Part I

Informal Employment Revisited
Theoretical Concepts and Stylized Facts From Brazil
Chapter 1

Introduction

The employment relationship is one of the fundamental relationships in our lives. Labor generates income and people spend most of their waking time working, learning or searching for a job. The labor market is the central market within an economy where labor force is offered and sought for. Next to the material functions of allocating labor into the most productive positions, the labor market also has an important social function, as labor services cannot be separated from the individuals offering them. The well-being of the individual is based on the position of the person in the labor market, on the income obtained and on the non-pecuniary conditions of work. In a recent public opinion survey by Latinobarometer (2001), covering 17 Latin American countries, labor market problems and especially unemployment (20% of the respondents) were the most often reported answers on the question "What is the most pressing issue in the region?". Next to unemployment, employment stability and low wages were other "pressing issues" reported, all three problems accounting together for about 40% of the responses. A person's income is generated by labor, and even benefits like the unemployment insurance benefits and also pensions are often based on the income an individual gained. In a macroeconomic view, the rate of unemployment is one of the indicators of the well-being of a society (Di Tella, MacCulloch, and Oswald 2003; Oswald 1997; Winkelmann and Winkelmann 1998).

The efficiency of the labor market in allocating labor in productive positions is therefore an important issue: if assumed that wages reflect productivity of a worker, the worker will be better off the more productive he is. As people are not goods or capital to be dislocated easily, and labor market information is not distributed equally and not always available, the labor market function is often distorted. Because of the social functions of the labor market, many countries have chosen to implement regulations to install minimum working standards.
to increase security and well-being of the workers. Security systems have been installed to prevent unemployed workers from falling below the poverty line. Many states use active labor market policy instruments to improve the allocative function and by this the flexibility of the labor market, introducing public job placement centers, qualification courses and a labor market information system.

In many countries, like in Brazil, a segmented labor market can be observed. Next to employment in jobs with good working conditions, job and social security and decent wages, there exists a second labor market segment lacking these criteria, especially the entitlement to legally enforce labor market regulations and to benefit from social security and unemployment insurance benefits. But the existence of precarious work is not only a phenomenon of developing countries. During the last decades industrialized countries have also experienced a process of increasing precarious work-relations (Schneider 2002). The German sociologist Beck (1999) even named the recent developments in the German labor market the *Brazilianization of the labor market*.

Many papers have been written on the processes by which some individuals get decent work while others end up in less favorable working conditions. Much less attention has been paid to the functions of the secondary segment for the allocative process of work, and on the role that the choice of search methods may play for the allocation of workers into the primary or secondary segment.

The existence of informal work can have different effects on the stream of income and the well-being of an individual. The most obviously negative direct effects of informal work result from the characteristics generally related to this type of work relation: poor working conditions, low wages and no social or legal protection. On the other hand, informal employment very often represents a source of income for those people who would not be able to find work in the formal segment of the labor market. By taking up informal employment, they have the possibility to generate some income. In this sense, informal jobs are valuable for the well-being of those who would otherwise be unemployed and without access to resources. Besides these direct advantages and disadvantages of informal employment, informal employment may also have an influence on the future employment states of an individual. Labor market theory gives no clear indication whether having been informally employed may or may not enhance the chances to find formal employment with better working conditions and a better wage in the future. In countries like Brazil, where a quarter of the economically active population is informally employed, it is quite important for the economic and social development of the country to know about the role of informal employment within the allocation and development of the labor force. Besides this, informal employment, as any precarious working relationship,
affects the well-being of individuals and its effects therefore deserve to be thoroughly investigated.

In Part Two of this thesis, I will therefore investigate the mobility of workers between the different segments of the Brazilian labor market. The focus here lies on the transitions into formal employment, and the three groups of individuals of special interest are those individuals who are currently informally employed or who held an informal job before and are now searching, and the newcomers to the labor market, those individuals who have not been economically active before.

I will test several hypothesis concerning the transitions of informally employed workers, job searchers and newcomers into formal employment. My first hypothesis is that, unlike the prediction of the dualistic labor market economists, informal employment in Brazil does not lead to a "scarring" of workers in a way that they may not find formal work again once they have worked for some time in their informal jobs. The "scarring" may hold for some groups of workers, but an individual's labor history does not generally lead to persistence in the same occupational state. My second hypothesis is that informal employment serves as a stepping stone to formality for individuals without direct access to formal employment. I argue that much vocational training is performed on-the-job while workers are informally employed. So, informal labor experience may also serve as a positive signal to formal employers, indicating that the individual acquired skills in that profession. These considerations directly lead to my third hypothesis. Work experience leads to the accumulation of skills useful for a certain profession. These skills are usually not learned within the first days of employment, so the effect of learning should increase over time, and the spell of the employment should therefore be a signal for formal employers. My third hypothesis therefore is: the informal employment spell has a positive impact on the transition probability into formality. The group of newcomers serves as a control group for both latter hypotheses as members of this group have not acquired any skills relevant for a profession. The results of Part Two are of relevance for the design of active labor market policies and the integration of informal employment relationships into public policy considerations.

