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Risky human capital investment, income distribution, and macroeconomic dynamics

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Abstract

This paper examines the implications of human capital risk for the relationship between inequality and economic development. It argues that due to missing insurance markets for human capital risk, the initial distribution of family wealth may play an important role for an economy's process of development fueled by human capital accumulation. The analysis suggests that, in the absence of credit constraints, higher inequality tends to increase the aggregate human capital stock and per capita income, under conditions which are supported empirically for advanced countries. Taking additionally into account that, due to borrowing constraints, higher inequality impedes human capital investment in poorer economies, this suggests a non-linear relationship between inequality and economic development.

JEL classification: O11; O40; I20

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1. Introduction

Schooling decisions are made under a substantial degree of uncertainty. First, individual ability and thus performance in school are imperfectly known to students ex ante. Since

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school performance is an important determinant of labor market performance, this source of uncertainty transmits into earnings risk. Second, there is uncertainty about the quality of schooling, due to substantial heterogeneity among schooling institutions which may only partly be known ex ante. Third, and maybe most important, one's relative position in the post-school earnings distribution is uncertain because unforeseen patterns of technological change and product demand shifts are not neutral across industries. Since skills are to a large degree specific to industries, this leads to uncertainty about relative labor demand within groups of workers with similar education levels (e.g., a college degree).

Empirical evidence indeed strongly suggests that "there is a great deal of uncertainty regarding the returns to schooling" (Carneiro et al., 2003, p. 362).[1] Since human capital risk is typically neither insurable nor diversifiable, uncertainty in the returns to education may be a dominant concern for individuals in their schooling decision, in addition to expected returns.

This paper builds on the premise that risk-averse individuals face idiosyncratic, non-diversifiable and uninsurable labor income risk associated with human capital investments and analyzes its implications for the interaction between intergenerational wealth transmission of heterogeneous individuals and economic development. It is argued that due to missing insurance markets for human capital risk, the initial distribution of family wealth (or parental income, respectively) may play an important role for an economy's process of development fueled by human capital accumulation.

To focus on the role of missing insurance markets for human capital risk, the analysis mostly abstracts from constraints to borrow for educational purposes. This seems a reasonable modelling device for the analysis of advanced countries, where extensive provisions of college financial aid (like in the US) or public education finance (prevalent in Europe) tend to remove credit constraints for human capital investments for the bulk of individuals. In fact, recent studies find no evidence for the relevance of educational borrowing constraints in the US (see e.g. Cameron and Taber, 2004, and the references therein). Nevertheless, empirical evidence strongly suggests that parents' income is an important determinant of human capital investments. For instance, Taubman (1989) reviews estimates for the elasticity of years of schooling with respect to parental income. These are generally positive and range from 3% to 80%, after controlling for parents' education, father's occupation, and/or children's test scores on mental ability tests. Similarly, Solon (1999, p. 1789) concludes: "Most of the evidence [. . .] indicates that intergenerational earnings elasticities are substantial and are larger than we used to think." Sacerdote (2002) finds that the effect of socioeconomic status on children's college attendance is just as large for adoptees as for children raised by biological parents, suggesting no significance of genetic factors. Plug and Vijverberg (2003) report higher effects of genetic factors (measured by parents' IQ) on the children's years of schooling and college attainment, although family income still has a large effect. The present framework is consistent with such evidence. It is shown that educational investment at the individual level positively depends on family wealth under standard

[1] Carneiro et al. (2003) as well as Cunha et al. (2005) develop and apply a procedure to separate uncertainty in labor earnings from unobserved heterogeneity in earnings regressions. Cunha et al. (2005) find that a fraction of about 40% of the variability of earnings is unpredictable to agents. Similarly, Hartog et al. (2004) identify a substantial risk component in the distribution of returns to attend university. Other empirical contributions examine the link between the mean and the variance of returns to education (e.g. Pereira and Martins, 2002; Palacios-Huerta, 2003).