of the labor share to labor market factors and capital-augmenting technology shocks. In the theoretical model, these responses depend on the value of the elasticity of substitution between capital and labor which is controversial in the literature (see Karabarbounis and Neiman (2014)).

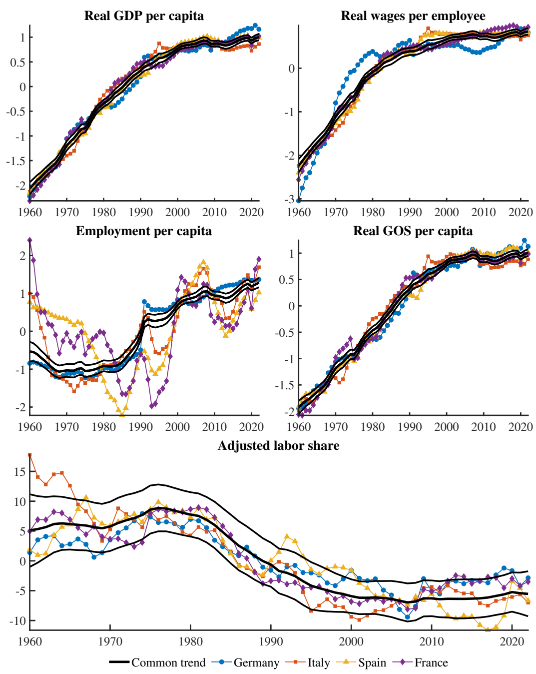
This work extends Bergholt et al. (2022) in a critical dimension while retaining the same identification scheme. In fact, their paper employs a standard SVAR model with variables in first differences, where trends are not explicitly modeled but are instead captured by a deterministic component that dictates the system's long-term convergence in the absence of shocks. Given that the BLS labor share measure they use remains relatively stable over time, with a sharp decline only *at the end of the sample*, Bergholt et al. (2022) successfully explain labor share dynamics through shocks. However, applying their methodology to the AMECO data would constrain the SVAR to fit the deterministic component to the slow-moving trends observed in both Europe and the US, thus failing to capture the medium-run swings in the labor share which is at the center of our analysis. In contrast, the VAR with common trends offers greater flexibility, making it applicable under a broader range of conditions.

3 Results

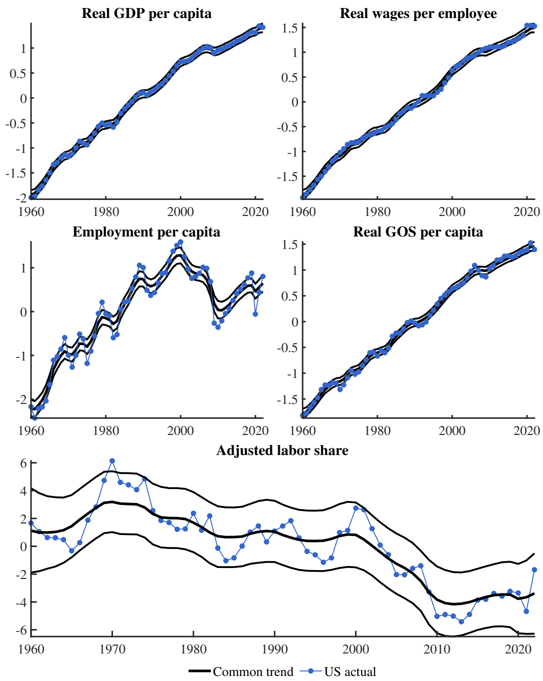
This section presents the estimated common reduced-form trends and their underlying structural drivers. In addition, we relate our results to the "medium-run" narrative of Blanchard (1997) and present a sensitivity analysis.

