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Overview

A large body of academic papers and policy reports examines the effects of labor market institutions on economic performance. This literature was inspired by transatlantic comparisons of employment/unemployment performance and draws mainly on cross-country comparisons. The most influential policy report—the *OECD Jobs Study* commissioned by the Group of Seven (G7) in the early 1990s and completed in 1994—is an attempt to explain the dismal employment/unemployment performance of Europe vis-à-vis the U.S. “jobs miracle.” The key message provided by this report, as well as by many subsequent cross-country studies and policy reports, is that there are in Europe institutional “rigidities” that prevent the labor market from creating as many jobs in the private sector as in the United States. Many academic researchers followed the same route in analyzing various dimensions of the so-called Eurosclerosis, for example, Bean (1994), Alogoskoufis et al. (1995), Snower and de la Dehesas (1996), Nickell (1997), Nickell and Layard (1999), Blanchard and Wolfers (2000), Nickell, Nunziata, and Ochel (2005), and Blanchard (2006). This literature offers a wealth of facts and theoretical results on the relationship between institutions and labor markets. In this book we draw extensively on these findings.

Two problems with this literature, which are acknowledged also in the 2006 reassessment of the *OECD Jobs Study* (OECD 2006c), are worth mentioning at the outset. The first problem is that this literature often fails to explain why these institutions are in place to start with. Institutions are described as something that distorts the work of the market mechanism and prevents the attainment of efficient outcomes. If a government could remove these institutions, it should do so without further ado. It is an offense to the rationality of citizens and of their democratically elected governments that most of these institutions still exist.

The second problem is that this literature tends to have a short memory. The focus is on the recent labor market performance of Europe vis-à-vis the United States. But the institutions that bear the brunt of blame for the poor employment performance of Europe were there also 30 to 40 years ago when the fate of labor markets seemed to be the other way around. Consider figure 1.1: it was only in the mid-1980s, after two oil shocks (the first two vertical lines in the figure), that unemployment in Europe started rising above U.S. levels, and it took another

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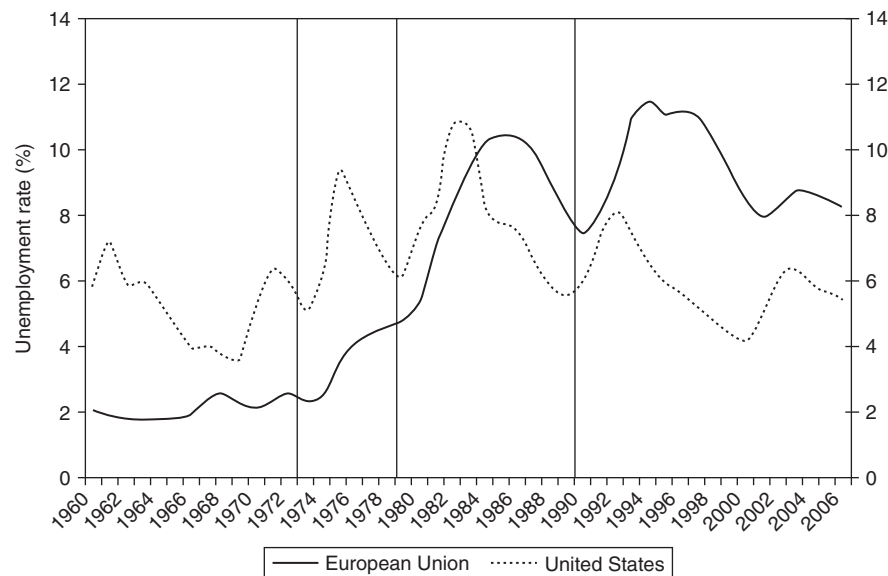


Figure 1.1 United States and European Union Unemployment Levels

global shock at the end of the 1980s (the interest rate hike) to create a sizable gap in unemployment between the two sides of the Atlantic. Up to the mid-1970s the “jobs miracle” was located in Europe, and the same “rigid institutions” currently considered responsible for European unemployment were pointed out by the U.S. literature as one of the main factors behind the European success story. For instance, in 1964 a U.S. policy-maker, Robert Myers wrote in a report that he was “looking enviously at our European friends to see how they do it” and inviting everybody to take a look at institutions on the other side of the Atlantic: “it would be short-sighted indeed to ignore Europe’s recent success in holding down unemployment.” In this initial chapter we cope with these two shortcomings by offering (1) a definition of labor market institutions acknowledging the fact that they play some useful function and (2) a simple framework explaining why these institutions, once considered a success story, are now treated as devils.

1.1 A Few Key Definitions

It is useful to start with a few key definitions that will be used henceforth.

- A *labor market* is a market where a quantity of labor services, L , corresponding to tasks specified in an *unfilled* assignment or job description (*vacant job*), is offered in exchange for a price or remuneration, called *wage*, w . Not all labor services offered by an individual are paid. For instance, the time we devote to cleaning our own apartment is not paid. It becomes market work

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1.1 A Few Key Definitions

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only if we hire a housecleaner. In order to be in the labor market, there must be an exchange of a labor service for a wage.

- The value of a job, y , is the value of the labor product obtained when the firm and the worker engage in production. One can think of it as the revenues from the job, that is, the product of the quantity of output produced by that job and the price of this output. Both the value of a job and the price of the good produced by this job may not be fixed, but may vary with the quantity of jobs and output. Thus we will typically refer to the value of the *marginal* product of labor, that is, the price of the good times the increase in output made possible by hiring an additional worker.
- The *worker's surplus* is the difference between the wage actually earned by the worker and that worker's *reservation wage*, w^r , that is, the lowest wage at which the worker is willing to accept a job offer. The reservation wage is defined as the wage that makes the worker indifferent between working and not working. Any wage earned above this level represents a net gain over the option of not working, or a *surplus* from the standpoint of the worker. Formally, the worker's surplus is given by $(w - w^r)$.
- Similarly, the surplus of the firm, also called the *firm's marginal profits from the job*, is the difference between the value of a job (the revenues from the job) and its costs, notably the wage paid to the worker engaged in that job, that is, $(y - w)$.
- The *total surplus* from a job is the sum of the worker's and the firm's surplus, that is, $(w - w^r) + (y - w) = y - w^r$. Notice that the wage, the value of a job, and the reservation wage can all be expressed in monetary terms, for instance, in euros. Hence, given y , w , and w^r , one can readily obtain the worker's surplus, the firm's surplus, and the total surplus.
- A *labor market institution* is a system of laws, norms, or conventions resulting from a *collective* choice and providing constraints or incentives that alter *individual* choices over labor and pay. Single individuals and firms consider the institutions as given when making their own individual decisions. To give an example, an individual has limited choice over the number of hours of work to be supplied when working time is determined via a collective choice mechanism. As discussed in chapter 5, regulations on working hours are an institution aimed, inter alia, at coordinating the allocation of time to work, leisure, or home activities across and within households. Because of their foundations in collective choices, institutions are the by-product of a political process. Often, institutions are established by laws, but not always. For instance, collective bargaining institutions (chapter 3) are most frequently regulated by social norms and conventions rather than by laws.

