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Essays on Unemployment Policies: Dissertation Summary

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Chapter 1: Optimal Unemployment Insurance with Monitoring

Public spending on labor market policies was on average 1.6 percent of output in industrialized countries in 2001 (Organisation for Economic Co-operation and Development 2005). These labor market policies can be divided into passive and active policies. Passive policies, such as constant benefits to the unemployed, are mainly concerned with the welfare of the unemployed worker, while active policies, such as job-search monitoring and training, are mainly concerned with increasing the unemployment exit rate. In the last three decades, active labor market policies have gained a higher share of the total spending on labor policies and have received increased attention as governments seek to insure unemployed workers without damaging their incentives for becoming employed.

Given that additional policy instruments such as job-search monitoring are available and are implemented by governments, it is important to model these instruments, to examine the extent to which these instruments increase the efficiency of unemployment insurance programs, and to compare existing policies to the optimal policy. This is a nontrivial task since such instruments, as valuable as they may be, are also costly.

In practice, monitoring requires the unemployed worker to record his job-search activities, typically by listing the employers he contacted in a given period. At the employment office, a caseworker evaluates occasionally whether the job-search requirements are met, for example, by verifying that the contacts are authentic. If the caseworker finds the report unsatisfactory, then she may impose sanctions, usually in the form of benefits reduction for a limited period.

The objective of this chapter is to model monitoring in the framework of optimal unemployment insurance developed by Hopenhayn and Nicolini (1997), and to characterize the optimal allocation in the presence of monitoring. In Hopenhayn and Nicolini, a risk-neutral planner—the government—insures a risk-averse worker against unemployment by setting transfers during unemployment and a wage tax or a subsidy during employment. During unemployment, the worker searches for a job by exerting an effort level that is his private information. The *first best*, had the planner been able to observe the information, is to deliver to the worker constant benefits regardless of the employment status. However, since the planner cannot observe the job-search effort level, constant benefits would flaw the worker's incentives to search for a job. Therefore, to solve the incentive-insurance trade-off, benefits during unemployment should continuously decrease and the wage tax upon reemployment should continuously increase.

I incorporate monitoring into the optimal unemployment insurance framework as follows. The planner monitors the unemployed worker with some history-dependent probability. When a worker is monitored, the planner pays a cost and receives a signal that is correlated with the job-search effort of the worker. The planner uses that signal to improve the efficiency of the contract by conditioning future payments and the wage tax, not only on the employment outcome, but also on the signal. These future values create endogenous sanctions and rewards that, together with the random monitoring, create effective job-search incentives: the worker exerts a high job-search effort level in order to increase the probability of a good signal, and consequently to increase the probability of higher payments.

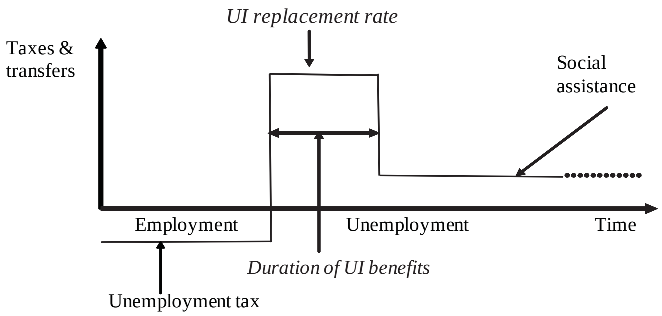
I find that at the constrained optimum, the planner chooses for each type of unemployed worker a specific combination of monitoring frequency and sanction severity: as the generosity of the welfare system increases, the planner monitors the unemployed more frequently but imposes lower sanctions. This policy pattern is linked to the worker's risk aversion. As the generosity of the welfare system increases, the planner finds it more costly to sanction the worker because the reward that is required to counterbalance a given sanction increases with the level of promised utility. At the same time, the cost of acquiring the monitoring signal is fixed in units of consumption, and therefore the planner shifts gradually from applying severe sanctions at a low probability to applying less severe sanctions at a higher probability.

The second objective of the chapter is to estimate the value of the additional instrument of monitoring by comparing the results of the model to the results of a model where monitoring technology is unavailable. I find that when comparing the two models at a balanced budget (zero net cost for the planner), monitoring decreases the variance of consumption by about two-thirds and eliminates roughly half of the government's cost of the model without monitoring.

The third objective is to contrast the actual monitoring policy in the United States with the optimal scheme and assess the gain from shifting to the optimal scheme.