Until now, the allocative function of informal employment as a stepping stone into formal employment in segmented labor markets has not been investigated. The closest related studies to this subject are studies on the impact of temporary or part-time work on the transition into permanent full-time jobs (Van Den Berg, Holm, and Ours 1999; Van Den Berg, Heyma, and

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1The learning curve is assumed to be increasing with time, but with a decreasing slope. Even a maximum is thinkable.
Zijl 2003; Booth, Francesconi, and Frank 2002; Guell-Rotllan and Petrongolo 2000). While temporary or part-time jobs are legitimately considered as less favorable employment relationships as they usually lack training possibilities and career options, they are nonetheless to be considered as formal jobs. Individuals working in these kinds of jobs may not be offered the same promotion options and training, but their employers still pay contributions to the social security system and these workers are protected by the labor legislation and have access to unemployment benefits in case of dismissal. Informally employed Brazilian workers do not experience the same working conditions as their formal colleagues. They are neither eligible for unemployment benefits and other social security benefits, nor are they protected by the labor legislation. They have no claim to the set wages negotiated by the unions. Still I argue that the precarious labor relationship of informal employment does have a positive function in the Brazilian labor market helping to allocate workers into formality. A possible explanation is that in Brazil, much of the vocational training is performed as on-the-job training within the informal segment of the economy due to the lack of public or official professional training courses. As long as this is the case, informal employment has an important function of allocating those into formality who would never get there without the possibility of gathering working experience and thereby professional skills.

In Part Three of this thesis, I turn to the job search process itself. I argue that next to the question of inter-segment mobility, the way in which these transitions are performed has an impact on the efficiency of the labor market. Unemployed workers have different options how to search for their next job. They may for example directly contact potential employers, answer vacancy advertisements, or visit the public employment service for help. Different search channels may work more or less efficiently in a general way, or yield good results for jobs in one segment but not for jobs in the other segment. Some channels may be useful or accessible only for certain groups of individuals. Within the group of search channels, only the efficiency of the public employment service has been thoroughly investigated in various studies. The other search channels have not attracted that much attention, though. And none of the studies considers segmented labor markets, as most of the research in this area focusses on industrialized countries and the rising share of precarious work in this group of countries only recently started to shift into the awareness of labor economists. In Part Three, I try to find answers to the above questions of efficiency of different search channels used by Brazilian unemployed workers. I split up the effects for formal and informal employment and I take into account the different characteristics of groups of workers. The

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2See, for example, the studies of Addison and Portugal (2002), Böheim and Taylor (2002), Cardoso (2000), Gregg and Wadsworth (1996), Ramos and de Freitas (1998). The role of the public employment service is also discussed in greater detail in Section 11.2.
results from this part of my thesis are used to identify possibly problematic subgroups within the group of unemployed. The speed and efficiency of the matching process on the labor market can be improved by focussing active labor market policies like the public employment service and the labor market information system towards these target groups.

The focus of my study lies on dependent employment, both formal and informal. Self employment is not considered because of the very large heterogeneity within this group. The sample of workers used for the estimations in Part Two is additionally limited to individuals aged between 15 and 29 and with schooling levels of primary school or less, as a special focus lies on the comparison between transition rates of newcomers versus former informally employed individuals.

The thesis is structured as follows: In this first part, I will give an overview about how different labor market approaches try to explain the origin and persistence of labor market segmentation. I focus on approaches within the neoclassical framework and approaches formulated by dual labor market economists. Although I present the ideas and concepts of these two strains of thought in labor economics separately from each other, I already want to point out that the main aim of this thesis is not to validate or falsify either of these theories. Instead, they are presented in Part One to show the different explanations of the origin of labor market segmentation and informality. In Part Two and Part Three the theoretical approaches are used to identify the determinants of transition directions between the segments indicated by the different theories. The presented theoretical considerations serve to determine the variables of the econometric analysis performed in these parts of the thesis. I will therefore not present all approaches in great depth in Part One, but only use the overview as a base for theoretical discussions and econometric model building in the following parts. This overview is followed by a section containing stylized facts of the Brazilian labor market to show the problems of this specific segmented labor market and give the reader an idea why the investigations undertaken are of interest. This first part also contains a section about the features of the database used for the econometric estimation to avoid repetitions in the latter parts.

Part Two of this thesis deals with the mobility of workers between the different labor market segments, with a focus on the transitions between formal and informal employment. After giving a more detailed motivation for this area of investigation, I present additional details on education and vocational training and other information about Brazil important for the following discussion. The factors and individual characteristics affecting transitions between segments and from unemployment into work identified in the theoretical chapter of Part One are discussed in more detail in Chapter 7 in Part Two. The
implications found in the different theoretical approaches within the neoclassical framework as well as in the dualistic approaches are discussed and possible directions of effects of the different factors like education and work experience are identified. These findings are then used to formulate the econometric model used to estimate the impact of these factors for the sample of Brazilian workers and unemployed. To perform the estimations I use a competing risks framework and formulate Cox proportional hazard rate functions for the different groups of workers considered. In Chapter 9 I discuss the results of my estimations and show the hazard rate contributions for different groups of workers. I also discuss possible policy implications resulting from the findings.

