" Empirical Evaluation and Optimal Design of Unemployment Insurance Systems"

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Introduction

In most countries unemployment insurance systems rely on two sets of instruments. Income support during unemployment provides consumption insurance and gives jobseekers the opportunity to look for an appropriate job (so-called passive measures). In contrast, so-called active labour market policies (ALMPs) aim at improving jobseekers' employment prospects, e.g. by improving search effectiveness or skills through training, or by creating additional work opportunities. Expenditures on these policies are substantial, ranging from 1% to 5% of GDP in OECD countries (OECD 2011). Employing these funds cost-effectively is key to the sustainability of modern social insurance systems. The research summarized here aims at deriving guidelines for improving the cost-effectiveness of unemployment insurance systems.

There are several challenges when designing unemployment insurance systems. For passive measures, there is the problem that too high benefits discourage job search. However, too low benefits are socially undesirable and may cause unproductive use of labour because high-skilled workers accept low-skilled jobs. For ALMPs, we need to understand the effects of different activation measures on the labour market outcomes of their participants. This is a pre-requisite for judging which ALMPs are cost-effective as well as for the optimal targeting of these measures. There are also important interactions between ALMPs and providing search incentives through unemployment insurance. On the one hand, ALMPs try to increase exit rates to employment in order to reduce unemployment insurance payments. If successful, this would also ease the provision of search incentives because the returns to search are increased. On the other hand, these programs are costly and participation reduces the time available for active job search. We show that existing unemployment insurance systems exhibit substantial inefficiencies. Considerable budget savings could be realized by jointly optimizing financial incentives and the use of activation measures.

Empirical evaluation of training programs in Germany

In this section I summarize parts of my research on the effects of ALMPs on the labour market outcomes of their participants. In particular I present the results from two studies that investigate the effectiveness of training programs for unemployed workers in West Germany (Lechner and Wunsch 2009, Lechner, Miquel and Wunsch 2011). In contrast to most of the existing literature (see the surveys by Fay 1996, Heckman, LaLonde, and Smith 1999, Martin and Grubb 2001, Card, Kluve and Weber 2010) we are able to investigate the short, medium and long-run effects of the programs, the relative performance of different types of training, effect heterogeneity for different types of participants, and the relation of the effectiveness of the programs to the business cycle. Hereby we contribute to obtaining a much better understanding of the effects of ALMPs which can be used to optimize their use.

We study the performance of four different types of training based on social insurance records of West German unemployed workers. Such programs aim at removing or reducing the mismatch between the skills of unemployed workers and what is demanded by the market. The

programs we consider comprise, firstly, courses that combine class-room and varying amounts of on-the job training. Here we distinguish programs with planned durations of up to and above six months in order to account for differences in the amount of human capital added. Secondly, we separately analyze the most intense form of training which provides a formal vocational degree equivalent to a German apprenticeship degree and takes about two years to complete (so-called retraining). Finally, we consider programs conducted in so-called practice firms. They provide occupation-specific on-the-job training by simulating either the commercial part of a company (administration, accounting, customer relations, etc.) or the manufacturing part. Mean duration is about six months.

The programs we study in Lechner, Miquel and Wunsch (2011) were conducted in the period 1992 to 1994 which allows us look at outcomes for up to eight years after program start. We estimate the effects of the programs on various measures of labour market performance of their participants. We compare the outcomes of participants and nonparticipants but take into account that they differ systematically in characteristics that determine labour market outcomes. We ensure econometrically that we compare each participant only to those nonparticipants which are sufficiently similar in all characteristics that jointly affect labour market performance and the probability to be assigned to a training program. This allows us to estimate the causal effects of the programs.

Figure 1 shows our effect estimates for monthly employment rates measured from the start of the program for the eight following years. A number of 10 means that the participants in the respective program have on average a 10 percentage point higher employment rate than comparable nonparticipants. We find that initially all programs exhibit negative employment effects. How strong they are and how long they last is strongly correlated with the duration of the programs. The negative effects vanish around the mean duration of the respective program. Such effects were first documented by van Ours (2004). They are due to reduced job search activities during program participation and are called lock-in effects in the literature. Shortly after the lock-in period we find sizeable positive employment effects which are sustained over the whole observation period for all programs. For retraining the long-run effect is about 15 percentage points and for all programs about 10 percentage points.