Figure 1 shows the levels of consumption for both the optimal and actual policies for a worker who starts unemployed and goes through the following five states: 1) nonmonitored unemployment, 2) monitored unemployment with a good signal, 3) nonmonitored unemployment, 4) monitored unemployment with a bad signal, and 5) employment, denoted as the sequence {n,g,n,b,e}. The top panel shows both policies on the same wide vertical scale. The bottom panel shows the optimal policy on a tighter vertical scale in order to emphasize those variations in consumption that cannot be visualized in the top panel. The sharp changes in consumption in

Figure 1 Simulated Consumption of the Optimal and Actual Monitoring Policies in the United States



the actual policy, where the planner conditions only on the current state, are replaced by quite moderate changes in the optimal policy, where the planner conditions consumption on the complete history of the agent. Specifically, the one-time decrease of 23 percent in the monthly benefit in the actual policy is replaced by a persistent decrease of only 5 percent in the optimal policy.

In order to estimate quantitatively the budget savings of moving from the actual policy to the optimal policy, I simulate both policies as follows. First, I simulate 5,000 workers across $T = 60$ months according to actual U.S. policy to find the average cost for the planner and the expected utility delivered to the worker for the T periods. Then, I fix an initial level of promised utility in the optimal policy to match the same level of expected utility as in the actual policy. Finally, I simulate the optimal scheme and find its cost. The difference between the two costs is the gain for the planner from applying the optimal policy in the United States. Shifting to the optimal monitoring policy would save $521 per unemployed worker per unemployment spell. These savings can be translated into an increase of 1.8 percent in consumption over time T.

Chapter 2: Optimal Welfare Programs with Search, Work, and Training

(with Nicola Pavoni and Gianluca Violante)

This chapter extends the recent literature on government expenditure programs that combine different policies, called Welfare-to-Work (WTW) programs. In these programs, governments utilize the large variety of policy instruments targeting the unemployed, such as job-search aid, training, and unemployment insurance. Interestingly, governments use a mix of policy instruments for workers with different characteristics.

This chapter has three goals. First, we enlarge the set of instruments in the WTW literature that is available for the government toward unemployed workers. This variety of instruments is inspired by a unique dataset called the National Evaluation of Welfare-to-Work Strategies (NEWWS). This is a large-scale longitudinal study conducted by the U.S. Department of Health and Human Services between 1991 and 1999. As part of the survey, 40,000 individuals in seven distinct U.S. locations were randomly assigned to various treatment-control groups. Two key programs or approaches were studied in this large-scale experiment.

In the first approach, the labor force attachment (LFA) approach, individuals were encouraged to gain quick entry into the labor market, even at low wages. In the second approach, called the human capital development (HCD) approach, individuals were directed to avail themselves of education services, and to a lesser extent, occupational training before they sought work, under the theory that they would then be able to get better jobs.

To accommodate these two approaches we introduce into the model four technologies. The first two are associated with both LFA and HCD approaches: search, where the worker is looking for a job on her own, and matching, where a caseworker assists the worker by creating an interview (a match) for the worker. The third technology, which is associated with the LFA approach, is secondary production, where the worker is producing a low output. The fourth technology, associated with the HCD approach, is training, targeted at increasing the human capital of the worker.

Three policies are included in both the LFA and the HCD sets of policies. The first is Unemployment Insurance (UI), where the planner assigns the worker to the search technology with high effort. The second is job-search aid (JA), where the planner uses the matching technology and the effort recommendation is low. The third policy that is joint to both sets of policies is social assistance (SA), where there is no use of technologies and the effort recommendation is low.

In the LFA set there are, in addition to these three policies, two unique policies that use secondary production technology. The first is mandatory work (MW), where the effort recommendation is high. The second unique policy to LFA is transitory work (TW), where the planner uses, in addition to the secondary production technology, the matching technology, and the effort recommendation is high.