Having dealt with the existence of inter-segment mobility and identified important factors for the different groups of workers, I then investigate the matching process itself in Part Three of this thesis. As in Part Two, I start with a detailed motivation for the subject of research of this part and some more details of the Brazilian labor market important for the matching procedures like active labor market policies, labor market key-numbers and job search methods in Brazil. In the following chapter, I use approaches from search theory and findings from the neoclassical and dualistic approaches already shortly presented in the theoretical Chapter 2 to identify possible factors of impact for the efficiency of the different search channels. In Chapter 14 I use these theoretical implications to build the econometric model. In this case I formulate multinomial logistic regressions to estimate the impact of different factors for the transitions into different labor market states and segments. As in the previous part, personal characteristics as well as labor history variables are included in the estimation. The regression results are reported and discussed in Chapter 15, and possible policy implications are presented.

The Appendix following Part Three contains more general information about the data samples used, and more detailed results of the empirical investigations for the interested reader. The bibliography for all three parts of this thesis is also located at the end of the thesis.
Chapter 2

Theoretical Concepts of Segmented Labor Markets

2.1 Informal Work in the Labor Theory

The well-known ILO- Study on the structure of the labor market in Kenya (ILO 1972) was the first emphasizing the unregistered small-scale activities of rural migrants and urban dwellers as a particular phenomenon providing employment and thereby means of living. One year later, Hart (1973) introduced the term 'informal sector' and the concept of the informal sector entered development theory. Since then many studies on the broad subject of 'informality' have been performed. A bibliography on studies concerning informality in Latin America and the Caribbean presented by the Programa Regional del Empleo para América Latina y el Caribe PREALC, ILO (1991) in the early nineties already lists about 400 papers.

From the beginning the phenomenon covered by terms like 'informality', 'informal sector' or 'non-structured sector' has been a diffuse one. The ILO-Study, (ILO 1972), uses seven criteria to define informal work: ease of entry, unregulated and competitive markets, reliance on indigenous resources, family ownership of enterprises, small scale of operation, labor intensive and adopted technology, skills acquired outside the formal school system. Because of the heterogeneity of the labor markets in developing countries, several attempts have been made to adapt the sometimes quite complex criteria and to allow for statistical treatment.1 Most of the criteria for informality concern the self-

1For a discussion of different classifications and criteria see, for example, Charmes (1990) and Thomas (1992). For some authors the ease of entry into the informal labor market segment is the crucial feature, see Fields (1990).
employment or micro-company-part of the informal economy. Even classification criteria for this kind of informal activity change from country to country. In some countries the payment of taxes on revenues is a sign of formality; in other countries this tax is not collected and can therefore not be considered as a criterion for formality. Sometimes registration with the municipality serves as an indicator for formal business, but sometimes no registration is required or performed. The same blurriness of the criteria holds for informal employment. Sometimes labor cards are issued and workers possessing one are classified formal workers. But what happens if the same worker receives part of his wage registered on his labor card and the other part of the wage on the side, not registered? Apart from the difficulties of classifying informal occupation the different groups of micro-entrepreneurship, self-employment, pseudo-self-employment and dependent informal employment are not at all homogeneous. Several studies show that the group of informally self-employed behaves quite differently from other groups such as the informally dependent employed (Maloney 1997).

In the first basic neoclassical labor market model with clearing markets and wage as sole regulative mechanism, the existence of informal work cannot be explained. When informal occupation first came into the focus of labor economists, it was therefore classified as a transitional phenomenon occurring in developing countries' labor markets on the way to industrialization. When absolute and relative numbers of informally occupied workers rose over the years instead rather than declined, other approaches emerged to explain this part of the labor market. Confronted with the shortcoming of the neoclassical power to explain informality it was then claimed that informality could be explained by this theoretical framework making some assumptions, implying that informal labor markets were just a special case within the neoclassical framework.

In my dissertation I will focus on informal employment, meaning dependent employment within a firm or company. This group of workers is easily identified in Brazil via the non-possession of a signed labor card. In the rest of this chapter I will give a short introduction on how the existence of informal employment and the labor allocation into different sectors is explained within the neoclassical context and within the dual labor markets framework. This chapter will also serve as a base for analyzing the Brazilian labor market in the next chapter and the further discussion in the following parts of this thesis. I will therefore focus on recent research directly concerning the Brazilian labor market in the subsequent chapter. Additionally, more detailed theoretical dis-

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2See Section 3.3 for more details on the Brazilian labor market and informal employment.

3See for example McNabb (1987) for detailed information on this topic.
2.2. NEOCLASSICAL LABOR MARKET THEORY

cussions will take place in the theoretical chapters of the following parts of my
dissertation, focussing on the specific issues of these parts.

2.2 Segmentation in the Neoclassical Labor Mar-
ket Theory

2.2.1 The Basic Neoclassical Labor Market Model

The Theory of General Equilibrium is the fundamental theory in the neoclas-
sical paradigm, starting with the first formulations by Walras at the end of
the nineteenth century. Assuming perfect markets without information asym-
metry and regulative restrictions, all interactions on a market will lead to an
equilibrium; no regulation by outside institutions is necessary. The assump-
tions that individuals act rational, have a defined set of preferences, have free
choice of how and when to interact and tend to maximize their utility, serve
as the basis for all economic activity. By comparing utility gains and costs,
decisions are made and resources are allocated in their most productive use.
The most productive use for individuals is the one that yields highest utility;
companies are assumed to maximize profits. All relevant market information
is available at zero costs for all parties active in the specified market. Prices
of the goods traded are determined by supply and demand, the central regu-
lating mechanism is the market. The market price itself is the mechanism to
establish the equilibrium in the market, the way individuals and firms achieve
this equilibrium is by competition.

