

## [A Multisector Perspective on Wage Stagnation](#)

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Rachel Ngai<sup>1,2,3</sup>, Orhun Sevinc<sup>4,3</sup>

<sup>1</sup>LSE, <sup>2</sup>CEPR, <sup>3</sup>Centre For Macroeconomics, <sup>4</sup>Central Bank of the Republic of Turkey

The real wage of non-college workers in the U.S. has grown by about 20 per cent since the 1980s, which is less than half of the growth in aggregate labour productivity. This is rather puzzling because low-skill workers tend to work in sectors that have higher productivity growth, yet their wages are lagging behind those of high-skill workers and aggregate labour productivity.

We offer a novel multisector perspective on the low-skill wage stagnation and link it to growing wage inequality and wage-productivity divergence. Using U.S. state-level data, we document that real wage, i.e., nominal wages deflated by the aggregate consumption price index, grows similarly across sectors. However, the growth rate of their product wages (nominal wages deflated by the sectoral price of the output they produce) varies substantially across sectors due to large changes in relative prices. Sectors with rising relative prices are those with slower growth in low-skill product wages. This observation can contribute to stagnation in aggregate low-skill real wage because low-skill workers are reallocating into sectors with slower growth in product wages. We show in a counterfactual exercise that low-skill wage growth would have been double in the absence of such reallocation.

The mechanism we proposed builds on the observation that high-skill services, e.g. health and education, are getting relatively more expensive over time and yet they are gaining a bigger share of the economy. Low-skill workers are concentrated in sectors with faster productivity growth, but they do not benefit as much because their output is getting cheaper over time and complement high-skill labour. We can see how this plays out in a two-sector and two-input model, where (1) the high-skill sector has slower productivity growth and uses high-skill worker more intensively (2) the output of the two sectors are gross complements. These two elements together imply that both the relative prices and employment share of the high-skill sector are growing over time. Given that the expanding sector has a faster growth in price, this reallocation process reflects a shift of workers into the sector with a slower growing product wage, which cause the stagnation in the low-skill wage. The stagnation affects only the low-skill wage because the high-skill sector puts a lower input weight on low-skill workers, so the reallocation acts like a skill-biased demand shift which increases the relative wage of the high-skill workers.

We make the model more realistic with two additions: the introduction of capital and allowing for changing production weights in the production function. These enable us to track the quantitative importance of our mechanism against other sources of skill-biased demand shifts, such as capital-skill complementarity and automation that displace low-skill workers. Taking our model to the U.S. data,

we observe that empirically, the divergence between productivity and low-skill wage between 1980 and 2010 is largely accounted for by increasing wage inequality (70 per cent) and to a lower extent by falling labour share (20 per cent), and increasing relative cost of living (10 per cent).

Our mechanism can account for 68 per cent of the rise in wage inequality and the entire rise in the relative cost of living. It is also an essential element in explaining the low-skill wage stagnation as it can generate sector-specific trends in the product wages of low-skill workers observed in the data.