The HCD set of policies includes two unique policies as well. These policies use the training technology. The first is formal training (FT), where the effort recommendation is high. The second unique policy to HCD is on-the-job training (OJT), where the planner uses, combined with the assignment to training, the matching technology, and the effort recommendation is high

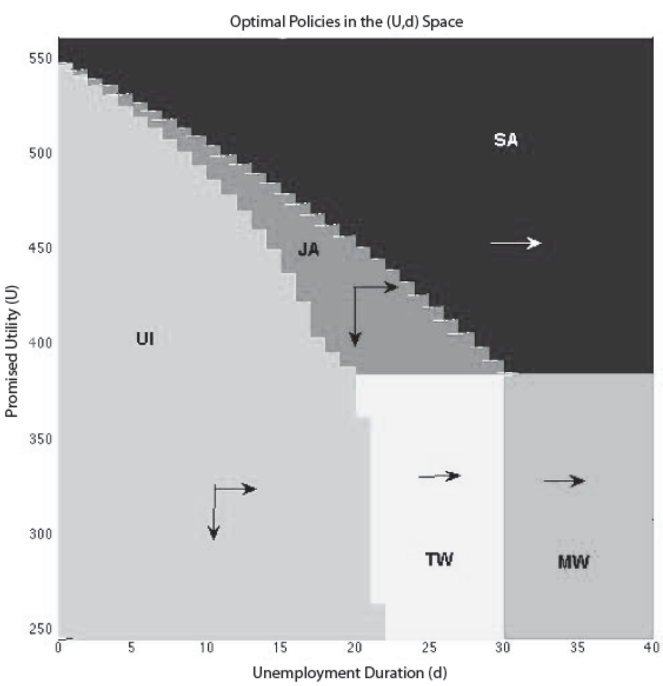
Our analysis is different from the standard study of such technologies. First, one key input of the analysis is the technologies parameters, which are neglected in the standard one. Second, thanks to the structural framework, we take into account the direct costs and returns as well as the standard opportunity cost present in the standard analysis. We also take into account additional return (due to policy complementarity) and costs (due to policy crowding out) associated with the existence of the other policies.

In the model workers differ in the level of their human capital and their labor histories. Based on this heterogeneity, the second goal of the chapter is to identify which policy is appropriate for each type of worker and to describe the economic forces behind such choices. This is especially important given the rich set of policies that can be assigned to unemployed workers. To answer such questions, we characterize the optimal sequence of policies and the optimal level and time-path of consumption, i.e., benefits during unemployment, and taxes or subsidies upon reemployment.

Following Pavoni and Violante (2007), we characterize the optimal policy on a *(U,h)* state space. However, in order to conclude on the time-varying policies, we use in the state space the unemployment duration, *d*, (recall that there is a one-to-one mapping between the two states). Figure 2 shows the optimal policy within the LFA set on the *(U,h)* state space.

For low levels of *U* the planner assigns the worker first to UI because the effort cost is relatively low and the human capital level that determines the success of UI is relatively high. As human capital depreciates (still for low levels of promised utility) the job-search probability decreases and the planner shifts from UI to TW where both the employment probability and the secondary production are independent of the human capital level. Finally, as human capital further depreciates, the return to matching decreases because employment's production depends on human capital and the planner gives up on the matching activity, leading the planner to choose MW.

Figure 2 Optimal Policies on the (U,h) State Space—LFA



For higher levels of promised utility the planner shifts from UI to policies that do not require the worker's effort since the effort compensation cost is to too high. Note that the shift from UI to JA at high levels of *U* can happen even when $\pi(h)\neq\lambda$. This is the case because either the effort cost at high levels of *U* is too high ($\pi(h)<\lambda$) or the matching cost is too high ($\pi(h)>\lambda$).

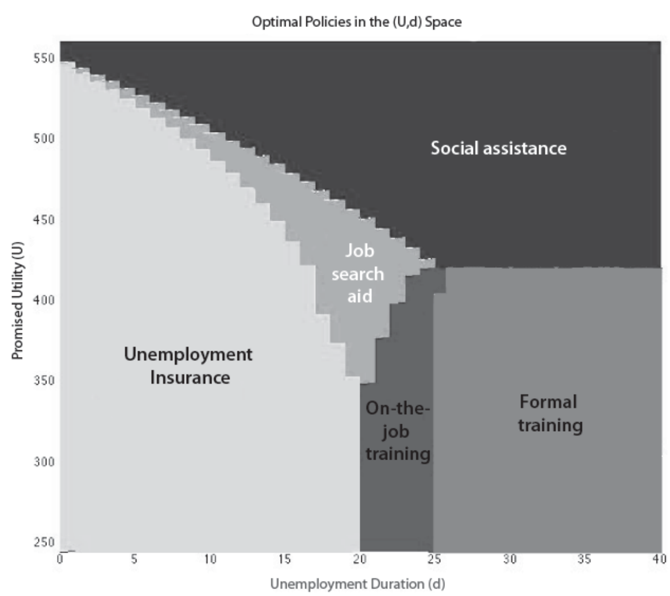
Figure 3 shows the optimal policy within the HCD set on the *(U,h)* state space. The transitions between UI, JA, and SA are the same as above. When moving horizontally (along *h*) at low levels of *U*, the planner shifts from UI to OT because as *h* depreciates, the return for OT increases because the human capital upgrade increases. Matching is used only at intermediary levels of *h* because its return as leading to employment decreases with the decrease of human capital.