Within the early neoclassical framework the labor market is considered as
a market like all the other markets for goods, the asset 'labor' is assumed to
follow the same laws like any tradable good. This also implies the idea that
all processes on the labor market can be controlled by changing the wage rate,
being the price for the traded good on that particular market. This leads to
the following assumptions about the behavior of the individuals within this
simplified partial equilibrium model of the labor market:

- There is perfect competition in the labor market, neither entry barriers
  nor restrictions impede competition.

- All individuals offering their labor on a special labor market are homoge-
  nous, e.g. they have the same productivity and can easily be substituted.
  There is no discrimination.
2. THEORETICAL CONCEPTS

- Individuals are completely mobile, they immediately transit into the new optimal working relationships if market conditions change. This includes regional and sectoral mobility as well as qualifications.

- Wages are completely flexible and adjust instantaneously if there are changes in labor demand.

- All individuals participating in the labor market have perfect information about the present and future labor conditions, e.g. changing intensities of economic activities, vacancies, wages etc..

- Employers are able to sell their profit-maximizing output at any time.

It is assumed that there are $I$ households offering labor $l_i$, $i = 1, ..., I$, and $J$ firms demanding for labor $l_j$, $j = 1, ..., J$. According to the assumptions stated above, households maximize their utility conditioned on their income from labor, and firms maximize their profits conditioned on the price of the factor labor, the wage $w$:

\[
\text{labor supply } = l_i = l_i(w), \\
\text{labor demand } = l_j = l_j(w).
\]

Income other than that generated by labor is ignored in this approach. The overall supply and demand of labor then are:

\[
L_i(w) = \sum_{i=1}^{I} l_i(w), \\
L_j(w) = \sum_{j=1}^{J} l_j(w).
\]

The equilibrium on the labor market is established when labor supply and labor demand equal each other:

\[
L_i(w) = L_j(w). \tag{2.1}
\]
Generally, labor supply $L_i$ is assumed to increase with increasing wage rate, while labor demand $L_j$ decreases with increasing wages rates.

Individuals maximize their utility, derived only from labor income in this simple example, by comparing the utility of the income of the last unit of work supplied with the cost of the unit of leisure time foregone by working. The optimal supply of labor is the one where the marginal utility of income equals the marginal cost of foregone leisure time.

Assuming that firms can produce their output choosing any combination of labor and capital, and that the productivity of both factors is determined by a given production function for that company, then wages are the only variable control mechanism. Firms then maximize their profits when the productivity of the last contracted worker, the marginal productivity, equals the marginal costs of labor, the wage rate.

If labor supply and labor demand are not equal, an adaption mechanism is triggered, leading to a change in the wage rate in direction of the equilibrium wage rate. The assumed perfect competition on both sides of the labor market and the completely flexible wages allow immediate changes of the wage rate followed by the adaption of the supply and demand of labor. This adaption mechanism continues until a stable equilibrium is again reached. In this equilibrium there are, per definition, no workers supplying work at exactly that wage rate but not finding work. Similarly, there are no firms offering jobs

Source: Ehrenberg and Smith (1991), p. 44.

Figure 2.1: Neoclassic demand and supply in the labor market.
at the equilibrium wage rate and not finding workers. In this framework no involuntary unemployment is possible; all existing unemployment is voluntary. The observed unemployment in real labor markets is caused by wage rates above the market clearing wage rate. According to this very simplified model of neoclassical labor market theory this frictional unemployment should be of short duration, as the adaption mechanism would soon lead to changes in the wage rate, leading to a new equilibrium. Ehrenberg and Smith (1991) explain persistent unemployment in this model setting by rigid wage rates caused by exogenous reasons like set wages negotiated by the unions or institutional labor market regulations like minimum wages or working hour regulations.4

![Graph showing real wages and employment](image)


Figure 2.2: Unemployment in the neoclassic labor market.

Next to the difficulties of explaining unemployment endogenously, the basic neoclassical framework also does not explain the existence of labor market segmentation.5 As all individuals supplying labor are considered homogeneous,

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4Empirically the role of unions concerning the level and rigidity of wages is less evident; see the overview on the empirical findings in Ehrenberg and Smith (1991). For detailed survey on the abundant literature on the theoretical and empirical impact of minimum wages on employment and the distribution of wages, see Brown (1999). Heckman and Pagés (2000) gather evidence on the impact of job security regulations on the level and distribution of employment in Latin America. Their findings are that job security regulations reduce employment and increase inequality across workers.

5Next to the lack of explanatory power regarding unemployment and labor market segmentation, there is a more general critique on the neoclassical assumptions concerning the modelling of the labor market and the General Equilibrium Theory. I will not provide a general overview about this critique within this thesis. See Sesselmeier and Blauermel (1997) for a comprehensive overview over the critique. The points relevant to labor market segment-
there is no endogenous way to explain why some of them get jobs with good working conditions, while others end up in precarious working relationships. In the seventies some of the assumptions of the basic neoclassical model were relaxed to incorporate the possibility of labor market segmentation.