3.1 Labor share dynamics

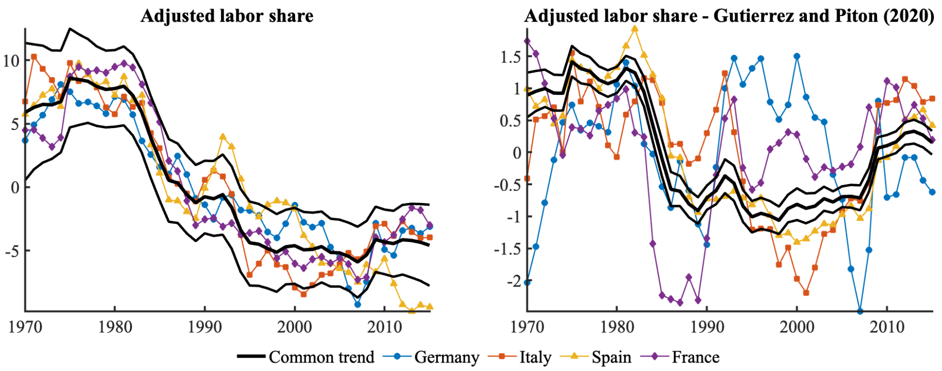
Our assumption of common trends in macroeconomic variables across European countries finds support from a simple visual inspection of the actual data. The left panel of Figure 1 depicts the estimated common reduced-form trends together with the actual data from the four main euro area countries. All series are standardized in order to meaningfully compare their evolution over time. Overall, we observe a high degree of commonality in the trends across the different European countries for all the macroeconomic variables considered. The trending behavior of real GDP per capita, real wages per employee, and real GOS per capita is very similar across countries. These synchronized dynamics are consistent with the finding in Giannone and Reichlin (2006) that most output variation in the euro area is driven by a common shock. Employment per capita is stagnant in the first part of the sample and features a clear upward trend only since the mid 1980s. Unlike for the other variables, a larger degree of heterogeneity is visible across countries. Notably, we observe that the adjusted labor share presents medium-run swings that can be summarized in three phases. In a first phase, it increases by less than 1 percent over



(a) Europe



(b) United States



(c) Measurement issues

Figure 1: Macroeconomic and labor share trends in Europe and U.S.

the period 1960-1980. In a second phase, it exhibits a sharp decline of 10 percent from 1980 until 2000. Finally, it remains stable until the end of the sample.

The right panel of Figure 1 displays the estimated trends for the corresponding U.S. variables, sourced from AMECO to ensure a fair comparison. In contrast to European countries, the trends for U.S. GDP, real wages, and gross operating surplus do not slow down in the latter part of the sample. Meanwhile, the employment trend sharply diverges from its European counterpart. In fact, U.S. employment exhibits a positive trend from the 1960s until 1990, precisely when European employment was stagnant. It then slows down before reversing and declining in the first decade of the 2000s. After the Great Recession, employment dynamics are decoupled: a series of structural reforms (including pension reforms) sustained employment in Europe. This employment decoupling is related to the fact that participation has been decreasing since 2000 in the U.S., driven by