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1.2 A Competitive Labor Market

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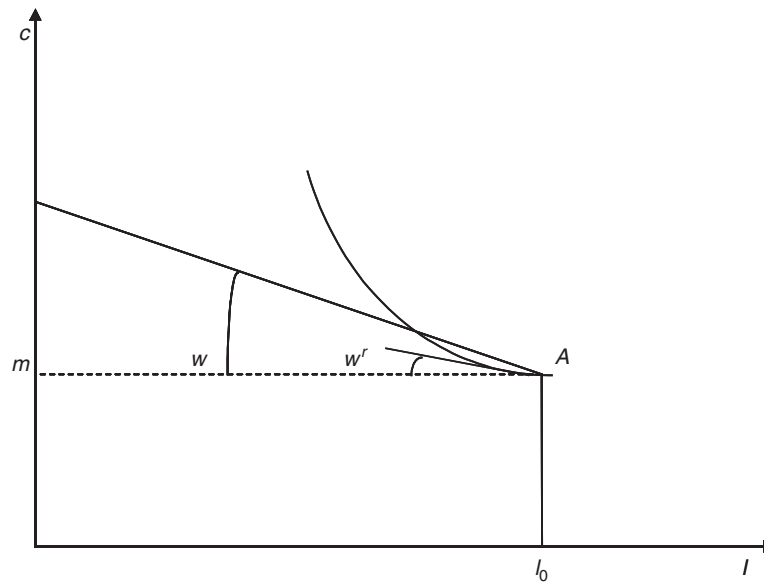


Figure 1.2 The Reservation Wage

to compensate the worker for the loss of an hour of leisure, and vice versa. The degree of convexity of these curves is decreasing with the degree of substitutability between labor and leisure. Because of our assumptions, indifference curves do not intersect, and utility is increasing farther from the origin.

The reservation wage, w^r , is given by the slope of the indifference curve crossing the kink of the budget constraint, evaluated precisely at the kink, where the individual allocates m euros to the purchase of consumption goods and works zero hours. Any wage w lower than the reservation wage will not be accepted by the individual because the marginal value of leisure (the reservation wage) exceeds its opportunity cost (the market wage). Conversely, when $w > w^r$, as in the figure, the individual who is maximizing utility will work some hours and devote the remaining time to leisure.

This definition of the reservation wage applies to conditions where the individual can choose freely how many hours to work and how many hours to devote to leisure. In real life individuals rarely have unconstrained choice of h . They have, at best, some leverage in deciding among a subset of possible hours of work, for example, between full-time and part-time jobs. This is because there is an institution (mandatory working-time legislation or collective bargaining agreements regulating working hours) that imposes, via a collective choice mechanism, constraints on individual decisions.

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Box 1.1 The Reservation Wage with and without Hours Restrictions

When there are no constraints on the choice of hours, the reservation wage is given by the condition

$$\left(\frac{U_l}{U_c} \right)_A = w^r,$$

where U_l and U_c denote the marginal utility of leisure and consumption, respectively, and their ratio is the marginal rate of substitution between consumption and leisure. The rate is evaluated at zero hours of work, where the individual is buying consumption goods by drawing only on nonlabor income.

An individual free to choose how many hours to work equates the marginal rate of substitution to the market wage. Hence, when $w^r = w$, the individual is indifferent between working and not working. When $w^r < w$, the optimal choice of hours, h^* , is greater than zero. When $w^r > w$, $h^* = 0$.

Consider now a constrained choice. Suppose for simplicity that individuals actually have no choice over working hours and can only work h_{ft} hours, corresponding to a full-time job. The reservation wage will now be implicitly defined as the wage that would make the individual indifferent between not working at all and working exactly h_{ft} hours, that is,

$$U[m + w_{ft}^r(l_0 - h_{ft}), l_0 - h_{ft}] = U(m, l_0).$$

The interpretation of this condition is that when $w = w_{ft}^r$, the constrained choice is on the same indifference curve that intersects the zero hours locus. In other words, the individual is indifferent between working exactly h_{ft} hours and not working at all.

The reservation wage with hours restrictions no longer coincides with the slope of the indifference curve at the kink of the budget constraint (see box 1.1). The reservation wage with hours restrictions can be graphically represented as the slope of the segment going from the kink of the budget constraint to the locus where the indifference curve through the (m, l_0) pair crosses the vertical hours constraint, as depicted in figure 1.3. This hours-constrained choice yields a lower level of utility than the unconstrained choice, provided that the latter, at the market wage, involves some positive amount of hours of work; otherwise the hours constraint is not binding.¹

More important, the reservation wage of an individual who is constrained in terms of hours of work (w_{ft}^r) is higher than the reservation wage of an individual free to choose hours of work (w^r). Because of the concavity of the utility function,

¹ The reasons why hours are regulated although such institutions apparently reduce the well-being of an individual are discussed in chapter 5.

1.2 A Competitive Labor Market

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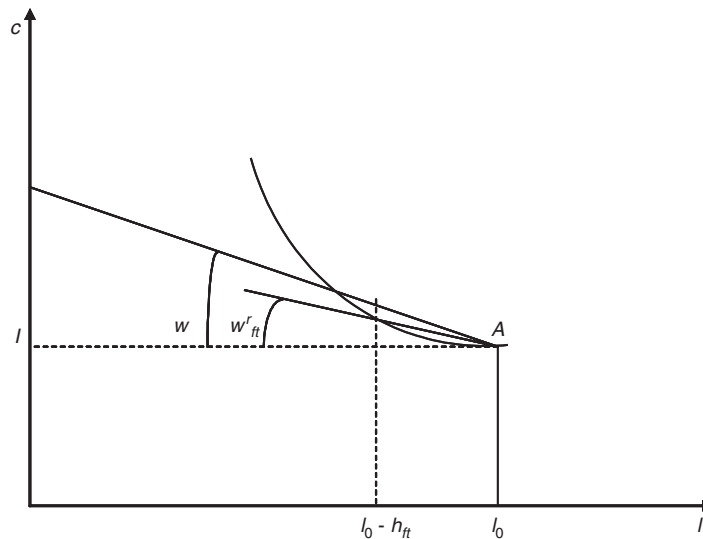


Figure 1.3 Reservation Wage with Hours Constraint

the slope of the indifference curve increases as we move to the northwest along the same indifference curve. The labor supply decision of the individual will now obey a simple rule: supply h_{ft} hours if $w \geq w^r_{ft}$ or do not offer labor services (supply zero hours) otherwise.

1.2.2 Aggregate Labor Supply

Consider now a plurality of individuals who may well have different preferences about consumption and leisure and varying endowments of nonlabor income. The reservation wage will then vary across individuals depending on their nonlabor income, as well as their preferences about leisure and work. As discussed in chapter 7, time spent outside work can also be devoted to (unpaid) activities such as household tasks generating goods and services that increase the welfare of the household. For instance, some workers may have child care responsibilities, which increase their reservation wage.

Denote by $G(w)$ the fraction of individuals of working age with a reservation wage equal to or lower than w . By multiplying this fraction by the number of persons of working age, we obtain the *aggregate labor supply* schedule. Insofar as work involves some effort, the percentage of individuals willing to work will be increasing with the wage offered to them. This means that we expect $G(w)$ to be monotonically increasing with w . By construction, $G(w)$ will also take values only in the interval bounded from below by 0 (nobody is willing to take the job at a wage lower than the lowest reservation wage) and above

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by 1 (when nobody of working age has a higher reservation wage). It is certainly possible that more than one individual has the same reservation wage, in which case aggregate labor supply will involve some flat segments. It is also plausible that some individuals, for example, a rich heiress, would not work whatever the wage offered to them. Box 1.2 explains how the aggregate labor supply function can be obtained from data on self-reported reservation wages of individuals.

