

Spillover effects in education

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5.1 Summary of the findings

This dissertation aims to show the importance of incorporating spillover effects in educational policy analysis and to provide examples of how it can be achieved. Different methods are exploited and different educational domains are investigated in three chapters. While the conclusions of each separate study are summarized below, one takeaway message that can be drawn from all the chapters is that an education system is a complex process that produces externalities which should be incorporated in any policy assessment analysis.

Chapter 2 models individual on-the-job training decision. It shows that if an employee's productivity is partially unobserved, participating in a certain type of training can be used to signal one's productivity. This leads to overall inefficiency in training participation subscription: basic training is underutilized due to negative stigma, while advanced training is oversubscribed. If the training programs can increase participants' ability besides being a signalling tool, then different training programs can mitigate ability signals from each other due to spillover effects. Characteristics of each training program affect the participation rate of other programs.

Chapter 3 builds a simplified model of secondary school education with tracking. The purpose of the chapter is to find a way to bring together different parameters in order to identify optimal track allocation and evaluate an existing or hypothetical tracking policy. In order to do this, we build a model of secondary education with two tracks and two periods. We calibrate the model with the data from the Netherlands. The study shows that that individual policy parameters have unintended consequences on outcomes they do not target. For example, the high costs of reassigning students to a certain track not only decrease reassignment (direct effect) but also increase initial track placement in that track (indirect). To account for uncertainty in the parameters coming from estimation, we investigate what parameters the model is the most sensitive to. We find that

the model is most sensitive to changes in parameters that define how students with the same ability level perform in exams in different tracks. Hence, those are the parameters with the highest added value in obtaining precise estimates.

Chapter 4 investigates people's willingness to pay for living in a proximity of a high-quality school in a free school choice system. Free school choice means that people can send their children to any school no matter where they live. Nonetheless, schools produce positive (e.g. saving commuting time for parents) and negative (noise and increased traffic during peak hours) externalities for nearby houses. The chapter analyzes schools' spillover effects on residential real estate market in a free school choice setting, focusing on primary schools. A hedonic property pricing model is applied, treating linear distance to the nearest school as a proxy for exposure to externalities. Using data from the Netherlands, we find that there is no effect of average and high-quality schools on housing prices. This implies that people are not willing to pay extra to live in a proximity of the chosen school. Moreover, it seems that for high and average quality schools negative externalities in immediate proximity of a school building (distance below 50 m) are compensated by positive externalities. At the same time, houses within 200 m of a worst-performing school sell at 1.6% discount, caused by negative externalities.