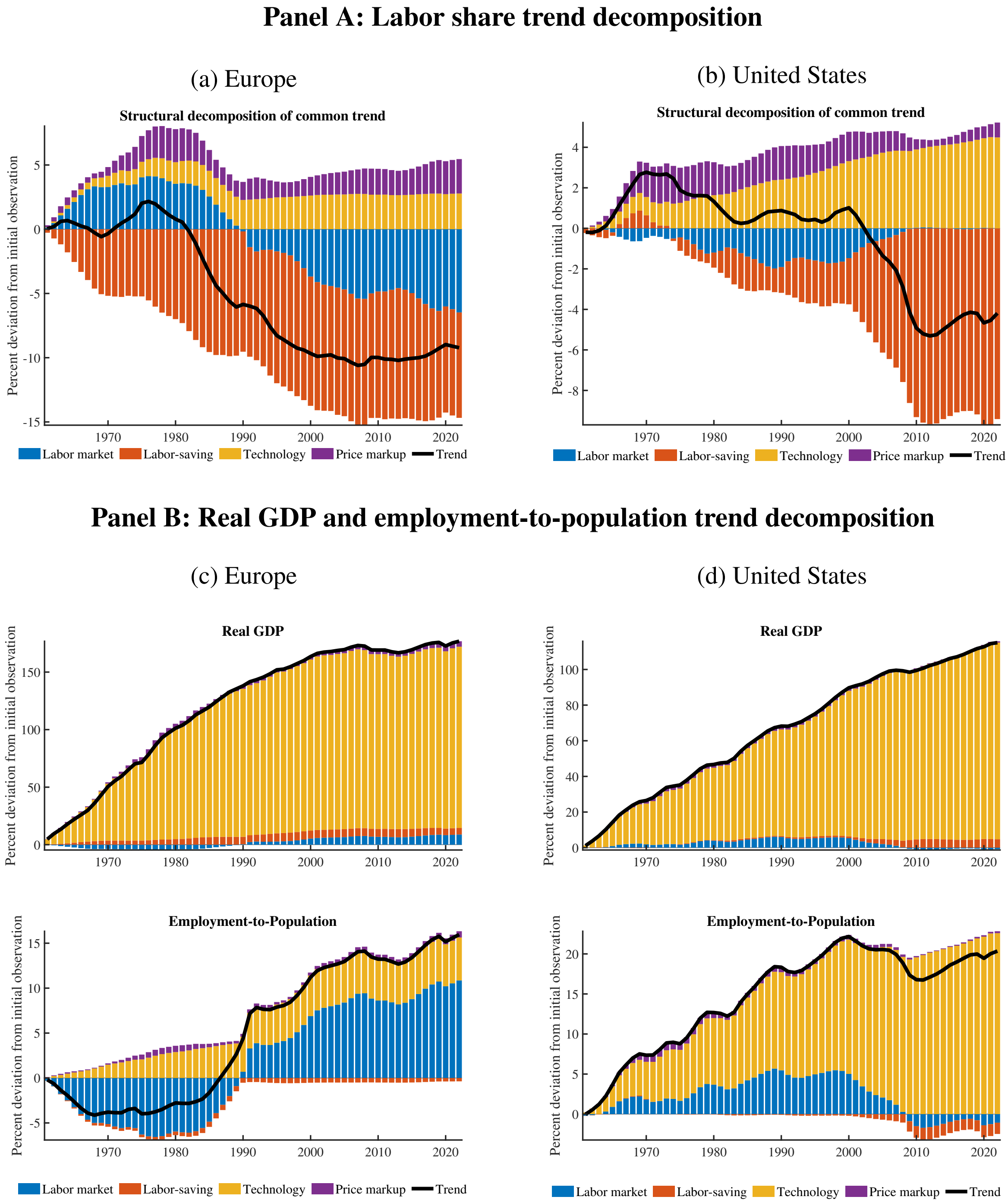


Figure 2: Combined historical trend decomposition: Panel A displays Europe; Panel B shows US.

young cohorts and middle-aged men. In contrast, participation has been steadily increasing in Europe, driven by middle-age women and older age cohorts. Schoefer (2025) and Birinci, Karabarbounis, and See (2026) provide further evidence on this decoupling that surprisingly has not been at the center stage in the literature.

When it comes to the labor share, we observe the Transatlantic Divide which is at the heart of this paper. In the U.S. the adjusted labor share trend mildly declines from the 1970s onward, with an accelerated drop only after 2000, precisely when its European counterpart stabilizes.

Figure 2 presents the historical decomposition of the common labor share trend, measured as a deviation from its starting point, for Europe (left column, panel A) and the U.S. (right column, panel A). The differences in the underlying forces driving labor shares in the two continents are striking. In Europe, labor market, capital-augmenting technology, and price markup factors sustained the labor share during the first 20 years of the sample, while labor-saving technology factors partly counterbalanced this rise. After that, the trend reversed, with labor market factors emerging as the primary explanation for the drop in the labor share. In contrast, in the U.S. labor-saving factors seem to be the dominant drivers of the decline since 2000. Thus, we find a Transatlantic Divide not only in the timing of the decline but also in the driving forces and the upward trend in employment explains why the data do not assign a larger role to automation in Europe.[2]

Panel B in Figure 2 plots the historical decompositions for the key macro variables. Perhaps not surprisingly, the dominant driver of GDP is capital augmenting technology on both sides of the Atlantic.[3] Labor market factors are the main driver of employment in European countries but not in the U.S. The labor-saving technology force is essentially only redistributive and has limited effects on the aggregates. Nonetheless, it is important for the labor share which is heavily influenced by distributional forces. The decompositions for real wages and profits are largely aligned with the ones for GDP in both areas and are presented in the Online Appendix.

To quantify more precisely the role of the various factors, Panel A of Table 2 shows the percentage trend changes in the common labor share across different sub-samples for Europe, based on the findings from Figure 2. From 1960 to 1980, the stability of the labor share reflected an offsetting balance of forces: labor market factors, which pushed the labor share upward by 3.41 percent as wages failed to adjust to declining productivity, were counteracted by labor-saving technological change, which exerted a strong downward pull of –6.73 percent, effectively offsetting the combined influence of the remaining factors. Between 1980 and 2000, the sharp decrease in the labor share was mainly caused by the labor-saving factor (-2.75 percent) and a shift in the labor market factor which decreased the labor share by more than 7 percent over the period. After 2000, the contribution of all factors was balanced leaving the labor share relatively stable with labor market factors pushing the labor share downwards (-2.36 percent). Notably, there were no accelerating markups in Europe during this period according to our model's estimates. This is consistent with Gutierrez and Philippon (2023) who find that European institutions are indeed more independent and enforce competition more strongly than any individual country ever did. The key message from the table is that labor market shock is the main driver of labor share dynamics in Europe.

