

Tasks, technology and trade

The globalisation of the Dutch labour market

I. Semih Akcomak

CPB Netherlands Bureau for Economic Policy Research & Maastricht University

Lex Borghans

Maastricht University

Bas ter Weel

CPB Netherlands Bureau for Economic Policy Research & Maastricht University

Extended abstract

This research is concerned with the question what determines the division of labour between workers, firms and industries in the Netherlands. It is a question of who carries out what tasks, what part of the work can be outsourced to others (workers, firms or industries) and what part can be offshored to other countries. Changes in the division of labour have consequences for the wage distribution and employment composition in the Netherlands.

The model builds on the notion that communication costs limit the division of labour between workers. Some tasks are clustered within jobs because the costs of communication are too high to separate the tasks into different jobs. Similarly, industries face a make or buy a trade-off, which depends on the difference between the costs of outsourcing of carrying out the tasks internally. Industries can outsource to other industries in the same country or outsource to abroad. This decision is based on the price differences between tasks and the connectivity of tasks to other tasks. Price differences are defined as the prices of tasks in other industries compared to the industry itself, where larger price differences lead to a higher probability to outsource tasks. On the other hand, a higher level of connectivity of tasks means that it is more difficult to outsource tasks. Finally, the international dimension of outsourcing also depends on the geographical concentration of tasks. When tasks are more concentrated geographically it is easier to outsource these tasks, compared to tasks that are more spread.

We bring the model to the data by constructing a database with a number of dimensions. First, we construct occupation task cells to determine the occupational specific price differences and

connectivity index. We use information on 36 job tasks ranging from physical tasks, to reading, math and organisational knowledge. These tasks are measured in terms of importance and are self-assessed. Second, we construct industry-task cells to measure industry differences in prices and connectivity. Finally, we use input-output tables to measure the extent of outsourcing of tasks to other countries.

Empirically we estimate changes in employment and task importance. Our estimates show that changes in price differences and connectivity have the expected opposite effects on employment changes in the period 1994-2006. Increases in price difference lead to a more extensive division of labour between occupations, industries and increase the likelihood of outsourcing. Particularly jobs in the middle are hurt by both effects. Price differences are important for lower skilled jobs but they are often well-connected. The opposite goes for high-skilled jobs. The jobs in the middle score average on both and are more likely to disappear. This development is correlated with increases in computer use over this period. Improvements in communication technologies increase the possibility to do tasks at distance and make a more extensive division of labour possible. Our estimates for industry-task cells and using the input-output tables confirm these results. It turns out the regional concentration of tasks increases the probability of outsourcing. Finally, estimates for wage changes are consistent with estimates using employment changes. Of course these results are robust to different assumptions concerning tasks measurement and econometric specifications.