

Position in Global Value Chains: the Impact on Wages in Central and Eastern European Countries

Sabina Szymczak, Aleksandra Parteka and Joanna Wolszczak-Derlacz

Faculty of Management and Economics, Gdansk University of Technology

Abstract

This paper examines the relationship between the relative position of industries in Global Value Chains (GVC) and wages in ten Central and Eastern European countries (CEEC) in the period 2005-2014. Recent empirical works on the linkages between production fragmentation and labour market outcomes indicate not only that involvement in production fragmentation is important *per se*, but also that a country or sector's position in the production chain is relevant (Chen, 2017; Wang et al., 2017; Hagemejer & Ghodsi, 2017; Miller & Temurshoev, 2017; Shen & Silva, 2018). Hence, the main hypothesis we want to test is that the effect of GVC participation on wages depends on the level of upstreamness. Specifically, we test a nonlinear relationship between upstreamness and wages, taking the shape of so-called "smile" curve. To the best of our knowledge there is no specific empirical evidence on the relationship between wages and GVC position in CEEC and we aim to fill this gap.

To assess the GVC ties we use GVC measures of global import intensity of production (GII), upstreamness (distance from final use) and the length of the value chain (based on World Input-Output Database). GII, proposed by Timmer et al. (2016), is a novel measure (compared to e.g. classic import-based offshoring indices) which captures imports of intermediates at all the stages backward up the production chain (the code used to compute GII following Timmer et al.'s formulas is accompanying our paper). The data on a sectoral level are combined with cross-sectional micro-data on workers from EU-SILC: individual characteristics like sex, age, marital status, education, work experience; and job characteristics like company size, type of contract, managerial, sector. Moreover, on the base of EU-SILC data we calculate gross hourly wages. We also have data on individuals' occupations, which we map with country-specific indices of Routine Task Intensity (RTI), which reflect differences in routinisation between occupations but also between countries (Lewandowski et al., 2019). The wage model build in the spirit of Mincer is augmented allowing both interaction between GVC involvement and GVC position as well as possible nonlinearities in the relation between GVC position and wages. The ten studied CEEC

countries are Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

First of all, the results obtained confirm the existence of a “smile” curve in wages. Namely, we find that the wages of CEEC workers are higher when their industry is at the beginning of the chain, far from final demand (high upstreamness) or at the end (low upstreamness – sectors close to final demand) than in the middle. Secondly, wage changes depend on the interplay between upstreamness and GVC intensity. In sectors close to final demand, greater production fragmentation, measured either by global import intensity or by vertical specialisation, is associated with lower wages. Higher upstream, this effect is not sustained. We believe that the effects vary across sectors (differentiated by the degree of upstreamness) due to the variation in the type of jobs and the type of activities undertaken along the value chain. Given the natural relationship between wages and productivity, our results can be interpreted in connection with uneven productivity gains materialized in different parts of the chain. The distribution of productivity improvements and employment shocks in the CEEC countries depends on GVC position (Wang et al., 2017; Hagemeyer & Tyrowicz, 2017; Hagemeyer, 2018). Moreover, in sectors relatively close to the final demand, and thus located at the end of the chain, the effect of an increase in production fragmentation on wages is likely to be magnified through indirect GVC linkages which transmit other sectors’ response in terms of relative demand and/or productivity due to international production links.

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