In the U.S. (panel A of Table 2), the relative stability of the labor share during the

[2]It is important to stress that what matters is how the bars of different colors evolve over time, not whether they are plotted above or below the zero line. For example, the purple bars (price-mark up shocks) for the US are plotted above the zero line. This does not mean that price markup shocks have sustained the labor share over the entire sample. Purple bars are shrinking since the mid 1990s, indicating that markup shocks contributed to the labor share decline (see Panel A of Table 2).

[3]Capital-augmenting technology should be interpreted broadly. A standard neutral technology shock is also consistent with the restrictions imposed to identify capital-augmenting technology. The same is true for shocks to the relative price of investment.

first 40 years of the sample was primarily due to a balance between labor-saving factors and labor market factors, which pushed the labor share downwards, and lower markups (at least over the period 1961-1980) and capital-augmenting technology factors, which exerted upward pressure.[4] After 2000, however, the decline in the U.S. labor share is dominantly attributed to the labor-saving factor (-6.47 percent), with a complementary role from higher markups (-0.65 percent). The key message from the table is that labor-saving technology is the main driver of labor share dynamics in the U.S., especially over the last 20 years.

3.2 Revisiting the "medium-run" narrative of Blanchard (1997)

Our estimated model allows us to revisit with modern econometric techniques the Blanchard (1997) narrative around labor share dynamics at the end of the 1990s. At that time, the labor share was declining in European countries and was stable in the US.

The narrative was built around two key major shocks driving European labor share dynamics. First, during the 1970s wages failed to adjust to the decline in labor productivity because of a rigid labor market and strong unions. Second, since 1980 the labor share decreased following a reversal of the previous labor market shift but also, and critically, because of adverse shifts in labor demand related to the adoption of technologies that used less labor and more capital.

The results of our model are fully consistent with this narrative. Our labor market factor drives the labor share up in the 1970s, reverses at the very end of the decade and keeps lowering the labor share until the end of the sample. The labor-saving shift is an important driver of the decline but, according to our model, exerted a downward pressure already in the 1970s. Interestingly, the fact that labor-saving technology was more important in Europe than in the U.S. before 2000 may seem surprising nowadays but it was well accepted when the Blanchard (1997) paper was written. In the general discussion section of the paper (page 156), Robert Gordon cited anecdotal evidence from Europe (the absence of grocery baggers in stores, busboys in restaurants, and attendants in parking slots) that supported the importance of labor-saving forces in Europe.

All in all, our model is not a simple revisitation of the narrative with modern econometric techniques. We highlight the role of labor market factors in Europe and labor-saving factors in the U.S. over the entire sample, and in particular over the last 20 years. The last part of the sample is crucial to understand the Transatlantic Divide.

3.3 Sensitivity analysis

Table 2 (panel B) reports a set of robustness checks assessing the sensitivity of our baseline estimates to alternative model specifications, sample composition, and measurement of the labor share. The first row focuses on prior assumptions. We adjust the prior on the variance–covariance matrix of the trend component by setting it to be twice as loose and twice as tight relative to the baseline, where the prior is calibrated to the cross-country

[4]Capital augmenting technological progress sustain the labor share over the entire sample, both in Europe and in the U.S. This result is consistent with an elasticity of substitution between labor and capital lower than one.

Table 2: Percent change in trend labor share

Panel (A): Baseline

Europe			
	1961–1980	1981–2000	2001–2022
Trend change	0.76	-10.22	0.68
Labor market	3.41	-7.27	-2.36
Labor-saving	-6.73	-2.75	1.77
Technology	1.64	0.90	0.12
Price markup	2.43	-1.10	1.15

United States			
	1961–1980	1981–2000	2001–2022
Trend change	1.52	0.05	-4.85
Labor market	-1.22	-0.36	1.18
Labor-saving	-0.51	-1.19	-6.47
Technology	1.62	1.65	1.09
Price markup	1.62	-0.04	-0.65