The third goal of the chapter is of a normative nature. We evaluate existing U.S. programs by comparing them to the efficient program. We calibrate the labor market parameters and the various technology parameters by using the NEWWS dataset's treatment-control groups to perform a standard assessment of the effectiveness of each technology. We assess whether each training policy is effective enough to be adopted within an optimal WTW program, and assess whether its timing is consistent with the timing in the efficient program.

Chapter 3: Unemployment Accounts

Unemployment accounts (UAs) are mandatory individual saving accounts that can be used by governments as an alternative to the UI system. The goal of this chapter is to study the welfare implications of a shift from the current UI system to a new UA system in the United States. The importance of

Figure 3 Optimal Policies on the (U,h) State Space—HCD



such a study is reflected even in the precrisis 2007 statistics: state UI programs paid $32 billion in unemployment benefits to 7.6 million unemployed workers (U.S. Department of Labor 2008). As noted by Feldstein (2005), these policies are particularly important because of their impact on macroeconomic performance. Using a calibrated structural model, I provide a quantitative analysis of both the average and the distributional welfare effects of a shift from UI to UA.

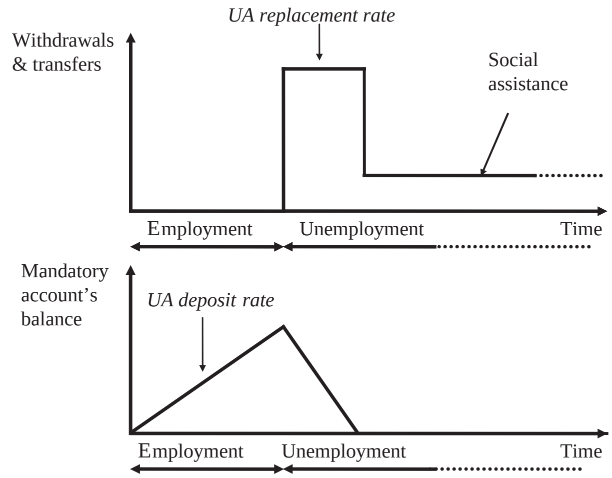
UA work as follows. During employment, the worker is mandated to save a fraction of her labor income in an individual saving account. The worker is entitled to withdraw payments as a fraction of her last earnings (a "replacement rate") from this account only during unemployment. At retirement the residual balance is transferred to the worker. A system of UA was implemented in Chile in 2002, and it is debated whether such a system should be implemented in the United States and in other countries, e.g., Feldstein (2005), Orszag and Snower (2002), and Sehnbruch (2004).

Figure 4 shows a graphic representation of the UA system for a worker who starts off employed, becomes unemployed, and remains unemployed indefinitely. The bottom panel of the figure shows the balance of the unemployment account. The balance is zero at the starting point, increases gradually during employment and then declines gradually during unemployment. Once the balance is exhausted the account remains at its lower bound of 0. The top panel of Figure 4 shows the withdrawals and transfers associated with the unemployment system for that worker. During employment the worker pays her mandated contribution to the unemployment account. Upon unemployment, the worker withdraws payments from the account at a prespecified rate until the account is exhausted. From that point onward the worker receives SA benefits.

In contrast to the UA system, UI is funded by a payroll tax, and benefits are a replacement rate for a limited duration. Figure 5 shows a graphic representation of the UI system for the same worker examined above. During employment, the worker pays an unemployment tax. Upon unemployment, the worker receives benefits proportional to her last earnings, for the duration of UI benefits. Once the time limit of benefits is reached, the worker receives SA benefits. Note that while the maximum duration of benefits in UI is fixed, the duration of withdrawals in UA depends on the balance of the unemployment account at the beginning of the unemployment spell. This duration can be longer or shorter than the time limit of UI benefits. In other words, in UA it is the fixed replacement rate and the initial balance, rather than a fixed time limit, that determine the duration of payments.