Box 1.2 Stated Reservation Wage and Aggregate Labor Supply

It is instructive to obtain the $G(\cdot)$ distribution, which plays a crucial role in this book, from actual labor market data. Many surveys, such as labor force surveys, in several OECD countries ask respondents about the lowest wage at which they would be willing to take a full-time job offer. This reported reservation wage is an empirical proxy for our w^r . Longitudinal data (observations of the same individuals at different times) suggest that respondents take this question quite seriously. For instance, individuals observed to be unemployed at a given date and employed at the time of the next interview generally work at a wage that is not lower than the reservation wage stated in the first place. (Needless to say, it is possible that individuals revise downward their reservation wage when they perceive that their human capital is depreciating or no longer have family responsibilities, but this does not seem to happen very frequently.) Thus individuals appear to follow consistently a reservation wage policy in their labor supply decisions (they accept only jobs offering $w \geq w^r$).

In order to obtain the $G(\cdot)$ function, we need to select individuals with similar characteristics, hence facing the same labor demand, and then count those having a reservation wage lower than any given potential wage. Because many different variables affect the productivity of workers and hence their reservation wages, it is preferable to isolate the component of each stated reservation wage that is independent of differences in productivity and has to do with differences in preferences for leisure or in the value of the time devoted to activities at home. Technically this can be done by estimating a reservation wage function, that is, a function placing premiums or discounts on observable characteristics of individuals that are valued by market wages, and then taking the differences between the reported w^r and the \hat{w}^r obtained by attributing wage premiums (or discounts) according to these estimates for each individual.

Figure 1.4 displays the fraction of individuals having a residual reservation wage ($w^r - \hat{w}^r$) greater than or equal to any (conditional) wage level displayed in the vertical axis in Germany in 2001. Notice that there are various flat segments in the curve (individuals having the same residual reservation wage), and at some point the curve becomes vertical, denoting individuals who would not work whatever the wage. In order to obtain the total number of individuals wishing to work at any given wage, or the *aggregate labor supply*, we need to multiply the fraction

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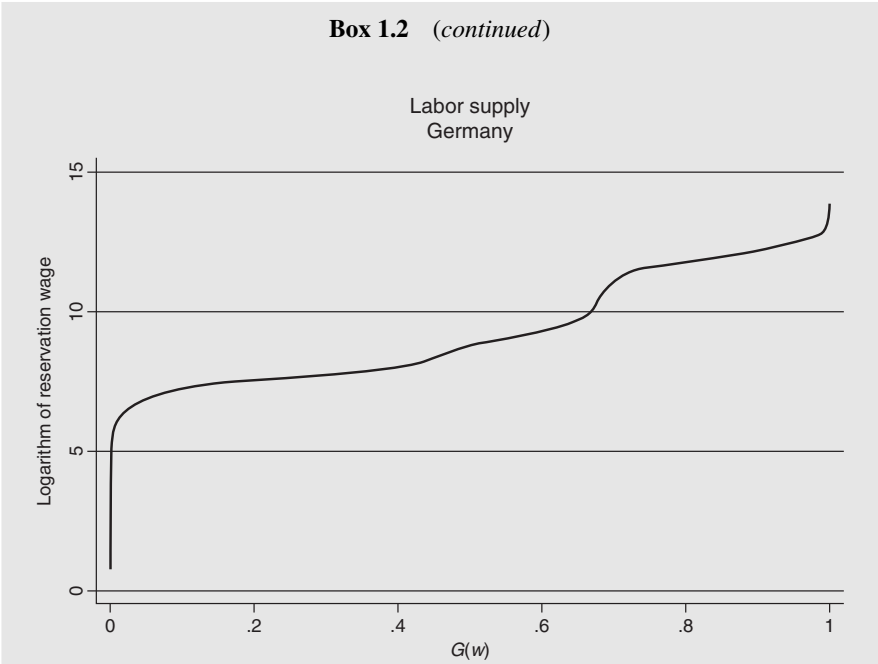


Figure 1.4 An Empirical Estimate of the Aggregate Labor Supply Function

$G(w)$ by the total population of working age, N . Insofar as N is independent of w , the aggregate supply $L^s(w)$ will have the same properties as the empirical distribution $G(w)$; notably it will be increasing with wages. A Stata data file with the primary reported reservation wage and a program (do file) generating the aggregate labor supply for the EU-15 are available on our webpage (see link at <http://press.princeton.edu/titles/8771.html>).

1.2.3 Labor Demand and Wage Determination

Production takes place by combining labor with capital. In the short run, capital is fixed so that there is no possibility to substitute labor with capital. Suppose that there is only one type of worker from the standpoint of a firm; that is, labor is homogeneous.² A profit-maximizing firm will hire workers up to the point

² Notice that we could as well assume that workers differ in terms of productivity, but that these differences are fully offset by wage differentials so that each employer is indifferent between hiring a high-productivity or a low-productivity worker.

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where y , the value of the marginal job, equals the marginal cost of labor, that is, the wage. In a competitive market all firms will take this wage as given. Hence all firms will also have the same y at the equilibrium, and the *aggregate labor demand* will simply add up the number of jobs in each firm, yielding the same y . To put it another way, y provides the *marginal willingness to pay* of firms for labor services or their *inverse labor demand* schedule, $y(L)$. In order to obtain labor demand, we simply have to substitute y with w and solve for L . Formally, we set $y(L) = w$ and solve for L , obtaining $L^d(w)$.

Can we say anything about the slope of this labor demand function? By the law of diminishing marginal returns, the marginal product of labor is declining with the number of jobs for each individual firm. If not only the labor market but also the product market is competitive, then each firm will sell the product of labor at a given price, independently of the level of output. In this case the labor demand function will have the same slope as the (declining) marginal productivity of labor; that is, it will be decreasing with L , the quantity of labor being used. If instead firms have some monopoly power in product markets, the value of the marginal product of labor will include an additional term that reflects the change in price associated with the extra output produced by the additional job, multiplied by total output.³ Intuitively, when a firm faces a downward-sloping product demand curve, increasing production lowers prices of all units being sold. The less competitive the product market, the stronger the decline in prices associated with an increase in the quantity of jobs and output. By the same token, more competition in product markets involves a flatter labor demand curve.

To summarize, independent of the product market structure, labor demand, L^d , will be declining with wages, or the inverse labor demand, $y(L)$, will be declining with L . When product markets are noncompetitive, labor demand will be steeper with w .

³ Formally, for a competitive firm (superscript c), the value of the marginal product of labor (VMP)

$$VMP^c = pf_L,$$

where p is the (given) price at which output can be sold and f_L is the marginal product of labor. For a firm operating in a noncompetitive product market, we have instead

$$VMP = pf_L + p_L fy,$$

where p_L is the marginal effect on prices of the increase in the quantity produced by the firm associated with the use of an additional unit of labor, from which it follows that $VMP = VMP^c$ when $p_L = 0$; that is, the firm is price-taker also in product markets. Because p_L is negative, labor demand of a monopolist will always be to the left of the demand curve of a competitive firm. Notice further that the difference between y^c and y is increasing in f , hence in the amount of labor being used. Thus labor demand of a monopolist will be steeper than the labor demand of a competitive firm.