Panel (B): Sensitivity analysis

Europe - Looser priors			
	1961–1980	1981–2000	2001–2022
Total	0.64	-10.25	0.41
Labor market	3.47	-7.02	-2.27
Labor-saving	-3.79	-1.80	1.68
Technology	-0.85	-0.47	-0.06
Price markup	1.80	-0.96	1.06

Europe - Tighter priors			
	1961–1980	1981–2000	2001–2022
Total	0.69	-9.83	0.99
Labor market	3.21	-7.40	-2.44
Labor-saving	-11.27	-4.33	1.77
Technology	5.43	3.01	0.38
Price markup	3.32	-1.12	1.29

Europe - More lags			
	1961–1980	1981–2000	2001–2022
Total	0.65	-9.93	0.98
Labor market	3.17	-7.54	-2.46
Labor-saving	-11.12	-4.33	1.87
Technology	5.58	3.14	0.28
Price markup	3.32	-1.20	1.29

Europe excluding France			
	1961–1980	1981–2000	2001–2022
Total	1.02	-10.78	-0.47
Labor market	1.69	-5.15	-1.17
Labor-saving	-2.48	-3.72	0.12
Technology	-0.38	-0.15	-0.04
Price markup	2.20	-1.75	0.62

Europe excluding Italy			
	1961–1980	1981–2000	2001–2022
Total	-0.11	-9.32	-0.12
Labor market	2.02	-4.42	-1.29
Labor-saving	-3.29	-3.13	0.89
Technology	-0.88	-0.36	-0.12
Price markup	2.04	-1.41	0.39

Europe excluding Spain			
	1961–1980	1981–2000	2001–2022
Total	0.78	-8.70	1.53
Labor market	0.85	-2.93	-0.25
Labor-saving	-2.07	-3.83	0.83
Technology	-0.36	-0.16	-0.05
Price markup	2.37	-1.79	1.00

United States using Koh et al. (2020)			
	1961–1980	1981–2000	2001–2021
Total	2.41	1.56	-5.19
Labor market	-0.94	-0.21	0.84
Labor-saving	-1.03	-0.69	-6.75
Technology	2.54	2.53	1.67
Price markup	1.83	-0.07	-0.95

United States payroll share			
	1961–1980	1981–2000	2001–2021
Total	1.21	0.32	-5.36
Labor market	-0.98	-0.17	0.82
Labor-saving	-1.12	-0.71	-6.71
Technology	2.34	1.31	1.38
Price markup	0.97	-0.11	-0.85

Panel (C): Extensions

Europe			
	1961–1980	1981–2000	2001–2022
Trend change	1.68	-8.97	1.02
Labor supply	0.86	-3.05	-0.13
Labor-saving	-6.37	-3.00	4.39
Technology	1.93	1.03	0.27
Price markup	2.32	0.24	-0.57
Wage bargaining	2.93	-4.21	-2.94

United States			
	1977–1990	1991–2000	2001–2014
Trend change	1.79	-0.11	-6.20
Labor market	-0.40	0.13	0.03
Automation	-0.83	0.71	-5.01
Technology	0.66	0.60	0.35
Price markup	0.89	0.43	-0.90
Globalization	1.47	-1.98	-0.67

mean of the variance of HP-filtered differences in the data. In the second row (left panel), we allow for a richer dynamic structure by increasing the number of lags from one (baseline specification) to four. We then examine robustness to influential observations by re-estimating the panel-VAR model while sequentially excluding one large euro-area country at a time among France, Italy, and Spain. Germany is not excluded, as it serves as the reference country in the euro-area aggregate. Finally, for the U.S. analysis, we consider two alternative measures of the labor share to address potential measurement issues in the fourth row: a labor share adjusted for intellectual property products following Koh, Santaeulalia-Llopis, and Zheng (2020), and the payroll share measure proposed by Elsby et al. (2013).[5] Across all specifications, the estimated effects remain qualitatively unchanged, indicating that our results are not driven by prior choices, lag length, influential countries, or labor share measurement.

