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Public education financing, earnings inequality, and intergenerational mobility ☆

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ABSTRACT

Among developed countries there are large differences in earnings inequality and intergenerational earnings persistence. This paper investigates public education and tax policies as a possible source for these differences. Empirical and quantitative policy experiments focus on the case of the U.S. and Norway. An overlapping generations model is developed and calibrated to match U.S. data. Functions for labor taxes and public education spending are estimated for each country and incorporated into the model. The benchmark exercise finds that taxes and public education spending account for about one-third of differences in earnings inequality and 14 percent of differences in intergenerational earnings persistence between the U.S. and Norway. Furthermore, public intervention in early childhood education more than doubles the impact of these policy changes.

1. Introduction

A strong positive correlation between earnings inequality and intergenerational earnings persistence exists across countries. This empirical relationship, commonly referred to as the "Great Gatsby Curve," has garnered attention recently in policy debates and academic studies.[1] This paper builds on that discussion by examining two countries at opposite ends of the curve: the U.S. and Norway. The fundamental question analyzed here is whether stark differences in public education and tax systems in these two countries can account for the observed cross-country differences in earnings inequality and intergenerational earnings persistence.

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[1] Council of Economic Advisors chair Alan Krueger introduced the term during a 2012 speech, and it has since entered the academic literature in papers such as Corak (2013a) and Boudreaux (2014).

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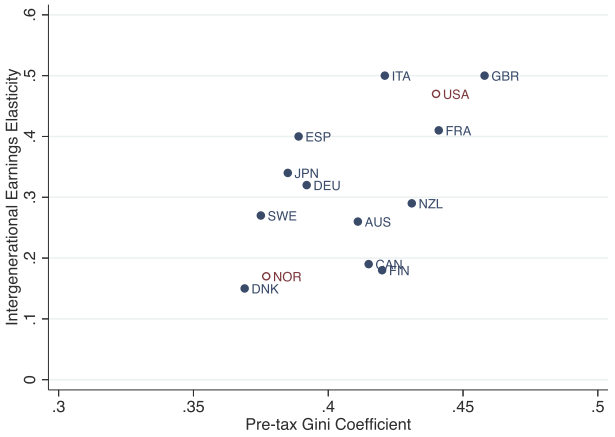

Fig. 1. Intergenerational persistence and inequality across developed countries.

Fig. 1 demonstrates a version of the Great Gatsby Curve by plotting the Gini coefficient and the intergenerational earnings elasticity for 14 developed countries.[2] One end of the spectrum is represented by countries such as the United States and United Kingdom in which inequality is relatively high and income is relatively persistent across family generations. The opposite end of the spectrum includes the Scandinavian countries and Canada, which have much more equal income distributions and lower intergenerational persistence (higher intergenerational mobility).[3]

Public policies are a natural starting point to begin investigating the sources of these cross-country patterns, and this paper focuses specifically on public education spending and labor tax progressivity. Considering these within a unified framework is important because both policies directly impact the cross-sectional distribution of human capital (a primary determinant of lifetime earnings) and its correlation across generations. In particular, progressive labor tax policies affect the incentives for human capital accumulation and the disposable income available to parents for investment in their children's education.[4] Additionally, the allocation of public education expenditures – at all levels of education – among heterogeneous individuals affects the resulting distribution of human capital and the correlation of human capital between parents and children.

I focus on the U.S. and Norway for several reasons. First, as shown in Fig. 1, the U.S. ranks among those countries with the highest earnings inequality and intergenerational earnings persistence, while Norway ranks among those with the lowest earnings inequality and intergenerational earnings persistence. Second, as shown in Section 2, the U.S. and Norway have very different tax and public education financing systems, thus policy experiments incorporating these differences have the potential for significant effects on human capital accumulation and earnings distributions. Finally, education spending and income data are available for both countries at the school district level. These data are important to estimate the relationship between parents' income and children's receipt of public education expenditures.

In the benchmark exercise, I calibrate the model to match features of the U.S. education and earnings distributions, then compute a counterfactual economy in which the U.S. public education and labor tax systems are replaced by the Norwegian counterparts. I find that these features alone can account for about one-third of the cross-country differences in earnings inequality and 14% of the gap in intergenerational earnings persistence. The importance of heterogeneous public education and progressive taxation is shown through counterfactual exercises with flat taxes and homogeneous education, which generate results less than half this size. Furthermore, by changing education and tax policies independently I find that public education spending is responsible for most of the predicted model change in intergenerational earnings persistence, whereas taxes are responsible for most of the predicted change in earnings inequality. This result suggests that while earnings inequality and earnings persistence are highly correlated, they are not necessarily driven by the same factors, and they may respond independently to tax and education policies.

The benchmark results, however, are limited in that the education policies considered only begin with the compulsory schooling system when children are around age five. Yet large differences in early childhood education also persist across countries. Recent work, including Cunha et al. (2006), has emphasized the importance of human capital formation at early ages, so I also test the effect of early childhood education targeted to low-income and low-ability children. Even under the most conservative assumptions I find that early childhood education more than doubles the impact of the benchmark

[2] There are many different measures of inequality and persistence. For consistency with the rest of the paper, I plot the pre-tax Gini coefficient in 2000 (or closest available) from the OECD and the intergenerational earnings elasticity from Corak (2013b). The U.S. and Norway are highlighted as these two countries will be the main focus of the paper.

[3] See, e.g., Aaberge et al. (2002), Bratsberg et al. (2007), Andrews and Leigh (2009), and Corak (2013b).

[4] This channel has also been studied by Trostel (1993), who finds a negative effect of proportional income taxation on human capital; Erosa and Koreshkova (2007), who find a negative effect of progressive taxation on human capital; and Guvenen et al. (2014) who examine both average tax levels and progressivity in a cross-country study.