The aggregate labor market effects of the Swedish Knowledge Lift program

James Albrecht [a,b,c,d,*], Gerard J. van den Berg [b,c,e,f,g], Susan Vroman [a,b,c,d]

[a] *Department of Economics, Georgetown University, USA*
[b] *IZA, Bonn, Germany*
[c] *IFAU, Uppsala, Sweden*
[d] *CESifo, Munich, Germany*
[e] *Department of Economics, VU University Amsterdam, The Netherlands*
[f] *CEPR, London, UK*
[g] *IFS, London, UK*

Abstract

The Swedish adult education program known as the Knowledge Lift (1997–2002) was unprecedented in its size and scope, aiming to raise the skill level of large numbers of low-skill workers. This paper evaluates the potential effects of this program on aggregate labor market outcomes. This is done by calibrating an equilibrium search model with heterogeneous worker skills using pre-program data and then forecasting the program impacts. We compare the forecasts to observed aggregate labor market outcomes after termination of the program.
© 2008 Elsevier Inc. All rights reserved.

1. Introduction

Life-long learning, adult education, and employability have become focal points in the labor market policies of many advanced economies (see e.g. the recent OECD Employment Outlook 2004). It is expected that these economies will face more turbulent conditions than in the past and that the development of novel production technologies will proceed at a sustained high speed. This will require a flexible and suitably skilled workforce. Indeed, the role of low-educated workers has diminished in modern knowledge-based economies. The fact that there is now a heavier representation of older workers in the labor force means that the human capital adjustment needs to be made by the existing stock of workers rather than solely by the inflow of new workers.

---

* Corresponding author at: Georgetown University, Department of Economics, 37th & O Streets, NW, Washington, DC, USA.
  E-mail address: albrecht@georgetown.edu (J. Albrecht).

Sweden is relatively well prepared for such a policy intervention, given its long tradition of training of adult unemployed workers (see e.g. Ministry of Education, 1998; Friberg, 2000; and Ministry of Industry, 2001). In 1997, Sweden implemented a new major adult education program called the "Adult Education Initiative" or "Knowledge Lift" (henceforth denoted as KL). Without exaggeration, this constitutes the largest and most ambitious skill-raising program ever. It aimed to raise the skill level of all low-skill workers to the medium-skill level. It focused on workers with a low level of education. The size of the program was unprecedented: in the period 1997–2000 alone, more than 10% of the labor force participated in it.

Obviously, the program reflected a great deal of optimism about the extent to which an adult's human capital can be improved. The empirical literature on training programs for unemployed workers does not warrant this optimism. The general conclusion from this literature is that training does not have large effects on individual labor market outcomes (see e.g. Fay, 1996; Heckman et al., 1999; and Martin and Grubb, 2001). A potential exception concerns training for women who return to the labor market after a spell of child-raising activity, who clearly form an important target group for adult education. However, perhaps more importantly, training participants with a low initial level of education benefit even less than other educational groups.

While this evidence questions the presence of effects on individual outcomes, it is still possible with a large training program such as KL that there are macroeconomic labor market effects. In this paper, we analyze these macroeconomic effects of KL. Specifically, we examine the equilibrium effects of KL by calibrating an equilibrium matching model with labor market frictions and skill heterogeneity. Given the size of the program, equilibrium effects may be substantial. In addition to any effect on the individuals in the program, other workers in the economy are likely to be impacted through changes in wages and/or through changes in unemployment and employment probabilities.[1] Obviously, the model we use should incorporate skill heterogeneity and equilibrium unemployment. Also, firms should be able to choose their production technologies in the face of the prevailing skill distribution. We use a model based on Albrecht and Vroman (2002), which is a concise and amenable model satisfying the above requirements. It assumes two worker types, low skill and medium skill, with the number of workers of each type taken as exogenous in a given market.[2] There are frictions in the process by which unemployed workers and vacancies contact one another, and the surplus generated by a worker/job match is divided using the Nash bargaining solution. The flow output of a match depends on the skill level of the worker as well as on the job type as decided by the firm when it created the vacancy.[3]

We use data from 1996 to calibrate the pre-KL economy.[4] This allows us to set values for the unobserved parameters that drive the theoretical model. We then address the question: "Suppose KL were to change the skill distribution in the economy in a particular way. What would the effects be?" Specifically, we impute potential post-KL skill distributions and solve the model for the new steady-state equilibria. We derive wages for low-skill and medium-skill workers as well as their unemployment rates and employment in low-skill and medium-skill jobs. We also derive the overall unemployment rate, labor market tightness (vacancies over unemployment), the proportions of low-skill and medium-skill vacancies, and the equilibrium effects on the treated. Since the model we use is a steady-state model, the aggregate effects it predicts should be long-run effects. Nonetheless, we look at early post-KL data to see what aggregate labor market effects occurred.

We use our predicted aggregate labor market effects to carry out the following policy experiment. A "partial" treatment effect is calculated as the difference between average wages and employment probabilities for a low-skill worker and a medium-skill worker calibrated to the distribution of skills in the pre-KL economy. This approximates the effect of upgrading the skill of a single worker, leaving the skill distribution unchanged. Next, the equilibrium of the model economy in which the distribution of low- and medium-skill workers has been exogenously changed to the one induced by the KL is calculated. An equilibrium treatment effect is calculated by computing the difference

---

[1] See e.g. Lise et al. (2005) for a general discussion of equilibrium evaluation of policy programs.

[2] We abstract from the interaction between high-skill workers and the rest of the labor market. We do this because the primary impact of the knowledge lift is on low- and medium-skill workers and because adding a third worker type to the model would considerably complicate our calibrations.

[3] Plesca (2007) also uses the Albrecht and Vroman (2002) model as the basis for a general equilibrium evaluation analysis. Specifically, she evaluates the US Public Labor Exchange (PLX), a program that helps arrange meetings between job seekers and firms with vacancies. She finds that the general equilibrium effects of the PLX are substantially greater than the corresponding partial equilibrium effects; that is, the PLX has substantial effects even for workers who do not participate in the program. Her results are thus quite consistent with ours.

[4] A calibration for 1994 was also done. The results were very similar.