### 2.2.2 Neoclassical Approaches to Segmentation

Three of the above assumptions of the neoclassical labor market theory are especially important in the context of explaining labor market segmentation and unemployment. One is the assumption of homogeneity of workers and the other ones are the assumptions of flexible wages and free choice of working time.

Beginning with the latter two assumptions, both flexible wages and free choice of working time are necessary for a frictionless adjusting labor market, as well as the possibility of smooth substitution of capital and labor in the production process. Regulations like minimum wages and maximum working hours or the definition of full- and part-time jobs add rigidities to labor market adjustment and have therefore frequently been criticized by neoclassical labor economists. They have been identified as reasons for unemployment, especially rigid wages like those negotiated by the unions were considered to be above the market clearing level, therefore creating incentives for more people to look for a job as the labor demand side is able to absorb. Efficiency wages are another factor contributing to wage levels above the market-clearing rate.

The assumed homogeneity of the workers proved to be an even larger issue. Of course, in the real world labor markets, perfect homogeneity of the workers cannot be observed. But the earning differences that can be observed are sometimes of such a magnitude that they cannot be neglected, and the assumption of a homogenous workforce is a too strong simplification. In response to these facts different approaches have been developed trying to explain differences in earnings and discrimination, both properties of segmented labor markets. Both the Human Capital Theory and theories of discrimination try to endogenize heterogeneity of the labor force.

### The Human Capital Theory

The modern foundations of the Human Capital Theory were developed in works by Schultz (1961), Mincer (1962), Oi (1962) and Becker (1964) at the
beginning of the sixties of the last century. The problematic assumption of
complete homogeneity of the factor labor is relaxed by allowing for hetero-
genesis in one dimension: the level of individual investment in human capital
is allowed to differ. Investment in human capital is defined as all activities
effecting the future productivity of a worker. It is composed of the direct costs
for education and qualification, and of the opportunity costs for forgone or
reduced income during the time of qualification. Differences in earnings, work-
ing conditions and job security then result from the different stocks of human
capital of the workers. The level of education is seen as one of the most im-
portant characteristics determining the productivity and thereby the wage a
worker can obtain on the labor market. Employers consider productivity to be
a function of education and offer wages according to the amount of education
obtained (Schultz 1961).

Investment in human capital follows the same lines as the other neoclassic
optimization processes: an individual will invest in achieving more human cap-
ital until the marginal costs of obtaining more qualification equal the present
value of marginal returns. According to the basic neoclassic paradigm the
wage equals the marginal productivity; the wage will therefore increase with
increasing productivity.

Within the neoclassical labor market theory the productivity of a worker
depends on the education this worker has obtained. The human capital theory
regards education as an investment: an individual is paying now to become
more skilled, the skills increase his productivity and make him eligible for
higher paid jobs. Education thus increases future earnings and the investment
turns profitable when the discounted future earnings exceed the price to be
paid for the education. Empirically, a strong link can be observed between
education and earnings. More formally, education increases the individual’s
future marginal product and hence the future income. If this income at time \( t \),
\( B_t \), is assumed to be the only benefit from education, ignoring utility derived
for example from the process of learning itself or from the status accompanying
a higher paid job, a simple model is obtained. The gross present value (GPV)
of one additional year of education, given an interest rate of \( r \), can then be
written as:

\[
GPV = \frac{B_1}{1+r} + \frac{B_2}{(1+r)^2} + \ldots + \frac{B_n}{(1+r)^n}, \quad t = 1, \ldots, n. \tag{2.2}
\]

\footnote{For a detailed causal modelling of the return to education and a selective survey of
empirical studies on the subject see Card (1999).}
Letting $C_0$ be the cost of one additional year of education, including the forgone wages, the net present value (NPV) is:

$$NPV = \sum_{t=0}^{n} \frac{B_t}{(1 + r)^t} - C_0, \quad t = 1, \ldots, n.$$  \hfill (2.3)

According to this approach, an individual keeps acquiring education until his GPV exceeds the cost for education, and the NPV equals zero (marginal cost of education equals the marginal value of an additional year of schooling).

Critiques of the human capital theory, for example Spence (1973), argue that there is high correlation between education and productivity, but that education is not causal for productivity. Individuals with better abilities simply self-select into higher education, but their productivity is not increased by education beyond the basic level. Education may therefore serve as a signal for productivity, but a certain level of education does not necessarily imply proportional productivity.

If a certain level of education is no guarantee for a minimum productivity, the neoclassical assumption of complete information does not hold anymore. There is an information disequilibrium in the labor market impeding optimal market clearing. At one market side, workers are (probably) aware of their abilities, employers screen for signals to decrease their information deficit. This is the precondition for the signaling theory developed by Spence (1973). The screening approach (Chiswick 1973; Borjas and Goldberg 1978) and the 'sheepskin effect'-hypothesis (Hungerford and Solon 1987; Belman and Heywood 1991) argue that years of education where a diploma is earned yield wage premiums that are not explained by the human capital theory.