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1.2 A Competitive Labor Market

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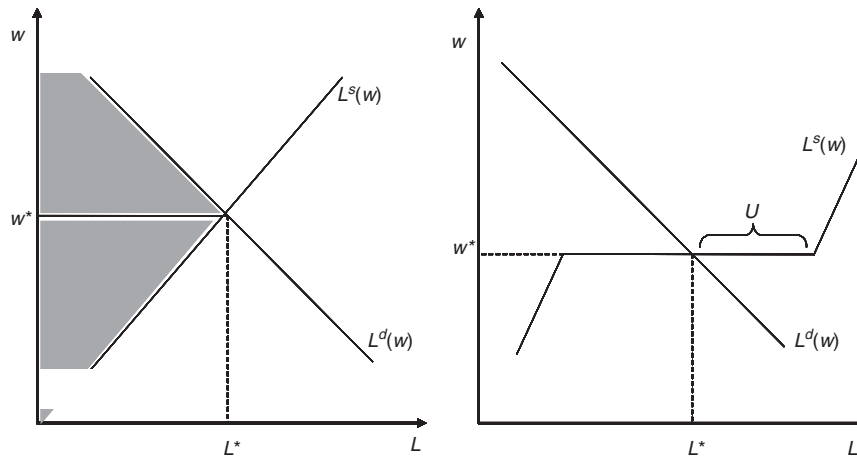


Figure 1.5 Equilibrium in a Competitive Labor Market

1.2.4 Equilibrium

Figure 1.5 depicts a downward-sloping labor demand together with an upward-sloping aggregate labor supply. In a competitive labor market the equilibrium wage level, w^* , will lie at the intersection of the two curves. It is important to notice that there is only one wage level being determined at the equilibrium. This means that workers with a reservation wage strictly lower than w^* will realize a positive surplus from participating in the labor market. The sum of all these individual surpluses is given by the shaded area below the wage and above the labor supply. Firms will also realize some surplus or profits. This is depicted as the shaded area above the equilibrium wage and below the labor demand schedule.

Workers with a reservation wage larger than w^* will instead decide not to work. In other words, $L^* = G(w^*)$ will be the *employment rate* (the fraction of the working-age population holding a job), while $1 - G(w^*)$ will be the equilibrium *nonemployment rate*. Notice that the equilibrium wage level may well be in a flat segment of the labor supply curve. In this case there will be individuals with $w^r = w^*$ who are not working even if they are willing to work at the equilibrium wage. These individuals are, strictly speaking, *unemployed*, as denoted by the segment U in the right-hand panel of figure 1.5, although they do not suffer any welfare loss from not working (the fact that $w^r = w^*$ means that they are indifferent between working and not working). All other nonemployed individuals are *inactive* according to internationally accepted definitions of labor market status (see box 1.3 for a discussion of these definitions, notably the borders between unemployment and inactivity).

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Box 1.3 Definitions of Labor Market Status and the Porous Participation Borders

How precisely is the labor market status of individuals defined by available statistics? According to internationally accepted (OECD–International Labor Organization (ILO) definitions, the entire population of working age (15–64) can be classified in three main labor market conditions: individuals can be either employed, unemployed, or inactive. An *employed individual* is someone in the armed forces or who has worked for pay (in cash or in kind) at least one hour during the reference period (a week or a day) or has a formal attachment to a job but is temporarily not at work (e.g., because of an illness, a holiday, or maternity leave). A person of working age is classified as an *unemployed individual* if the following five conditions are fulfilled:

1. The person is currently not working.
2. The person has looked for work in the four weeks before the survey.
3. The person has looked for work actively (e.g., sending applications to employers or contacting a private placement agency or a public employment office).
4. The person is willing to work.
5. The person is immediately available for work, meaning that the person can start a job within two weeks following the interview.

Finally, *inactive individuals* are persons who are neither employed nor unemployed according to these definitions. This residual group includes a highly heterogeneous population. Consider, in particular, the borders between unemployment and inactivity, which are very important in determining the size of labor supply. There are individuals not working who do not satisfy any of the five conditions for unemployment and individuals who fail on just one account, such as one who has been actively looking for work and is willing to work, but is not immediately available because of a temporary disability. Similarly, a reduction in search intensity, such as the fact of not having sought a job actively in the reference period, implies that one person has moved from unemployment to inactivity even if that person is still looking for jobs, willing to work, and immediately available. All this suggests that unemployment statistics may exclude an important component of labor supply.

Thus it is always a good idea to go beyond these definitions and adopt broader measures of potential labor supply. The OECD pioneered this work by developing *supplementary measures of labor slack*, which added to the official unemployment rate statistics *discouraged workers* (persons failing the job search requirement because they feel that no suitable job is available for them). As suggested in OECD (1995), in some countries discouraged workers account for more than 2 percent of the labor force; hence their inclusion in unemployment statistics could significantly increase these official (and highly politically sensitive) measures of labor slack.

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Box 1.3 (continued)

Measures based on OECD-ILO definitions (% of working age population), 1994–2000						
Country	Empl.	Unempl.	Out of the Labor Force			
			Total	Potentials	Discouraged	Unattached
Austria	67.5	2.9	29.6	1.0	0.3	28.3
Belgium	59.0	4.1	37.0	1.7	0.7	34.6
Denmark	74.1	4.9	21.0	3.4	0.4	17.2
Finland	63.4	8.4	28.2	3.5	0.4	24.3
France	60.6	7.0	32.4	1.7	0.1	30.6
Germany	64.5	5.7	29.8	1.3	0.2	28.3
Greece	54.5	6.7	38.9	0.8	0.5	37.6
Ireland	58.1	6.5	35.4	1.2	1.3	32.9
Italy	51.8	8.6	39.7	2.8	0.5	36.4
Luxembourg	61.2	2.7	36.1	0.8	0.0	35.3
Netherlands	67.8	3.9	28.3	1.1	0.1	27.1
Portugal	67.7	3.6	28.6	1.5	0.2	26.9
Spain	48.3	12.4	39.4	1.7	0.3	37.4
United Kingdom	68.8	7.4	23.8	1.2	0.3	22.3

Jones and Riddell (1999) analyzed the behavior over the cycle of the OECD-ILO unemployed and of these broader measures at labor slack in Canada and concluded that there are significant comovements in these series. More recently, statistics of the *potential labor force* have been developed by the European Commission that include persons who are willing to work but have not been actively searching in the previous four weeks. In particular, a report by the European Commission (2005) suggests that these “potential members of the labor force” account for almost 15 percent of the OECD-ILO inactive in the EU-25.

A good test of whether these potential members of the labor supply are closer to inactivity or unemployment is provided by analyzing transitions from nonemployment into employment. Brandolini, Cipollone, and Viviano (2006) suggest that the potential labor force group is a somewhat intermediate state between unemployment and inactivity: it has lower chances of getting a job than the OECD-ILO unemployed, but higher chances than the other inactives. However, within these potential members of the labor force there is a smaller group of individuals who are indistinguishable from the unemployed in terms of their labor market transitions. As suggested by the table in this box, drawn from their study, “potential members of the labor force” and “discouraged workers” account in some countries for up to 4 percent of the population of working age. Corrections of unemployment rate statistics based on the OECD-ILO definitions by using the “virtually unemployed” inactive, as defined earlier, could increase the unemployment rate in Italy by almost two percentage points.

Sources: Brandolini, Cipollone, and Viviano 2006; European Commission 2005; Jones and Riddell 1999; OECD (1995).