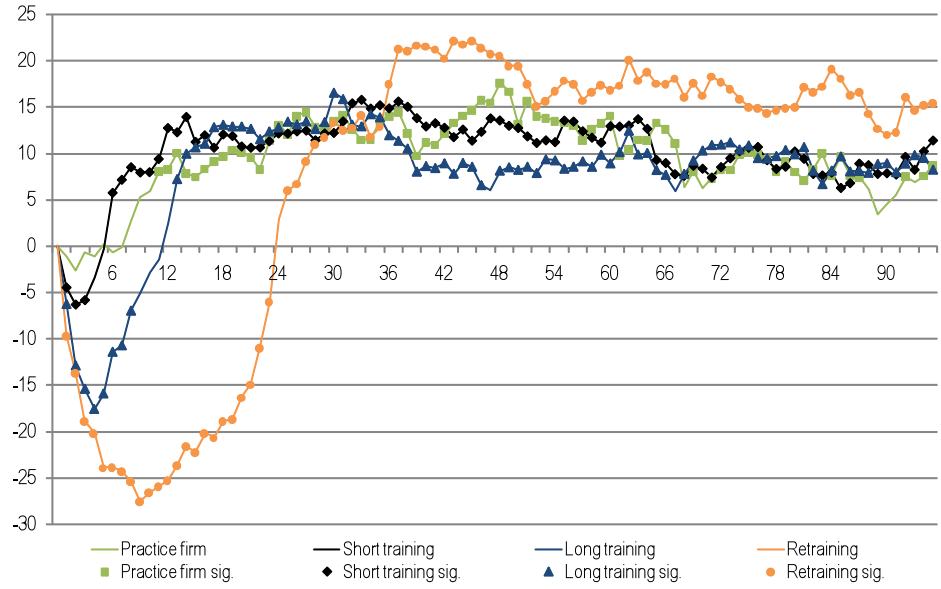

Figure 1: Estimated effects of the programs on the employment rate of their participants for each month after program start. Effect in percentage points. Symbols indicate significance on the 5% level (sig.).

One important conclusion from our results is that the time horizon available for studying program effects is crucial. If it is too short relative to the duration of the programs, researcher may falsely conclude from effects measured in the lock-in period that the programs are ineffective or even harmful. This might also explain the diversity of the findings in earlier studies (see the above cited surveys), the large majority of which only analyzes short-run effects.

From Figure 1 one may conclude that all programs are similarly effective after the lock-in period, with retraining dominating all other programs from three years after program start. However, the lock-in effects represent an important indirect cost of the program. In Figure 2 we therefore study the role of the lock-in effects in more detail. Here we show for every month after program start, the estimated difference in the number of months employed since program start between participants and comparable nonparticipants. This provides information on how long it takes to offset initial negative employment effects with positive effects later on. From this perspective it becomes clear that short training, which is also the least costly program, dominates all other types of training. It only takes about 16 months until participants have accumulated more months of employment than comparable nonparticipants, and over the eight-year period they accumulate ten months more. From Table 1 we also see that participants in short training accumulate 42'000 EUR more in earnings without accumulating more months of unemployment, and the gains in earnings exceed those of all other programs.

