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## PRESS RELEASE

### **Does education raise productivity and wages equally?**

#### **The moderating roles of age, gender and industry**

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There is a wide range of literature examining the impact of education on wages. According to human capital theory, more highly educated workers are likely to earn higher wages *ceteris paribus* simply because they are more productive than their less educated counterparts. Other theories suggest sources of inequality other than labour productivity, such as collective action and labour market institutions. Economists have also developed explanations of differences between productivity and wages without abandoning the assumptions of individual rationality and profit-maximising firms. In this literature, productivity-wage gaps are thought to be rational strategies of firms, for example to ensure that their staff remain motivated throughout their career. This abundance of theories is not matched by a corresponding body of empirical literature.

This paper estimates the impact of education on hourly productivity, wage costs and profits (i.e. the gap between productivity and wage costs) at the firm level using a large representative data set of nearly 2000 firms (i.e. Belgian-linked employer-employee panel data covering most private-sector firms over the period 1999-2010). These very detailed data make it possible to address important methodological issues such as time-unvarying unobserved heterogeneity of firms, endogeneity and state dependence of firm productivity/pay/profits.

The research findings show a robust upward-sloping profile between education and wage costs, on the one hand, and education and productivity, on the other. They also systematically highlight that educational credentials have a stronger impact on productivity than on wage costs. On average, firms' profitability is found to rise when lower educated workers are substituted by more highly educated ones (and vice versa). Estimates thus support the existence of a 'wage-compression effect', i.e. a situation in which the distribution of wage costs is more compressed than workers' education-productivity profile. In the specification that appears to be the most robust, the estimations suggest that hourly profits rise on average by 6.2 percent (3.4 percent) in the long run (short run) if the fraction of high-educated workers within a firm increases by 10 percentage points (and is compensated by a proportional drop in the share of low-educated workers). Yet, the size of this effect is found to depend on the characteristics of workers: the misalignment appears to be essentially verified among young workers, and as regards gender, findings are more pronounced for women. Finally, the results suggest that the 'wage-compression effect' is not sector-specific.

The existence of a 'wage-compression effect' partially backs up the predictions of human capital theory. On the one hand, the results corroborate the idea that education develops skills that make workers more productive and that wages reflect differences in productivity. On the other, they do not support the hypothesis that education-driven productivity gains are well aligned with wage differentials. Estimates are compatible with arguments according to which labour market regulations (such as minimum wages, collective bargaining and unemployment benefits) push up the reservation wage, especially for workers at the bottom of the wage distribution scale, and reduce wage inequalities by pushing earnings of lowest-paid workers upwards.

The observation that the wage cost differential between high- and low-educated workers increases with workers' age can be explained by the fact that white-collar workers in Belgium are much more likely to be paid according to seniority than their blue-collar counterparts (who are typically less educated) and that seniority-pay profiles are generally much steeper for high- than low-educated workers. Another explanation is that labour market institutional factors (such as unemployment insurance, minimum wages and trade unions) essentially affect the lower end of the wage distribution. Hence, they are more likely to compress

the wage cost differential between low- and high-educated workers when they are young. Overall, results thus suggest that high-educated workers are no longer under-paid relative to their productivity when they get older because their wage-cost-to-productivity ratio rises at a faster pace during their career than that of less well educated workers.

To sum up, the results show that firms located in Belgium face financial disincentives to employing low-educated workers, especially when they are young. Labour market policies aiming to improve the job prospects of young low-educated workers should thus try to boost their productivity and/or to reduce their wage cost. A substantial number of policies (i.e. training programmes, wage subsidies, cuts in social security contributions) have already been implemented to this end. Yet, our findings suggest that these efforts should be intensified (alongside policies fostering total employment). Furthermore, results show that the wage-compression effect is somewhat more pronounced among women than men. This finding suggests that particular attention should be devoted to policies favouring gender equality in terms of remuneration and career advancement.