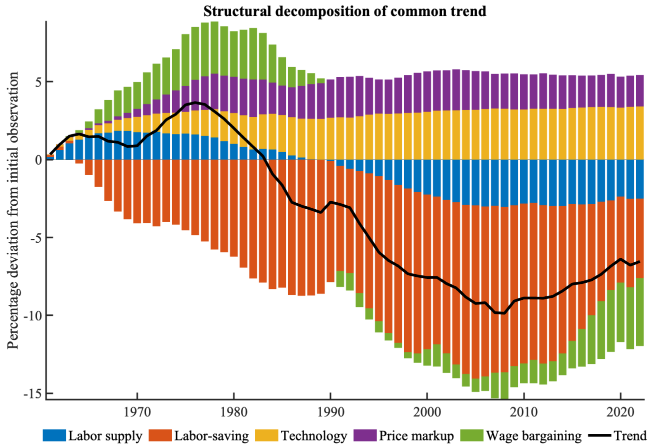
Finally, the AMECO labor share measure, while adjusting for self-employment, covers the total economy and therefore includes housing rental income (imputed or actual). However, real estate has experienced large swings over the sample, and housing cycles typically last five to eight years (Albuquerque, Cerutti, Kido, and Varghese (2025)), broadly matching our horizon of interest. Importantly, Gutiérrez and Piton (2020) construct a labor share measure adjusted for both self-employment and housing income from 1970 onward. As a final sensitivity exercise, we re-estimate the model from 1970 including their series as additional variables. Panel c) of Figure 1 shows that the resulting common labor share trend further reinforces the Transatlantic divide: Europe's decline starts well before the U.S., is followed by a long stable phase, and ends with a stronger late-sample rebound than in the AMECO series.

4 Extensions

Different factors may underlie the labor market shifts that influenced the evolution of the labor share in Europe. On the one hand, changes in labor market institutional features (Gnocchi, Lagerborg, and Pappa (2015)), such as bargaining power of workers, minimum wage regulations, or level of employment protection, could have led to higher wages but also to a decline in employment and an increase in unemployment. On the other hand, changes in labor force participation due to migration or the inclusion of female workers into the workforce could also have contributed to shifts in the labor supply. To distinguish between these two narratives, we need to disentangle wage markup shocks from labor supply shocks. Unfortunately, it is well-known that the two shocks are observationally equivalent in the neoclassical model (see Chari, Kehoe, and McGrattan (2009)). However, the response of unemployment can separate the two shocks if one introduces search-and-matching frictions into the model. The intuition is very simple. A labor supply shock increases both employment and unemployment, as not all new workers will quickly find a job. In contrast, a decrease in the bargaining power of workers will favor job creation and

[5] In both exercises, the measures of GDP, wages and hours are adapted so that their combination delivers the labor share series calculated by Koh et al. (2020) and Elsby et al. (2013). The use of data on the corporate sector (which is not necessarily representative of the total economy) is justified to correct for the influence of self-employment (whose wages are imputed) and the rise of housing value in the U.S. Such shift is less justified for european countries where measures of the labor share based on the corporate sector are still affected by self-employed workers and housing assets, as documented by Gutiérrez and Piton (2020).

(a) Europe



(b) United States

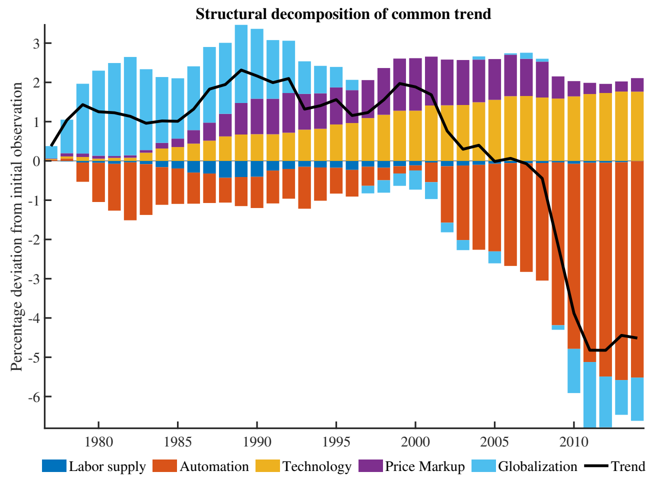


Figure 3: Historical decomposition of labor share (5-variable VAR): Top panel shows Europe; Bottom panel shows the United States.

reduce unemployment. The increase in unemployment in response to a labor supply shock materializes in the short to medium run, as in the long run, the new workers are absorbed by firms that post new vacancies (Foroni, Furlanetto, and Lepetit (2018)). The effects on unemployment are even permanent in the matching model with job rationing, as recently stressed by Michaillat (2024). Thus, we can disentangle labor supply and wage markup shocks by assuming that the former moves unemployment and employment in the same direction, while the latter moves them in opposite directions (see lower panel in Table 1 for the complete identification scheme in this extension).