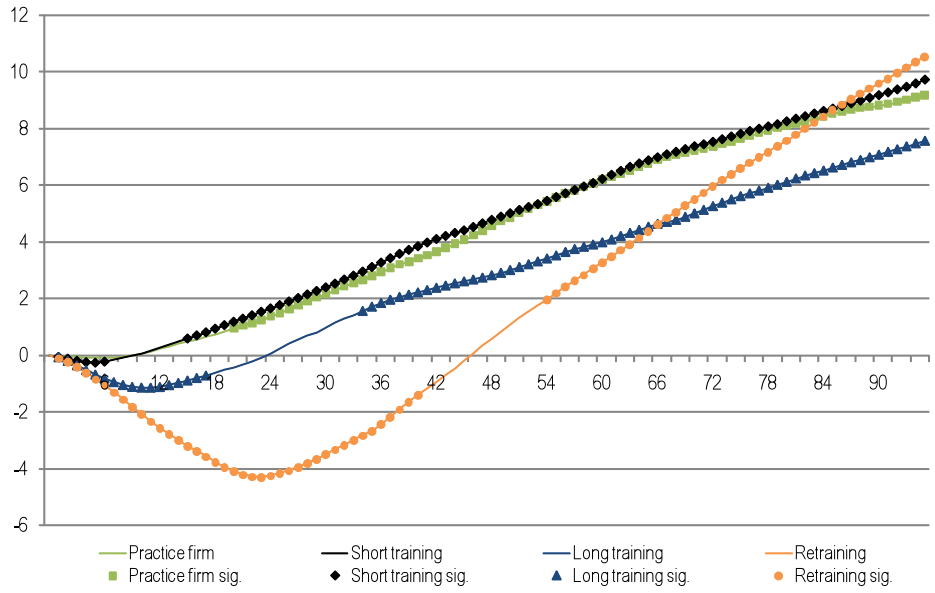

Figure 2: Estimated effects of the programs on months employed cumulated by their participants since program start for each month after program start. Symbols indicate significance on the 5% level (sig.).

Training in practice firms only performs slightly worse than short training in terms of accumulated months of employment. However, accumulated earnings are much smaller. In Table 2 we see one potential reason for this. The positive effects of practice firms are more concentrated among women while those of short training more among males. Since a substantially higher share of women works part-time, less earnings are accumulated on average. Long training is clearly dominated by the shorter programs. It takes three years until positive net effects on employment appear. Moreover, fewer months of employment have been accumulated after eight years and the gains in earnings is only slightly higher than those for practice firms and much lower than for short training. But most importantly, there is also an additional

cost in terms of unemployment. Participants in long training are registered unemployed and receive benefits for about four months more than comparable nonparticipants.

The results for retraining, which is the most costly program, are particularly interesting. Figure 1 shows that this programs exhibits the largest longer-run effects but also very high and long lasting lock-in effects. Figure 2 reveals that it takes 4.5 years for positive net effects on employment to appear. Seven years after program start retraining begins to dominate all other programs in terms of accumulated months of employment. However, the gains in earnings are still lower than those of short training after eight years and there is a cost of seven more months of registered unemployment and benefit receipt.

	Practice firm	Short training	Long training	Retraining
Months employed	9.2***	9.8***	7.6***	10.5***
Months unemployed	-0.5	1.2	3.6**	6.6***
Cumulated earnings in EUR	23'548***	41'833***	26'619***	37'282***

Table 1: Estimated effects of the programs for their participants eight years after program start. Outcomes are measured from program start. Stars indicate significance on the 1% (***), 5% (**) or 10% (*) level.

Figure 2 and Table 1 indicate that all programs are likely to be cost-effective after eight years. However, policy makers may not want to wait that long to achieve cost-effectiveness. Moreover, short training clearly seems to dominate all other programs, at least on average, because cost-effectiveness can be achieved much faster and the overall gains are also largest. This knowledge is important for policy makers who decide how to spend limited funds in the most effective way. Knowing the relative average performance of different measures is not sufficient, though. If the programs also have different effects for different types of participants, appropriate targeting of the programs to those who benefit most from them also becomes crucial. We address this issue in Table 2 where we look at the employment effects of the programs at the end of the observation window for different groups of participants.

Participants divided by		Practice firm	Short training	Long training	Retraining
Gender	men	3.7	17.8***	6.4	18.8***
	women	11.2*	6.6	7.3	23.2***
Unemployment duration	less than 6 months	4.7	13.3***	6.1	18.5***
	6 months or more	15.5***	11.2**	8.6*	17.9***
Regional unemployment rate	less than 8%	6.5	11.2***	9.3*	19.7***
	8% or more	11.0**	13.1***	8.6*	20.3***
Employability	below median	12.1**	11.1**	21.2***	14.1**
	above median	7.5	10.8***	4.4	16.0***

Table 2: Estimated effects of the programs on the employment rate of their participants eight years after program start for different groups of participants. Effect in percentage points. Stars indicate significance on the 1% (***), 5% (**) or 10% (*) level. Employability is measured as the predicted probability to be employed four years after program start where the underlying coefficients are estimated by a probit model using nonparticipants only. To split the sample the median of the distribution among nonparticipants is used (0.448).