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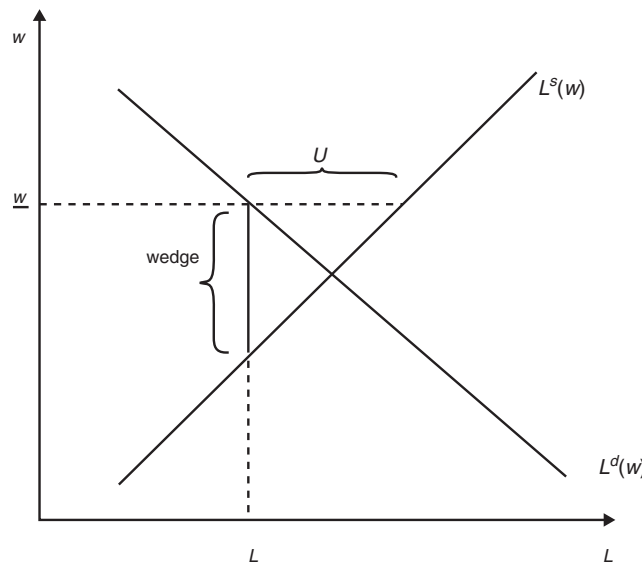


Figure 1.6 Price-Based Institutions and the Wedge

1.3 Labor Market Institutions

We are now ready to describe how *labor market institutions* operate. According to our definition, they are outcomes of collective choice mechanisms that interfere with the exchange of labor services for pay. They do so by introducing a *wedge* between the reservation wage of the workers and the value of a job, that is, between the labor supply and labor demand schedules.

1.3.1 Acting on Prices

Let us give a few examples of how labor market institutions operate. Formal descriptions are provided in technical annex 1.4. An institution like the *minimum wage* (chapter 2) sets a lower bound \underline{w} to the wage paid to individual workers. By doing so, it changes the slope of the labor supply schedule, preventing employer-firms from hiring workers at a lower wage than the minimum wage even when the reservation wage of those supplying labor services is lower than \underline{w} . The actual labor supply faced by employers is now represented by the dotted line in figure 1.6. The latter coincides with the reservation wage schedule only to the right of $L^s(\underline{w})$. Notice further that the segment $L^s(\underline{w}) - L^d(\underline{w})$ denotes *unemployed* individuals, that is, persons who are *not working*, but would be *willing to work* at the equilibrium wage. Insofar as their reservation wage is lower than \underline{w} , these individuals will not be indifferent between working and not working. In other words, unlike

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1.3 Labor Market Institutions

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in a competitive and institution-free labor market, we now have strictly a welfare *loss* associated with unemployment.

There are various ways to implement a minimum wage. In some countries there is a statutory minimum wage set by the government. In other countries a *trade union* (chapter 3) imposes floors for wages via collective wage agreements in specific industries. Collective bargaining is itself an institution that interferes with wage setting not only by setting minima for pay, but also by affecting wages above these minima, for example, by imposing egalitarian wage scales. When unions are present in the workplace, employers face a labor supply schedule that departs from the reservation wage of each individual worker. Unions thus impose on employers the payment of a *markup* over the reservation wage of individuals.

Taxes on labor (chapter 4) are another institution that introduces a wedge between reservation wages and the value of labor productivity. They reduce labor demand, but also labor supply because some individuals drop out of the labor force who would be willing to work in the absence of taxes. This means lower employment and participation, but no unemployment unless the net wage happens to be in a flat segment of the labor supply schedule.

The proceeds of labor taxes are generally used to finance *retirement plans* (chapter 6), *family allowances* (chapter 7), and *unemployment benefits* (chapter 11). All *nonemployment benefits* (subsidies provided conditional on not working) shift labor supply upward, reducing the employment rate and the size of the labor market. Part of this reduction in employment is accommodated via an increase in unemployment, and the remaining part via an increase in inactivity. The magnitude of the effects on inactivity and unemployment depends on the institutional details, notably on whether payments are contingent on nonemployment or require some job search effort (e.g., unemployment benefits may be accompanied by the activation measures outlined in chapter 12, which implement work tests, eliciting job search effort, for those receiving the benefits).

1.3.2 Acting on Quantities

Minimum wages, trade unions, taxes, and unemployment benefits operate mainly on the price of labor side. They *directly* introduce a wedge between y and w^r by forcing employers to pay more than the reservation wage of the marginal job and workers to receive less than the labor cost paid by employers. Other institutions act on the quantity of labor being supplied or demanded and hence introduce a wedge only *indirectly* because the actual or *effective labor supply* faced by employers departs from the cumulative distribution of individuals' reservation wages.

For instance, *regulations on working hours* (chapter 5), *immigration policies* (chapter 9), or an increase in the *compulsory schooling age* (education policies are discussed in chapter 8) cut away a segment of the population of working age. It is plausible that most of the individuals who can no longer supply labor under these

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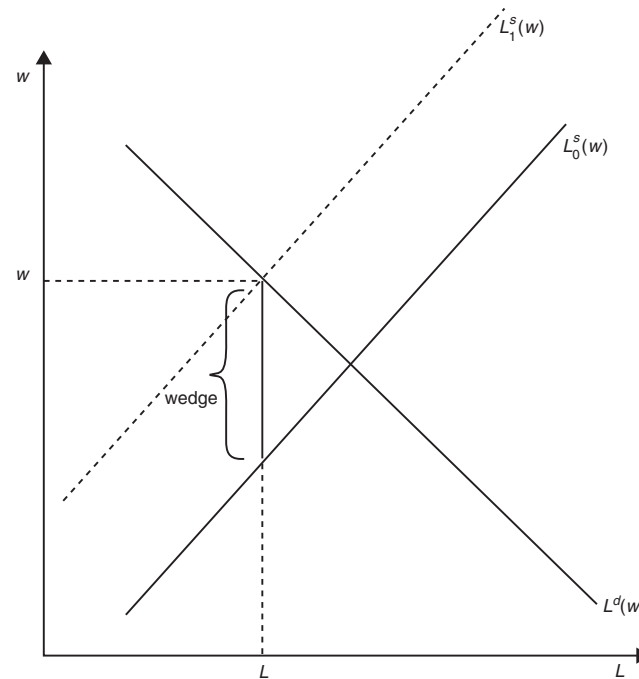


Figure 1.7 Quantity-Based Institutions and the Wedge

restrictions (e.g., women after maternity, first-time jobseekers, and migrants) have a relatively low reservation wage; that is, for them, $w^r < w^*$. Thus the quantitative restrictions cut away a segment of labor supply to the left of w^* , involving a shift to the left of the entire schedule, as depicted in figure 1.7. The new equilibrium will feature higher wages and less employment, just as in the case of institutions that act on prices. Once more, labor market institutions operate by introducing de facto (in this case indirectly) a wedge between the value of the marginal product of labor and the reservation wage. By reducing the segment of the population for which $w > w^r$, they reduce not only the working-age population, but also the size of the labor force and the employment rate.

Another common quantity restriction in industrialized countries is *employment protection legislation* (EPL) (chapter 10). This legislation makes it more costly for employers to adjust the number of workers in a firm in response to shocks. Unlike payroll taxes, EPL involves taxes and transfers to workers that are paid only in case of dismissals. Employers must pay social security contributions to employ labor, and they reduce employment in the face of higher payroll taxes if labor demand is downward sloping. But they can avoid paying firing costs by choosing a stable employment path around a level that may be slightly lower or even higher on average than what would obtain, for the same wage and contributions level, in the absence of EPL. This does not imply that firms should be

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happy to do so: by definition, whenever firms fail to equate w to y , they earn lower profits. In this sense it is quite reasonable to think of employment protection legislation as imposing a tax on employers. Still, EPL does not reduce profits through lower average employment levels, but rather through poor synchronization of productivity and wages around roughly unchanged average levels.

1.3.3 Institutional Interactions

As just argued, EPL that imposes dismissal costs acts mainly on labor market *flows*. It does so by reducing the incentives for firms to shed labor. It is perhaps a little less intuitive that EPL also reduces incentives to hire: if employers anticipate that layoffs will be difficult or costly, in fact, they should try to reduce the amount of labor shedding called for by future labor demand downturns or wage upturns. This means hiring fewer people from the start. Because both firings and hirings decline, the net effect on employment and unemployment levels is ambiguous.