As the human capital theory is endogenizing education and professional qualification, the marginal product theory had to be modified: instead of wages being equal to the marginal productivity of the worker, now, in the optimum, the discounted present value of the firm's future returns equals the discounted present value of future earnings and qualification costs. This implies that the wage is not necessarily equal to the present marginal product any more. The human capital theory thus explains the structure of wages, complementing the theory of marginal productivity explaining the level of wages (Sesselmeier and Blauermel 1997). Within this theoretical framework it is of no importance for the outcome who is making the investments in human capital. Apart from the individual himself, the state or employers are possible investors. Usually the state, and to some extend the individuals, are financing the basic schooling, while employers rather invest in specialized on-the-job training for their workers. Schooling is generally thought to increase the productivity of a person in many different occupations, while the specialized on-the-job training often
only increases the productivity within the particular firm. This differentiation is useful for determining who profits from additional qualification and who therefore should pay for it. In addition this provides an explanation for the payment of wages above the market wage: the more an employer invests in a worker, the higher is the loss in case the worker quits. To reduce fluctuation of highly specialized workers employers often pay above-market wages.

Oi (1962) points out that labor costs, generally regarded as variable costs, may also show fixed components. Examples for fixed elements are screening and contracting costs, severance payments, as well as expenditures for on-the-job training. A quasi-fixed production factor is then classified as a factor generating both fixed and variable costs. Assuming perfect competition in the labor market, wage rates and marginal productivity would only be equal if labor would be a variable production factor. If on-the-job training is to be regarded as a fixed cost element, then product sales have to provide an additional rent to cover these period-specific fixed labor costs. The fixed cost element leads to a rigidity in the labor market as firms tend to keep workers associated with the fixed costs for a longer time during recessions than other, less-skilled workers. On the other hand side, firms will wait longer and be more risk averse to contract a worker who will generate fixed costs. So according to Oi (1962), only unskilled labor can be regarded as a variable production factor.

The human capital theory serves to explain the structure of wages in an economy by allowing for heterogeneity concerning the human capital accumulated by workers. Nevertheless, differences in earnings can be observed for individuals with identical productive characteristics. These differences in wages cannot be explained by different human capital stocks; other approaches had to be found. Additionally, the human capital theory only focusses on the labor supply side and neglects impacts from the labor demand side. An investment in human capital may always be preferable to individuals, but in a more general macroeconomic view, the investment in human capital may not always lead to better results, because the demand for certain types of human capital may be finite and not all individuals may be able to realize higher earnings. These kinds of restrictions from the labor demand side are not integrated in the human capital approach.

**Principle-Agent-Situations: Efficiency Wages**

A further attempt to explain wage rigidities, and hence unemployment, has been made by introducing the concept of efficiency wages. This concept is intended to explain why wages do not adjust downwards even in the presence
of unemployed workers willing to work for a lower than the currently paid wage. Works in this area refer to the causal relationship between a workers productivity and the wage he earns as postulated by the human capital theory. Efficiency wages can be interpreted within the framework of the principal-agent theory (Weiss 1980), because employers often can neither determine nor control completely the productivity of their workers. They can set minimum requirements, but it is hard to determine how high productivity could really be. What can be observed though is a positive correlation between productivity and wages. This leads to the assumption that a reduction of wages will reduce productivity and thereby increase labor costs (Yellen 1984). Figure 2.3 shows the effort level $E(w)$ of a randomly selected worker as a function of the wage rate $w$.

![Figure 2.3: Worker's effort level as a function of the wage.](image)

The optimal (efficiency) wage rate $w^*$ for the employer results where a ray from the origin touches the effort function, as this is the maximum of $E(w)/w$, the maximum effort level per wage paid.

Employers are primarily interested to maximize their profits, so if all other parameters of the labor force, like working hours and non-wage labor costs are assumed fixed, they will chose wages that minimize labor cost per efficiency unit instead of minimizing labor costs per worker. By paying these so-called efficiency wages, employers then maximize their profits. If the productivity of a worker drops more than 50% when his wage drops by half, then an employer will prefer to pay the higher wage, thereby reducing labor costs per efficiency unit. An efficiency wage $w^*$ set by the employer higher than the market clearing wage may then cause unemployment, as shown in Figure 2.4.
While the labor supply curve $L^S$ behaves normally, observe the backward bent labor demand curve $L^D$ for wages lower than the market clearing wage.

So, contrary to the Human Capital Theory, productivity here can be increased by paying higher real wages, not only by investing in education. Economists working within the field of efficiency wages focussed on different hypotheses about the advantages efficiency wages would bring to the employers. The first straightforward explanation on this subject stems from (Leibenstein 1963) who worked on labor markets in developing countries. He argues that higher wages lead to improved nutrition and living conditions of rural workers, and by this improve health and therefore lead to higher productivity. Stiglitz (1976), Weiss (1980) and Malcomson (1981) name a reduction of adverse selection as the main advantage for the employers: higher wages than the market clearing wage attract higher qualified workers. Workers signalling that they would work for lower wages are turned away by employers as this is taken as a sign for lower productivity. The payment of efficiency wages also increases the costs of quitting for the worker; firms can so reduce labor turnover by paying wages above the market clearing level. The higher aggregate unemployment rate caused by rigid wages additionally increases the opportunity costs of quitting. Especially firms who need skilled workers and offer on-the-job training will profit from the lower job rotation by reduced training costs and more experienced and productive workers (Salop 1979; Stiglitz 1974; Schlicht 1978). Paying wages above the market-clearing level also prevents workers from shirking as the cost of being fired is increased. Akerlof (1982) and, to some extend, Solow (1979) take a different approach from the sociological side, arguing that social conventions