The left panel of Figure 3 shows the historical decomposition of the European labor share, distinguishing between labor supply factors (blue bars) and labor market institution factors, labeled as ”Wage Bargaining”, in green bars. The same effects are quantified more precisely in panel C of Table 2. The increase in the labor share during the 1970s can primarily be attributed to labor market institution factors, which induced low employment and high unemployment during this period (2.93 percent over the period 1960-1980).

From the 1980s onward, the dynamics of employment and the labor share are marked by a reversal in the contributions of wage bargaining shocks which induce a decline of 4,21 percent. In addition, the increase in labor supply induced a further decline of 3,05 percent. Notably, to the best of our knowledge, we are the first to emphasize the importance of labor supply factors, beyond labor market institutions, in shaping the labor share dynamics in Europe. All in all, the joint role of the two labor market shocks is confirmed to be dominant in Europe. The decline of the bargaining power of workers continues over the period 2001-2022 but is more than compensated by labor-saving technology which can explain jointly a stagnant productivity and a (slightly) increasing labor share.

When it comes to the U.S., the labor-saving factor which is crucial in the baseline model may commingle several forces with automation and globalization being the most prominent narratives in the literature. However, disentangling the two is challenging, as they can be correlated. Our strategy is to rely on two proxies for globalization and automation and assume that each proxy is mainly driven by the reference shock by imposing magnitude restrictions. The first proxy is based on data on automation-related patents as a share of total patents. The series is constructed by Mann and Püttmann (2023) for the period 1975-2017 and is named "automation patents share." The second proxy is the ratio of imports to GDP, "the import share", which is clearly related to globalization. We introduce the ratio of the two (standardized) proxies in the VAR with common trends for the U.S. and assume that an increase in automation should have a positive effect on the ratio (by acting mainly on the numerator), while an increase in globalization should have a negative effect on the ratio (by acting mainly on the denominator).[6] The evolution of this ratio, presented in the Online Appendix, shows a downward trend until 2000, followed by a reversal thereafter.

The right panel of Figure 3 presents the historical decomposition for this extended specification. Much of the stability of the U.S. labor share the first ten years of the sample was a balancing between labor-saving factors, with automation reducing the labor share and lack of competition from the rest of the world increasing it. After 2000, the negative impact of automation dominated the dynamics of the labor share in the U.S., with globalization driving also the negative decline but to a much smaller extent. Therefore, both automation and globalization are important determinants of the decline in the labor share in the U.S. after 2000 but automation emerges as the primary cause.

5 Concluding remarks

We propose a unified framework to analyze the long-run dynamics of the labor share across the main four euro area countries. Using historical annual data dating back to 1960 in a panel vector autoregression with common trends, we show that the secular trend in the labor share, which was stable until the 1980s, dropped significantly in the two following decades and stabilized to a lower level after the 2000s. This secular decline in the european labor share is driven primarily by labor market factors. In the U.S both the timing (delayed) and the main source (labor-saving technology) of the decline are

[6]Restrictions on ratios provide a simple and intuitive way to implement magnitude restrictions. They can be used when it is natural expect the effect of a shock on a specific variable is large relative to the other variables in the system.

different, leading to the Transatlantic Divide at the core of this paper.

References

Acemoglu, D. and P. Restrepo (2018). The race between machine and man: Implications of technology for growth, factor shares and employment. *American Economic Review 108*(6), 1488–1542.

Acemoglu, D. and P. Restrepo (2020). Robots and Jobs: Evidence from US Labor Markets. *Journal of Political Economy 128*(6), 2188–2244.

Albuquerque, B., E. Cerutti, Y. Kido, and R. Varghese (2025). Not all housing cycles are created equal: Macroeconomic consequences of housing booms. *Journal of International Money and Finance*, 103496.

Ascari, G. and L. Fosso (2024). The international dimension of trend inflation. *Journal of International Economics 148*, 103896.

Autor, D. and A. Salomons (2018). Is automation labor displacing? Productivity growth, employment, and the labor share. *Brookings Papers on Economic Activity 49*(1), 1–87.

Barkai, S. (2020). Declining labor and capital shares. *Journal of Finance 75*(5), 2421–2463.

Bentolila, S. and G. Saint-Paul (2003). Explaining movements in the labor share. *Contributions in Macroeconomics 3*(1).

Bergholt, D., L. Fosso, and F. Furlanetto (2024). Macroeconomic effects of the gender revolution. Norges Bank Working Paper 19/2024.