Yet EPL may indirectly affect employment by giving more power to trade unions in wage bargaining, and in this case the impact is likely to be unambiguous. Stronger bargaining power of workers shifts the labor supply faced by employers upward, increasing the equilibrium wage and reducing aggregate employment. In other words, EPL negatively affects employment by interacting with other institutions, such as collective bargaining institutions.

These institutional interactions can be complex, and there can be many of them, given that there are several possible combinations of institutions in place. In chapter 13 we discuss the interactions that appear to us most relevant. Unavoidably the list is not exhaustive. The important thing to remember at this stage is that one should never confine the analysis to the simple direct effect of one institution on the labor market. We live in labor markets in which institutions never operate in isolation.

It is customary to describe the institutional landscape of Organization for Economic Cooperations and Development (OECD) countries in terms of a *cluster of institutions*. For instance, the so-called Nordic model (Denmark, Sweden, Finland, and the Netherlands) features generous nonemployment benefits combined with rather strict activation policies and the involvement of unions in the administration of unemployment benefits. Another example is the Southern model (including Italy, Greece, Spain, and Portugal), which features traditionally relatively strict employment protection legislation, early retirement provisions, and a rather strong influence of trade unions.

These different clusters of institutions involve very different labor market outcomes. As shown in figure 1.8, there is wide variation across OECD countries in employment rates (the ratio of employment to the population of working age) and unemployment rates (the ratio of unemployed workers to the labor force). Another fact illustrated by figure 1.8 is that the same employment rate can be achieved at

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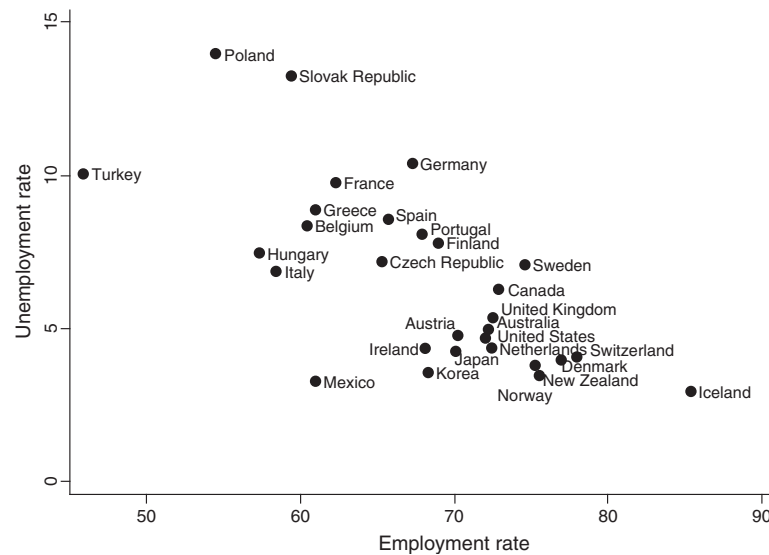


Figure 1.8 Employment and Unemployment Rates in OECD Countries (2006)

less than 5 percent or at double-digit unemployment rates. This suggests that it is important not to neglect labor force participation effects. Mexico, for instance, has an employment rate 20 percent lower than Iceland but has the same unemployment rate, as many more individuals of working age are inactive.

1.3.4 Why Do Labor Market Institutions Exist?

Because all labor market institutions introduce a wedge between labor demand and supply, they reduce the size of labor markets. If the labor market is competitive, the total surplus to be shared between firms and workers will be reduced after the introduction of any labor market institution. The obvious question is why these institutions are so important in modern labor markets. They are certainly not imposed by heaven. They are introduced by democratically elected governments. If voters did not like these institutions, they would sooner or later be removed. If these institutions reduce the size of the economic pie, then it should be possible to make everybody happier (or at least as happy) without them.

We offer three arguments for the existence of labor market institutions:

1. *Efficiency.* A first-best competitive labor market outcome is unattainable; there are second-best arguments justifying the presence of these institutions.
2. *Equity.* In the absence of nondistortionary taxes and transfers, these institutions are best suited to achieve some redistribution that is supported by voters.

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1.3 Labor Market Institutions

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3. *Policy failures.* There are failures in the political process that make it possible for minority interest groups to succeed in imposing their preferred institutions on majorities who would be better off without them.

Often these three reasons coexist, but we discuss them separately for the sake of simplicity. We confine ourselves here to a few illustrations of how these mechanisms operate. Later chapters contain a thorough discussion of the rationale for each institution.

Efficiency

Labor market institutions exist because there are *market imperfections* that prevent the institution-free equilibrium from attaining the competitive equilibrium outcome. In practice, a competitive market for labor does not exist. Labor markets are far from competitive because there are important informational asymmetries between employers and employees, as well as externalities, that is, goods produced and consumed that are not subject to market interactions. In both cases—*asymmetric information* and *externalities*—labor markets violate the transparency and complete market properties of a competitive market. Well-designed labor market institutions, in this context, may remedy these failures of markets and increase the size of the pie compared with the *laissez-faire* outcome.

Equity

Institutions change the allocation of the surplus between employers and employees. Even when they reduce the size of the economic pie, they can make one side of the market (those supplying labor services or those buying them) strictly better off than without the institutions. In principle, redistribution could also be achieved by taking the *laissez-faire* outcome and then taxing employers or employees and transferring the proceeds to the other side of the market. In practice, however, redistribution via *lump-sum taxes and transfers* is not possible because redistributive policies can only rely on information, on signals, that can be altered at will by individuals. This means that any type of redistribution is unavoidably distortionary and labor market institutions, such as distortionary labor taxes and transfers, can be the most efficient way to redistribute.

Policy Failures

Because of these redistributive properties of institutions, there are also instances in which some powerful minorities succeed in imposing a set of institutions on a majority of citizens. This happens particularly when the benefits of an institution are concentrated in a small segment of the population while the costs are spread over a very large crowd of individuals. Under these conditions, groups organized as a lobby may succeed in influencing political decisions disproportionately.

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A Few Examples

In practice, labor market institutions perform several functions at once: they remedy market failures but, at the same time, affect the income distribution or meet the requests of specific interest groups. For example, in the absence of perfect capital markets, the welfare of risk-averse individuals can be increased by offering insurance against the risk of income fluctuations. Job loss is one of the occurrences against which workers could be protected. However, no private insurer will ever want to provide insurance against unemployment because *moral hazard* and *adverse selection* stand in the way of these potential contractual arrangements. Workers would not try as hard to avoid unemployment and find new jobs if they were covered against the negative consequences of the event by purchasing insurance at a given market price (moral hazard), and workers who know that their unemployment risk is particularly high would make the scheme unprofitable for insurance providers and/or unattractive to workers with average risk (adverse selection). This explains why collective action (institutions) tries to remedy the inequitable or unfair labor market treatment of workers who, lacking insurance, become or remain unemployed despite their best efforts. Unemployment benefits and employment protection legislation are remedies for this failure of markets. By supplying insurance, however, they involve some trade-offs. For instance, provision of insurance in the presence of asymmetric information unavoidably decreases productive efficiency. Workers have no less incentive to decrease their jobseeking effort when they are covered by social rather than private insurance, and protection from supposedly unfair developments unavoidably decreases the labor market's speed of adjustment.