\[ \text{Figure 2.4: Labor demand curve } L^D \text{ in the efficiency wage framework.} \]

\[ \text{Source: Weiss (1990), p. 20.} \]
and moral considerations lead to higher wages and increased productivity: in his partial gift exchange model, Akerlof (1982) argues that a group’s working norms and effort may raise above the enforceable level when employers pay wages above the required minimum level. Akerlof takes this argumentation to classify labor markets into primary and secondary markets. In the theoretical model he develops, it is endogenously determined whether a specific labor market falls into the primary or secondary segment. The market is a primary one if the gift exchange component of labor input and wages is sizeable and wages therefore are not market-clearing. In secondary markets, the gift exchange component does not have an impact and wages are market-clearing in these markets. A critique of the gift exchange approach is that in reality the contrary behavior of workers is also observable: instead of increasing their productivity, workers keep productivity deliberately at a lower level than necessary, especially when working in piecework, and new entrants in production teams are soon introduced into these lower "generally accepted" productivity levels (Sesselmeier and Blauermel 1997).

The differences to the neoclassic approaches presented above are, next to the assumed asymmetrical information about worker’s productivity, that wages are not determined anymore via the market process. The efficiency wages, by definition higher than the market clearing wages, are set by employers. By choosing the efficiency wage level, employers have an influence on the marginal productivity of workers, maintaining the neoclassical assumption that the wage rate equals the marginal value product of the labor. Adjustment in case of changes on the demand side of the market here takes place by variations of the labor demand curve, e.g. hirings or firings, and not by adjusting real wages.

Efficiency wage approaches offer an explanation why jobs in certain labor markets may be rationed and wages may be set persistently above the market clearing level by the demand side of the market. These non-clearing labor markets may exist within an economy along with other labor markets behaving according to the neoclassic paradigm. In labor markets with rigid wages and unemployment, the lower skilled and therefore less productive workers may end up finding no work paying efficiency wages. They will therefore compete for the jobs in labor markets where the wage-productivity correlation is weak or nonexistent (Akerlof and Yellen 1986). In these labor markets only market wages are paid, and they are usually classified by a larger demand for unskilled labor, high job-insecurity and poor working conditions. This is especially the case for industrial production with chain work and high labor division, where the machinery determines the productivity of the worker and almost no specific skills are needed. In these cases an efficiency wage would not increase productivity and therefore not lower the efficiency unit costs.
Still, efficiency wages do not explain why some workers educated within the same profession are formally employed and some end up in an informal employment relationship. In order to close this gap, insider-outsider approaches and theories of discrimination have been developed.

Insider-Outsider Approaches

The efficiency theory explained persistent unemployment as a result of a principal-agent problem between employer and employees resulting in higher than market-clearing wages. The insider-outsider approach considers the conflict between two other parties of the labor market, namely employed and unemployed workers, as the source of unemployment (Lindbeck and Snower 1988; Lindbeck and Snower 2001). Three groups of individuals are distinguished on the labor supply side:

- insiders, who are already employed in the company and have received full training,
- entrants: recently employed workers still receiving training, and
- outsiders: unemployed workers looking for a job.

Workers already employed by a company, the insiders, are interested in keeping outsiders out, mainly to prevent wage slips (Sesselmeier and Blauermel 1997). Insiders are able to build certain barriers for outsiders, as they have a stronger position than the outsiders. The power of the insiders stems from the investment the employers have already undertaken for them: employers have already paid hiring costs in form of screening applications, setting up assessment centers and performing all kinds of administrative tasks, as registering the employee with the social security systems and the like. In addition employers may have invested in general and firm-specific training of the insiders. These costs would have to be paid again if insiders were fired and replaced by newcomers, thereby increasing the fluctuation cost. Furthermore, it is assumed that the firing process itself is also costly, for example in the form of severance payments. As entrants are still in the training process, it is assumed that the training costs are lower, but all other costs are the same in case of dismissal.

Besides the costs mentioned above, insiders may produce additional costs if the company hires outsiders for lower wages. As at least part of the firm-specific knowledge is assumed to be passed on by informal on-the-job training, the company has to rely on the cooperation of insiders and entrants. If insiders threaten with non-cooperation, the company is faced with more costs in
the form of a lower productivity of the entrants. This holds equally for the general production process where cooperation may significantly enhance productivity, and a threat of non-cooperation with entrants increases production costs. Within the insider-outsider approach it is therefore an advantage for the company to keep insiders and pay them a higher wage, even in the presence of unemployment and lower wage bids from outsiders. Outsiders do not have these opportunities to exert pressure on a company's cost curve. By maintaining these internal structures and keeping outsiders out, wages may seem to be rigid, and vacancies are not necessarily filled with the best qualified applicant but rather with an insider who has to move from his former post.