Bergholt, D., F. Furlanetto, and N. Maffei-Faccioli (2022). The decline of the labor share: New empirical evidence. *American Economic Journal: Macroeconomics 14*(3), 163–98.

Bianchi, F., G. Nicolò, and D. Song (2025). Inflation and real activity over the business cycle. NBER Working Paper 31075.

Birinci, S., L. Karabarbounis, and K. See (2026). Why do americans no longer work so much more than non-americans? NBER Working Paper 35020.

Blanchard, O. (1997). The medium run. *Brookings Papers on Economic Activity 2*, 89–158.

Blanchard, O. and F. Giavazzi (2003). Macroeconomic effects of regulation and deregulation in goods and labor markets. *Quarterly Journal of Economics 118*(3), 879–907.

Chari, V. V., P. J. Kehoe, and E. R. McGrattan (2009). New Keynesian models: Not yet useful for policy analysis. *American Economic Journal: Macroeconomics 1*(1), 242–266.

Ciminelli, G., R. A. Duval, and D. Furceri (2022). Employment protection deregulation and labor shares in advanced economies. *Review of Economics and Statistics 104*(6), 1174–1190.

De Loecker, J., J. Eeckhout, and G. Unger (2020). The rise of market power and the macroeconomic implications. *Quarterly Journal of Economics 135*(2), 561–644.

Del Negro, M., D. Giannone, M. P. Giannoni, and A. Tambalotti (2017). Safety, liquidity, and the natural rate of interest. *Brookings Papers on Economic Activity 2017*(1), 235–316.

Eggertsson, G. B., J. A. Robbins, and E. G. Wold (2021). Kaldor and Piketty's facts: The rise of monopoly power in the United States. *Journal of Monetary Economics 124*, S19–S38.

Elsby, M., B. Hobijn, and A. Sahin (2013). The Decline of the U.S. Labor Share. *Brookings Papers on Economic Activity 44*(2 (Fall)), 1–63.

Foroni, C., F. Furlanetto, and A. Lepetit (2018). Labor supply factors and economic fluctuations. *International Economic Review 59*(3), 1491–1510.

Giannone, D., M. Lenza, and G. E. Primiceri (2015). Prior selection for vector autoregressions. *Review of Economics and Statistics 97*(2), 436–451.

Giannone, D. and L. Reichlin (2006). Trends and cycles in the euro area: How much heterogeneity and should we worry about it? Working Paper 595, European Central Bank.

Gnocchi, S., A. Lagerborg, and E. Pappa (2015). Do labor market institutions matter for business cycles? *Journal of Economic Dynamics and Control 51*, 299–317.

Grossman, G. M. and E. Oberfield (2022). The elusive explanation for the declining labor share. *Annual Review of Economics 14*(1), 93–124.

Gutierrez, G. and T. Philippon (2023). How european markets became free: A study of institutional drift. *Journal of the European Economic Association 21*(1), 251–292.

Gutiérrez, G. and S. Piton (2020). Revisiting the global decline of the (non-housing) labor share. *American Economic Review: Insights 2*(3), 321–38.

Hasenzagl, T., F. Pellegrino, L. Reichlin, and G. Ricco (2022). A model of the fed's view on inflation. *Review of Economics and Statistics 104*(4), 686–704.

Karabarbounis, L. and B. Neiman (2014). The global decline of the labor share. *Quarterly Journal of Economics 129*(1), 61–104.

Keynes, J. M. (1939). Relative movements of real wages and output. *Economic Journal 49*(193), 34–51.

Koh, D., R. Santaeulalia-Llopis, and Y. Zheng (2020). Labor share decline and intellectual property products capital. *Econometrica 88*(6), 2609–2628.

Leduc, S. and Z. Liu (2024). Robots or workers: A macro analysis of automation and labor markets. *American Economic Journal: Macroeconomics 16*(4), 311–344.

Maffei-Faccioli, N. (2025). Identifying the sources of the slowdown in growth: Demand versus supply. *Journal of Applied Econometrics 40*(2), 181–194.

Mann, K. and L. Püttmann (2023). Benign effects of automation: New evidence from patent texts. *Review of Economics and Statistics 105*(3), 562–579.

Michaillat, P. (2024). Modeling migration-induced unemployment. NBER Working Paper 33047.

Piketty, T. (2014). *Capital in the Twenty-First Century*. Harvard University Press.

Schoefer, B. (2025). Eurosclerosis at 40: Labor market institutions, dynamism, and european competitiveness. NBER Working Paper 33975.