While remedying a market failure, employment protection legislation and unemployment benefits transfer resources from employers to employees, creating a vertical redistribution of income. Most of the institutions analyzed in this book address distributional tensions by attributing a larger share of the economic pie to workers or to nonworking individuals and extracting surplus from employers. Minimum wages, restrictions on hours of work, collective bargaining institutions, and unions respond to distributional concerns by assigning a larger share of the pie to workers even at the cost of generating overall a smaller pie. At the same time, these institutions remedy market imperfections, such as the presence of monopsonistic power of firms and externalities in the wage-setting process and in bargaining over hours. Migration restrictions also have a well-defined distributional objective: they insulate native workers from competition of foreign workers. Their presence can also be explained in terms of market failures associated with interactions with other institutions. In the presence of minimum wages, migrants may crowd out native workers, or migrants who do not find a job may exert a negative fiscal externality on the native population by drawing nonemployment benefits without having contributed to their financing. Taxes on labor are often

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1.3 Labor Market Institutions

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progressive. This suggests that they pursue vertical redistribution. At the same time, however, they can be rationalized by interactions with other institutions: someone has to pay for nonemployment benefits, active labor market policies, family policies, and formal education.

In technical annex 1.4 we provide a simple formalization of the redistributive role of labor market institutions. We model a competitive market with a government caring about income distribution or agents bargaining over wages, and we obtain the optimal size of an institution. Institutions do not always have the optimal size because specific interests prevail. Strict employment protection, for instance, involves large implicit transfers from the unemployed to employees or to some categories of employees who are *de facto* insulated by employment protection from competition by *outsiders*. More broadly, the combination of price and quantity institutions that is present in many labor markets is successful in protecting *insiders* from negative labor market developments: not only are wages compressed and stable, but also tenure lengths of regular workers are clearly much longer in more rigid labor markets. Unsurprisingly, it is the insiders who oppose reforms of these institutions, even when they are a minority and when the optimal size of the wedge (operating the desired amount of vertical income distribution) would be lower. Often labor market institutions tend to privilege minority subsets of the market's labor force. Such policy failures can emerge over time as economies are hit by shocks (Blanchard and Wolfers 2000) or the economic environment is altered (Ljungqvist and Sargent 2003). The model in technical annex 1.4 suggests that the redistributive properties of institutions should be adjusted to the economic environment in which they operate. If product markets become more competitive, then redistribution involves higher costs in terms of forgone efficiency (Bertola and Boeri 2002). Under these conditions, it is better to pursue the same distributional objectives by imposing a smaller wedge between labor demand and labor supply. But policy failures may make this adjustment more difficult or altogether prevent it.

1.3.5 Product Market Competition and Institutional Reforms

As stressed earlier, it is always important to recognize that institutions fulfill a useful purpose from the point of view of at least some economic agents. Otherwise it would hardly be possible to see why they were introduced in the first place. Institutions are also subject to frequent adjustments. Table 1.1 provides information on the number of reforms carried out in the European Union (EU) in the field of labor market and social policies since 1986. It draws on the Inventory of Labor Market Reforms assembled by the Fondazione Rodolfo De Benedetti, which takes stock of reforms carried out in Europe in the field of employment protection legislation (EPL), nonemployment benefits (NEBs, encompassing not only unemployment benefits, but also the various cash transfers provided to individuals not working

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Table 1.1 Number of Reforms of Labor Market Institutions in Europe (1986–2005)

		Decreasing the wedge				Increasing the wedge				Total per row	Of which decreasing (%)
		1986-90	1991-95	1996-2000	2001-5	1986-90	1991-95	1996-2000	2001-5		
EPL	<i>marginal radical</i>	5	7	14	12	8	7	20	18	91	42
		-	4	4	2	-	2	1	1	14	71
NEBs	<i>marginal radical</i>	9	24	75	94	10	8	21	19	260	78
		1	2	3	12	-	-	-	-	18	100
RET	<i>marginal radical</i>	12	22	24	25	11	9	16	16	135	61
		1	4	5	3	1	-	-	-	14	93
WT	<i>marginal radical</i>	-	1	17	20	-	-	4	3	45	84
		-	-	-	-	-	-	1	1	2	0
MIG	<i>marginal radical</i>	-	2	8	7	-	4	5	11	37	46
		1	-	4	-	-	2	1	2	10	50
<i>Total per column</i>		29	66	154	175	30	32	69	71	626	68

Source: Fondazione Rodolfo De Benedetti Inventory of Labor Market Reforms (www.frdi.org).

Notes: Marginal reforms involve minor adjustments of the norms.

Radical reforms involve comprehensive adjustments of the norms.

EPL: Employment protection legislation (chapter 10).

NEBs: Nonemployment benefits (unemployment benefits, chapter 11, and active labor market policies, chapter 12).

RET: Retirement schemes (chapter 6).

WT: Working-time regulations (chapter 5).

MIG: Migration policies (chapter 9).

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while they are of working age), and provisions for retirement (RET, relevant in determining participation among older workers), as well as working-time regulations (WT) and migration policies (MIG). Reforms are classified on the basis of whether they reduce (e.g., by making EPL more flexible or reducing the generosity of unemployment benefits and pensions or increasing working-time flexibility and reducing migration restrictions) or increase the wedge between labor supply and demand, as well as whether they are structural (involving comprehensive reforms of the regulations bound to involve the entire population of working age) or marginal (involving rather minor adjustments of the norms or creating dual regimes, with a minority segment of beneficiaries involved in the new regime).⁴

As documented by table 1.1, many reforms of labor market institutions are taking place. In the observation period 626 reforms were counted, that is, more than 1.2 per year and country. More than 9 reforms out of 10 are marginal. They do not necessarily go in the same direction. Most reforms decrease the wedge, but roughly 30 percent of the reforms go in the opposite direction. Often reforms undo previous reforms, by newly increasing the wedge. Due to the competitive pressures arising from globalisation, we would expect reforms to reduce the wedge. However, often reforms undo previous reforms by newly increasing the wedge. These inconsistencies and the marginal nature of most reforms point to strong political opposition to reforms: the reforms increasing the wedge are typically more popular and hence find fewer political obstacles in their way.

Table 1.1 also documents an acceleration of reforms, notably of those decreasing the wedge, in recent years. However, such reforms act mainly via marginal adjustments, as defined earlier. The ratio of marginal to structural reforms indeed has increased since 1990.

A possible interpretation of the acceleration of reforms experienced by European countries in recent years is that stronger product market competition associated with globalization increases the efficiency costs of these institutions, inducing stronger pressure for change. In particular, a more elastic labor demand brought about by increased product market competition increases the employment cost of these institutions (see technical annex 1.4). At the same time, the fact that greater competition in product markets reduces the employment levels compatible with these institutions suggests that there will be strong political resistance to downscaling the institutions that protect against labor market risk. This may help to explain why many reforms also go opposite to the direction implied by increased product market competition. Moreover, several empirical studies (e.g., Rodrik 1998; Wacziarg and Horn Welch 2003) found a positive correlation between exposure to product market competition—measured in terms of trade

⁴ Details on the inventory of social policy reforms and on each single regulatory change are offered in the webpage of the Fondazione Rodolfo De Benedetti (www.frdb.org).

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openness—and the presence of redistributive institutions, pointing to stronger demand for protection in competitive environments.

Whatever the reasons for the reforms of labor market institutions, many of them occur every year. This offers a great opportunity to understand their effects on the labor market. In this book we will often refer to studies that use reforms as *policy experiments*, allowing the researcher to better isolate the effects on the labor market of any specific institution and identify the underlying causal relationships. Often not only do institutions affect labor market outcomes, but also the underlying conditions of the labor market affect the institutions. The labor market itself gives rise to political pressures to introduce, preserve, or reform these institutions.

