Urban Labor Economics

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Introduction to Part 2

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One popular model in labor economics is the efficiency wage model, initially developed by Shapiro and Stiglitz (1984) to explain unemployment by high and rigid wages (see the surveys by Akerlof and Yellen, 1986, and Weiss, 1991).[1] This is the benchmark model that we will use in chapters 4, 5 and 6. In this framework, because shirking is very costly, firms set a (high) wage in such a way that the cost of being caught while shirking is so high that workers are induced to work hard. This (efficiency) wage is lower the higher the unemployment rate because the cost of shirking increases with unemployment.

The standard way of testing the efficiency wage model is very *indirect*. Indeed, the traditional ways to test the efficiency wage theory showed that there are large wage differences between sectors for identical workers, due to differences in supervision/monitoring rates (Dickens and Katz 1987, Kruger and Summers 1988, Murphy and Topel 1990, Neal 1993). So identical individuals working in different sectors can experience different unemployment rates because of inter-industry wage differences.

It is however not straightforward to test directly this model, which is more generally known as the "rational cheater model". Indeed, the latter stipulates that employees are rational cheaters who anticipate the consequences of their actions and shirk when the marginal benefits exceeds costs, and firms respond to this decision calculus by implementing monitoring and incentive pay policies (i.e. efficiency wage) that make shirking unprofitable. Capelin and Chauvin (1991) have proposed a direct test of this model by looking at the relationship between the rates of employee discipline and relative wage premium across plants with the same large firm. Their result suggest that higher wage premiums are associated with lower levels of shirking, as measured by disciplinary dismissals. Centering the empirical investigation on the effect that safety supervision by host employers has on the wage of contract maintenance workers, Rebitzer (1995) also find that high levels of supervision are indeed associated with lower wage levels. However, as noted by Nagin et al. (2002), there are two main problems in directly testing the shirking or rational cheater model. First, truly rational cheaters are more likely to engage in shirking behavior when it is hard or expensive to detect. Second, should any association between monitor-

[1] There are other versions of the efficiency wage models but we here forcus on the shirking version since it is the most widely used.

ing and employee actions to be found, it would be very difficult to disentangle the effects of monitoring strategies from responses to other unobserved features of the firm's human resource system. Resolving these problems require a *natural experiment setting* in which monitoring levels are exogenously varied across similar sites and substantial resources are devoted to tracking the behavior of employees. Fehr et al. (1996) were the first to use experiments and to show that indeed higher wages sharply reduce shirking. More recently, Nagin et al. (2002), propose another experiment by collecting data from a large telephone solicitation company. The employees in this company work at 16 geographically dispersed sites. At each call center, telephone solicitors were paid according to the same incentive scheme, one in which salary increased with the number of successfull solicitations. This piece rate system, together with imperfect information about the outcomes of pledges, created incentives for employees to falsely claimed that they had solicited a donation. To curb opportunistic behavior, the employer monitored for false donations by calling back a fraction of those who had responded positively to a solicitation. We are exactly in the framework of the shirking model of the efficiency wage. Nagin et al. (2002) show that a significant fraction of employees behave according to the predictions of the shirking model. Specifically, they find that these employees respond to a reduction in the perceived cost of opportunistic behavior by increasing the rate at which they shirk.[2]

So far we have seen that there is some empirical justification of the positive relationship between wages and effort, where the latter is not perfectly observable and thus shirking behaviors are likely to arise. But another aspect of the Shapiro and Stiglitz (1984)'s model is that wage rigidity is the main explanation of (involuntary) unemployment. Indeed, in their model, firms refuse to lower their wage even if some workers are ready to work for a lower wage because, in that case, the non-shirking constraint will not be met and thus workers will shirk on the job. Different surveys of employers have shown that indeed employers are reluctant to reduce wages, even in the presence of high unemployment (Blinder and Choi, 1990; Agell and Lundborg, 1995; Campbell and Kamlani, 1997; Bewley, 1999). This is because employers believe that it

[2] There is a recent paper by Fehr and Goette (2006) who use an experiment in a laboratory and show that workers work more when wages are higher.

would be unfair for employees to reduce their wages and would also have negative consequences in terms of work effort. Indeed, employers believe the main reason for avoiding pay cuts is that they damage morale and reduce productivity (Kaufman, 1982). In particular, firms are reluctant to hire workers who propose to work for a lower wage (Agell and Lundborg, 1995) because of the negative consequence it would have on workers' productivity. Fehr and Falk (1999) have studied the issue of downward wage rigidity in the framework of an experiment (in the laboratory) in which two groups, firms and workers, have the opportunity to agree on a wage contract through a mechanism of bilateral bidding. They show that under incomplete contracts, in which the effort level is not stipulated in advance, firms refuse to bid wage down.

So, we are adopting this model of wage and unemployment in the second part of this book. This part is divided in three chapters. In chapter 4, we expose the most simple models of urban efficiency wage in which the city is monocentric, i.e. all jobs and professional activities are located in the center of the city. This assumption, though restrictive, is still quite accurate for most European cities and for a large part of American cities. We will first expose the benchmark urban efficiency wage model and then extend it to take into account more realistic situations such as endogenous housing consumption, open cities, resident landlords, long run and free-entry of firms, different city-structures, etc. In each model of chapter 1, we show how the urban wage is set by firms and urban unemployment is determined. We also calculate the equilibrium land rent at each location in the city. In chapter 5, we provide different extensions of the benchmark model where effort will vary with distance to the job center and where leisure choice will be explicitly introduced. One important aspect that will be studied is when workers' relocation costs are not anymore equal to zero. In that case, each change in employment does not necessarily imply a change in residential location. Again, this will have profound impacts on labor and land market outcomes. In the last chapter of part 2 (chapter 6), we relax the assumption of monocentric cities and investigate different urban structures with multiple job centers. We show how each structure affects the labor market outcomes of workers as well as the land rent determination in the city. One interesting issue will be the study of rural-urban and urban-urban migration.

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