Can the HOS model explain changes in labor shares? A tale of trade and wage rigidities

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\textbf{ABSTRACT}

This paper questions the ability of the standard HOS (Heckscher-Ohlin-Samuelson) model to explain changes in the labor shares (LS) of income in OECD countries. We use the Davis (1998) version of the HOS model with wage rigidity in a sub-group of countries. We show that trade openness with developing countries reduces LS in rigid wage countries and does not affect LS in free wage countries. This pattern is induced by factor reallocation towards capital-intensive sectors in rigid wage countries. Using the KLEMS dataset for 8 OECD countries over the period 1970–2005, we show that the weight of capital-intensive sectors substantially increased in continental European countries, while it did not change or even decreased in the US and the UK. Fixed effects regressions suggest that trade intensity with China explains between 50% (IV estimates) and 80% (OLS estimates) of the observed differential labor share change between Continental Europe and Anglo-Saxon countries.

1. Introduction

Contrary to conventional wisdom, the ratio of the wage bill to value added is not constant over time and space. Since Kaldor's (1956) stylized facts and despite Solow's (1958) skepticism, the labor share has been considered stable, and this claim was commonly accepted in the literature. Recently, scholars have started to challenge this view and have documented some decreasing trends in major OECD countries (see Piketty, 2014, or Karabarbounis and Neiman, 2014). For continental European countries, Blanchard (1997) and Blanchard and Giavazzi (2003) pointed out a strong decrease of the labor share very early on. Using data from the OECD STAN database, we can see in Fig. 1 that the labor share (LS) in continental European countries decreased by about 5.5 points between 1970 and 2000.\textsuperscript{1} Over the same period, it only decreased by about 2 points in the UK, US and Canada. The differential change in the labor share therefore reaches 3.5 points.\textsuperscript{2}

\textsuperscript{1} We distinguish between two sets of countries that we consider in the empirical part of the paper and for which data are available. Civil law countries (continental European countries) comprise Finland, France, Germany, Italy, the Netherlands, and Spain, whereas common law countries (Anglo-Saxon countries) comprise the US, Canada, and the UK. This distinction broadly maps the more usual distinction between continental European and Anglo-Saxon countries. The labor share is computed as the ratio of total employee compensation over value added calculated at market price. Labor shares must be corrected to account for self-employment. The self-employed contribute to value added but do not receive any wage. We use the standard assumption that the wage of self-employed workers corresponds to the mean wage of employees (see also Gollin, 2001). Individual labor shares are reported in the Appendix. We compute the aggregate labor share for both zones as a weighted average of country-specific labor shares (GDP shares are used as weights).

\textsuperscript{2} The labor share amounts to 64.5% for Anglo-Saxon countries and 65% for European countries in 1970, which corresponds to the standard calibrated value. Continental European countries experienced an increase in the labor share starting from the early 1970s, and then a sharp decrease from the early 1980s. The decrease overshoots the increase of the 1970s and the labor share is lower in 2000 than in 1970 (59.5% against 65%). The Anglo-Saxon labor share is more stable: it decreases from 64.5% to 62.5%. This trend disappears when we consider unadjusted labor shares. The differential change, therefore, is $-3.5$ labor share points against continental Europe.

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These phenomena take place in a particular era characterized by product market globalization and especially trade with developing countries, and with a strong heterogeneity in terms of institutions, especially labor market institutions. The research question we address in this paper is whether the HOS model, once completed with wage rigidity in a sub-group of countries as in Davis (1998), can account for such changes in the LS in OECD countries.

Changes in LS matter for three reasons. First, the LS affects public finance because capital income is typically less taxed than labor income. In France, for instance, the effective labor income tax rate is above 40%, whereas the effective capital income tax rate is below 20%. Increasing the LS by 3.5 percentage points would increase tax receipts by 0.7 points of GDP. Second, the labor share is strongly linked to income inequality because capital income is much more concentrated than labor income. Checci and García-Peñalosa (2009) estimate that the elasticity of the Gini coefficient to the LS is about −0.6. Increasing the LS by 3.5 points would reduce the Gini coefficient by 2.1 points (a decline by 5% of its value, or half the increase in the index observed since the 1970s). Finally, nonconstant labor shares cast doubt on the Cobb-Douglas/perfect competition paradigm.

There have been several explanations for the differential LS pattern between Anglo-Saxon and continental European countries. Since Blanchard (1997), several papers considered the role of technological change (see e.g. Hornstein et al., 2002; Acemoglu, 2003; Bentolila and Saint-Paul, 2003; Guscina, 2006; and Ellis and Smith, 2007). The main shortcoming of this approach is that, according to Nordhaus (1997), it seems unrealistic that production techniques used in continental European countries remain unknown in the Anglo-Saxon world. More recently, Karabarbounis and Neiman (2014) point out the role of the rapid decrease in the price of investment goods to explain the recently observed decreasing trends.

The other explanation is based on institutional change (goods and labor market). Blanchard (1997) and Blanchard and Giavazzi (2003) argue that the decrease in LS in European countries may be due to (i) an increase in the mark-up of price over marginal costs related to goods market regulations, and/or (ii) a decrease in workers’ bargaining power due to labor market reforms. In the same vein, Checchi and García-Peñalosa (2010) put forward the roles of unemployment benefits and the minimum wage. Indeed, the decrease in unemployment benefits or the minimum wage observed in many OECD countries during the 1990s may have affected the bargaining power of workers, as highlighted in standard labor market models (see Pissarides, 2000, for instance).

However, a mark-up increase is not really plausible, given that the 1980s and 90s are characterized by European integration, globalization and product market deregulation. Meanwhile, reforms have been more timid and piecemeal on the labor market (Boeri et al., 2000). In France, for instance, the early 1980s saw the introduction of stricter regulations rather than softer ones.

Several studies focus on labor shares at the disaggregated level. They tend to show that the share of labor is stable at the micro level, which contrasts with the patterns of aggregate shares. In those studies aggregate movements in the factor share are therefore related to composition effects. Kyriak and Maliranta (2008) show that all the decreases observed in Finland from 1970 to 2000 are due to factor reallocation between existing firms or plants. Böckerman and Maliranta (2009) show that trade is the main factor behind such factor reallocation. de Serres et al. (2002) decompose variations in the labor share at the industry level between 7 industries. From 1970 to 2000, sector reallocation implies a 7-point decrease in the aggregate labor share in Germany, 4 points in France, 3 points in Italy, and 4 points in the Netherlands. More recently, Autor et al. (2016) show that the weight of superstar firms (whose labor share is lower) has increased in the last decades, driving the recent decrease in the labor share for the US economy.

Recent literature deals with the impact of globalization on the LS. The basic HOS model without wage rigidity predicts that trade openness between labor- and capital-abundant countries decreases the LS in capital-abundant countries and increases it in labor-abundant countries, as it should lower wages in capital-abundant countries. This theory fails to explain the variety of patterns that the different groups of OECD countries experience. Rodrik (1997) argues that openness hurts workers’ bargaining power and makes wages decrease at a given output. Any increase in firms’ status quo position reduces the share of rents accruing to labor, thereby deteriorating the LS. Harrison (2002), for financial openness, and Ortega and Rodriguez (2002), for international trade, develop

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3 Going from a decline in wages to a decline in LS is not so simple: as far as labor is paid its marginal product, changes in wages do not say much about changes in the LS. Models typically assume that there are rents on the product market created by imperfect competition, and that workers and firm owners bargain over total surplus, including rents.
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