Thus, the main difference between the two systems is the source of funding payments during unemployment: in UI payments are funded by a common fund, whereas in UA payments are funded by the worker's own resources. At the same time, the two systems share two common principles:

Figure 4 The UA System



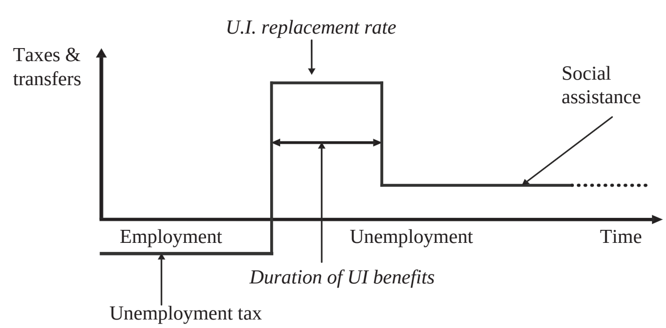
unemployment payments are provided for a limited duration, and payments are indexed to past earnings.

In order to study the welfare effects of a shift from UI to UA, I build a heterogeneous agents, incomplete-markets, life-cycle model, in which workers face income fluctuations and unemployment shocks. Workers in the model differ along several key dimensions, including age, unemployment risk, income, and wealth. Unemployment in the model is driven both by exogenous factors (layoffs for employed workers and search frictions for unemployed workers) and endogenous decisions (job quits for employed workers and job-offer rejections for unemployed workers).

The government can implement either a UI or a UA system. The UI policy is modeled as a choice of a replacement rate, and a time limit of unemployment benefits. The UA policy is modeled as a choice of a deposit rate into the account during employment and a withdrawal rate during unemployment. Workers who exhaust their unemployment payments in either policy regime (they reached the time limit in UI and they have a zero balance in UA) receive SA indefinitely.

Given the unemployment policy, workers allocate their resources optimally between consumption and savings. In

Figure 5 The UI System



addition, workers with employment opportunities choose between employment and unemployment. The government takes into account these endogenous decisions when designing the parameters of the unemployment system in order to maximize the welfare of the workers.

Under the UI system, labor supply decisions are distorted by the presence of unemployment benefits, which increases the value of being unemployed, and by the payroll tax required to finance unemployment benefits, which decreases the value of being employed. The main advantage of UA is that it alleviates this incentive problem.

On the other hand, the insurance provided by the UA policy may not be enough for two types of workers. The first is young workers who start off with no mandatory savings. Upon unemployment, these workers would exhaust their mandatory account quickly and will only receive SA benefits. The second type of workers who are under insured in the UA regime is workers with consecutive unemployment spells. Such workers might not be able to replenish the mandatory account during the employment interval between the unemployment spell. Thus, they will find themselves with no unemployment payments in the upcoming unemployment spells. In contrast, such workers in UI would be equally insured for each unemployment spell. The underinsurance of these two groups of workers is especially important for poor workers who have limited ability to smooth their consumption during unemployment.

These two opposite effects of UA, the improved incentives and the reduced insurance, imply that the question of whether unemployment is "voluntary" is closely linked to the welfare implications of a shift from UI to UA. If workers choose to be unemployed, then UA can improve average ex ante welfare by increasing the employment level and decreasing the labor tax. If, however, workers are involuntarily unemployed due to exogenous frictions, such as the absence of job offers, then the UI system is preferred and the shift to the UA leads to a welfare loss, which is especially high for workers who enter the labor force with little wealth.

This observation puts the chapter at the nexus of the debate on the level of disutility from work. This value is central in the determination of whether unemployment is mostly involuntary as assumed, for example, by Kitao, Ljungqvist, and Sargent (2008) and Ljungqvist and Sargent (2008), or mostly voluntary as assumed, for example, by Rogerson and Wallenius (2007) and Prescott, Rogerson, and Wallenius (2009).

I contribute to these debates by connecting my model with the extensive literature that studies the effect of variations in the UI policy on some observable moments. By matching the elasticity of average unemployment duration with respect to changes in UI benefits, I provide a convincing point estimate for disutility from work.

Using this estimate I show that the shift from UI to UA leads to an average ex ante welfare gain of 0.9 percent of lifetime consumption. This shift makes workers in all quintiles of initial assets better off. Young workers, however, are worse off because they have low balances of mandatory accounts.

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