As mentioned before, women benefit more from practice firms than men, which in turn benefit more from short training. Practice firms also seem to be more effective for workers with longer unemployment durations. The most striking effect heterogeneity occurs for long train-

ing which appears to be the least effective program on average. For workers with bad re-employment prospects at the beginning of unemployment long training seems to be highly effective. In particular, the employment effect is substantially higher than for all other programs. Hence, long training may be the most cost-effective program for this particular type of workers. In summary, Table 2 shows that targeting of the programs to those who benefit most from them is important for maximizing the overall effectiveness of ALMPs.

In Lechner and Wunsch (2009) we study an additional source of potential effect heterogeneity. Here we investigate how economic conditions affect the effectiveness of the training programs analyzed before. We study monthly entries into training over the period 1986 to 1995 and estimate their effects on employment rates six months, three years and eight years after programs start. Thus, we capture the effects in the middle of the lock-in period, shortly thereafter and the long-run effects. To make the estimated effects comparable across time periods we use econometric techniques to keep the composition of participants and the program mix in terms of contents and planned duration constant over time. We find that the effects on employment rates are positively correlated with the unemployment rate at program start. Thus, the lock-in effects are higher the better the labour market conditions at program start. The reason is that in good economic conditions unemployed workers who have not been assigned to a program find a job relatively easily. Moreover, the higher lock-in effects are not offset by higher long-run effects. In contrast, they are also lower, probably due to long-lasting effects of the worse initial conditions resulting from the lock-in period. Hence, to minimize the indirect costs of the programs in terms of lock-in effects and to maximize long-run effects, countercyclical use of training programs for unemployed workers is advisable.

Optimal design of unemployment insurance systems

In Wunsch (2007, 2012) I directly study the question of the optimal design of unemployment insurance systems. Most existing studies that take a normative perspective on unemployment insurance have entirely focused on the optimal time profile of benefits when search effort is unobservable (some of the main contributions are Shavell and Weiss, 1979; Wang and Williamson, 1996; Davidson and Woodbury, 1997; Hopenhayn and Nicolini, 1997; Cahuc and Lehmann, 2000; Fredriksson and Holmlund, 2001). This literature shows that benefits have to decline with unemployment duration in order to provide search incentives. My analysis is based on the framework proposed by Pavoni and Violante (2007) which allows for joint optimization of financial incentives and the use of activation measures. I solve an optimization problem where a planner chooses the cost-minimizing combination of passive and active measures subject to a given level of the generosity of unemployment insurance. I derive the optimal level of benefits, the optimal amount of wage taxes or subsidies as well as the optimal timing and duration of different types of training as a function of unemployment duration and worker characteristics.

With respect to the optimal use of training I find that the minimum effectiveness required for job search training to be used at all in the optimal policy is at the lower bound of existing estimates of positive program effects. In contrast, existing more intensive training programs do not seem to be sufficiently effective to be part of the optimal scheme. If sufficiently effective, training is used to delay or prevent situations in which it is no longer optimal to incentivize the worker to provide positive search effort because the returns to search are too low. Therefore, it should be targeted at workers who enter unemployment with low skills or at long-term unemployed workers whose skills have depreciated substantially.

I also compare the policy actually implemented in West Germany in the period 2000-2002 with the optimal scheme. The results indicate a substantial inefficiency of the German system. It provides too much insurance and puts too little emphasis on search incentives. The benefit schedule is much too flat compared to the optimal one. Moreover, training programs have not been used efficiently. As a consequence, considerable budget savings could have been realized by switching to the optimal scheme.

Conclusion

The research summarized here has important implications for the optimal design of unemployment insurance systems: Firstly, well-designed training programs can have considerable positive long-run effects on labor market outcomes. Secondly, there is substantial heterogeneity in the effects of activation measures in terms of both contents and groups of participants. Thus, targeting these programs to those who benefit most from participation is crucial for cost-effectiveness. Thirdly, reduced job search activities during participation in a program are one of the main cost components of these measures. These costs are particularly high when economic conditions are good which calls for counter-cyclical use of training for unemployed workers. Fourthly, cost-effectiveness of single activation measures is a necessary but not sufficient condition for their optimal use. The minimum effectiveness required for cost-effective programs to be optimally used at all can be quite high. Often, a well-designed benefit system that provides sufficient search incentives is superior to using costly ALMPs, even if they are cost-effective individually. Fifthly, if sufficiently effective, training programs should be targeted at unemployed workers with bad re-employment prospects and should be used early in the unemployment spell.

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