1.4 Technical Annex: A Simple Static Framework

A simple static model originally developed by Bertola and Boeri (2002) can be valuable in characterizing equilibriums in competitive labor markets, as well as the role of labor market institutions.

1.4.1 A Competitive Labor Market

In the model below a crucial role is played by labor demand and supply elasticities, defined as the percentage change in labor demand and supply, respectively, associated with a one percentage change in the wage. On the demand side of the market, profits are maximized when the opportunity cost of a marginal job, w , is equal to its value, y . In the short run (when capital is fixed) there is no loss in generality in assuming that the marginal value of a job is a decreasing (at a constant elasticity) function of the employment rate L , that is, $y = AL^{-\eta}$, where A indexes labor productivity, and the index of the (inverse) labor demand elasticity, η , takes values between 0 (flat labor demand at A) and 1 (vertical labor demand at 1). We can then write the labor demand schedule as follows:

$$L = \left(\frac{A}{w} \right)^{\frac{1}{\eta}}. \quad (1.1)$$

The supply side of the labor market is given by the cumulative distribution function of the reservation wages, which is, by construction, increasing with w . We assume also that this schedule has a constant-elasticity functional form so that

$$G(w) = w^{\frac{1}{\epsilon}}. \quad (1.2)$$

The elasticity parameter may range between 0 (in which case the labor supply is flat and normalized to unity) and plus infinity: larger values of ϵ denote increasingly

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inelastic labor supply schedules, and as ϵ tends to infinity, labor supply becomes perfectly vertical.

We consider first the equilibrium in a competitive and wedge-free labor market where $y = w^r = w^*$. By equating the two schedules, solving for L , and substituting the result in the labor supply function, we obtain

$$L^* = (A)^{\frac{1}{\epsilon+1}}, \quad w^* = A^{\frac{\epsilon}{\epsilon+1}} \quad (1.3)$$

It is easy to show that this equilibrium maximizes the total surplus from labor exchange. If we neglect irrelevant constants of integration (indexed by ξ), profits of employers are given by

$$\int_{\xi}^L Ax^{-\eta} dx - wL = \frac{A}{1-\eta} L^{1-\eta} - wL.$$

Similarly, the total surplus of workers is given by

$$wL - \int_L^{\xi} x^{\epsilon} dx = wL - \frac{L^{\epsilon+1}}{\epsilon+1}.$$

Maximizing the joint surplus (the *sum* of firm's profits and of the workers' surplus from employment),

$$\begin{aligned} \max_L \left(\left[\frac{AL^{1-\eta}}{1-\eta} - wL \right] + \left[wL - \frac{1}{\epsilon+1} L^{\epsilon+1} \right] \right) \\ = \max_L \left(\frac{AL^{1-\eta}}{1-\eta} - \frac{1}{\epsilon+1} L^{\epsilon+1} \right), \end{aligned} \quad (1.4)$$

yields the wedge-free, perfect labor market wage and employment levels (1.3). Hence the competitive outcome has the desirable property of maximizing the total surplus of production over the opportunity cost of employment, or the size of the economic pie generated by the labor market. Since maximization entails equality at the margin of the value of a job for the employer and workers' reservation wages, the competitive outcome also features no welfare loss from unemployment. Yet as long as w^* lies on a flat segment of the function $G(w)$, at the equilibrium there may be individuals unemployed, meaning in this particular case that they are indifferent between working and not working.

1.4.2 Labor Market Institutions

As discussed in this chapter, the presence of labor market institutions can be rationalized in terms of market failures as well as distributional tensions, either related to general interest redistribution in favor of workers or special interests of specific categories of workers-citizens. Market failures may arise from imperfect

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In other words, the ratio of the distribution weight of employers to that of workers should equal the product of the labor demand and supply elasticities. The larger the η , the lower the elasticity of labor demand and the higher the distributional weight of employers justifying a laissez-faire equilibrium. Analogously, the larger the ϵ , the lower the elasticity of labor supply and the lower the distribution weight of employers justifying a laissez-faire equilibrium. The economic intuition behind these results is that, in line with optimal taxation theory, it is better to tax more the less elastic side of the market, maximizing tax revenues. Only a strong distributional concern of this less elastic side of the market can move the equilibrium away from this optimal taxation rule.

Importantly, there is no reason to expect a priori that condition (1.7) is satisfied because β bears no systematic relationship to labor demand and supply elasticities. To put it another way, it can only be by chance that (1.7) is satisfied. In the general case, when distributional concerns are relevant, it is optimal to have some wedge between labor supply and demand, even at the cost of deviating from the equilibrium that maximizes the joint surplus. Redistribution is one of the key functions of the labor market institutions discussed in this book. The other cases for labor market institutions arise when the laissez-faire equilibrium does not maximize (1.4), and hence labor market institutions do not necessarily involve an efficiency-equity trade-off.

1.4.4 Product Market Competition and the Employment Bias of Institutions

Notice that the distribution weight compatible with the competitive, laissez-faire equilibrium is decreasing with the elasticity of demand and supply. By the same token, the *disemployment bias* of labor market institutions (the reduction in employment induced by the wedge with respect to the competitive outcome) is larger in the presence of a larger elasticity of demand. In particular, by denoting by the superscript *I* the presence of some institution, the disemployment bias is given by

$$\mu = \left(\frac{1-\eta}{1+\epsilon} + \beta \frac{\eta+\epsilon}{\epsilon+1} \right) \frac{\eta}{1-\eta}, \quad (1.8)$$

where μ is the markup imposed by institutions over the competitive wage.

This suggests that the equilibrium with institutions involves lower employment than at the laissez-faire competitive equilibrium when the markup is greater than 1.⁵

⁵ When the markup is strictly lower than 1, it is labor supply to be the short side of the market. Also in this case there is less employment than at the competitive equilibrium.

Suppose now that labor demand becomes more elastic, for example, as a result of a globalization shock involving greater competition in product markets. Insofar as labor market institutions do not automatically adjust to the changes in the economic environment, the employment levels before and after globalization (denoted by the subscript G) are given by

$$\beta L_G^I = A\mu_0^{-\frac{1}{\varepsilon+\eta G}} < L^I = A\mu_0^{-\frac{1}{\varepsilon+\eta}}.$$

Thus, if the wedge remains at its optimal level (μ_0) before the globalization shock and does not adjust to the changes in the labor demand elasticity parameter, an increase in product market competition leads to lower employment, and by (1.8) there is a larger employment bias of labor market institutions with respect to the laissez-faire outcome in a competitive labor market. Increased product market competition may also involve improvements in production technologies (a larger A), such as ones brought about by the externalities associated with having a larger market. This may increase the laissez-faire equilibrium employment level with respect to its level before the shock, shifting the labor demand schedule upward. But under greater product market competition, the employment bias of labor market institutions with respect to the laissez-faire outcome is larger. To put it another way, if the rationale for labor market institutions is only in terms of (functional) income distribution, then the wedge should be downscaled after globalization because there is a steeper efficiency-equity trade-off.

Overall, an increase in product market competition leads to pressures to reduce the wedge that labor market institutions entail with respect to the competitive outcome. At the same time, however, unreformed labor markets have worse employment outcomes than before globalization. This means that stronger competitive pressures in product markets also increase the risk of job loss, potentially creating strong constituencies against the retrenchment of institutions that protect against unemployment risk, like nonemployment benefits, employment protection, and early retirement, whose reform pattern is characterized in table 1.1.

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