Theories of Discrimination

The theories of discrimination are closely related to the human capital theory, but they also incorporate elements of the labor demand side, trying to solve the shortcomings of the human capital theory in this respect. This includes the incorporation of personal characteristics like sex, age, ethnicity and the like into the analysis of contracting decisions and differing wages. Different sources of discrimination have been hypothesized, ranging from personal prejudice to statistical pre-judgement.

According to the human capital theory, employers should be indifferent which person to employ if individuals have the same productive characteristics, as they are expected to be equally productive. If individuals with identical productive characteristics systematically receive differing wages for supplying equal services because they belong to different demographic groups, then labor market discrimination exists (Ehrenberg and Smith 1991). Next to wage discrimination, occupational discrimination may also be observed when individuals of a specified group do not have access to the same job, job-level or career options as their colleagues with identical characteristics. Apart from racial discrimination, gender discrimination is also frequently observed in the labor market. The problem with defining discrimination is that it is almost impossible to determine when two individuals are identical in their productive characteristics. Additionally, it is difficult to assess the preferences of individuals, so that occupational segregation is not necessarily caused by discrimination. This holds especially in areas of "female-dominated" or "male-dominated" occupations.

Becker (1957) laid the foundations of the theory of discrimination, focussing on racial discrimination in the labor market. In this personal-prejudice model, Becker (1957) models two societies, one black and one white, each consisting of workers and capitalists. White capitalists are assumed to prefer white
workers, paying white workers a premium if contact with black workers can be avoided. The model turned out not to be stable because it relies on employers maximizing their utility by satisfying their prejudicial preferences instead of the usually assumed profit maximization. As the model is set up in a perfect-competition environment, firms are price-takers and have to maximize profits to survive in the market. But profit maximization would, in the long run, lead to a reduction in premiums and by this to an end of discrimination. So this type of discrimination only works in a non-perfect-competition market.

In contrast to the Becker-model basing on perfect competition, the theories of statistical discrimination base on imperfect information, see for example Aigner and Cain (1977) and Spence (1973). Within Spence's approach, known as the Signalling Approach, no individual characteristics are used to distinguish between individuals with seemingly identical properties. As an employer cannot judge the productivity of an unknown worker, he uses characteristics of the group the individual belongs to as signals to estimate individual productivity. It is not the human capital a worker accumulated that determines his productivity, but the signals attributed to the social group. Signals may be education and diplomas obtained, work experience, vocational training or qualification programs, ethnic origin, sex, age, or length of the unemployment spell. Statistical discrimination here can be regarded as a part of the screening problem that arises when the individual characteristics used to assess productivity are not perfect predictors. So this method of productivity evaluation succumbs to the same problems as the basic neoclassic model: although the group of workers is broken up into smaller groups allowed to differ in several properties, now the employer generalizes within these smaller groups and makes assumptions on the probability of good and bad characteristics. There is still room for discrimination in this approach, even with the complete absence of personal prejudices (Gottfries and McCormick 1995; Leblanc 1995).

In general, the discrimination theories help to explain some differences in wages that cannot be explained by the human capital theory. But discrimination in the hiring and firing process, or concerning career-options, is less well explained by the discrimination theories, leaving room for future research.

Neoclassic Conclusions Concerning Segmented Labor Markets

Within the very simple neoclassic framework presented at the beginning of this chapter, the existence of informal, precarious working relationships and wage differences are the result of individual decisions of investment in human capital on the labor supply side. Concluding from this, all informal work relationships
are created on a voluntary base. Workers in these precarious occupational states opted for less investment in human capital as it seems less favorable to them. This also means that informal, secondary work should be found only among those workers that are low skilled within their specified labor market.

Efficiency wage and discrimination theories can also explain persistent differences in earnings for certain groups of individuals. Economists working in this field introduce factors of the labor demand side which they claim to have been missing within the neoclassical approach; factors like preferences of employers or their use of group signals may lead to the payment of lower wages for members of certain groups of workers.

However, even the considerations concerning the demand side of the labor market base mainly on characteristics of the supply side agents. Persistent structural job scarcity or other labor demand side properties causing unemployment of long-term differences in earnings and job conditions can, until now, not be explained within the neoclassical framework. Next to these considerations, there are more fundamental critiques of the neoclassical labor market theory, see Sesselmeier and Blauermel (1997) for an overview. I focus here on the parts concerning the explanation of informal employment and labor market segmentation.

There exist a large number of empirical studies testing the assumptions and results of the presented approaches. I refrain from presenting these studies here but in Chapter 2.4 I will report the results of various empirical studies testing the validity of neoclassical versus dualistic approaches.

2.3 Dual Labor Market Theory

2.3.1 The Basic Ideas

The Dual Labor Market Theory emerged in the late 1960's and early 1970's as an alternative approach to the neoclassical view of the labor markets. Works in this new approach described the labor market as consisting of two segments in spite of just one uniform market: the high-wage segment (also named the primary sector) offering high wages, job security, good working conditions and good returns on human capital variables such as education and work-experience. The low-wage segment (secondary sector) offers jobs with far less favorable characteristics: besides the lower wages, jobs are often unstable and social security networks are missing. The jobs in the primary segment are scarce, not every individual wishing to work there is able to obtain a job,
even if qualified for the work. Workers who do not find a job in the high-wage segment usually end up in the secondary segment. In this framework, the high-wage labor market does not clear while the low-wage labor market is assumed to take in the labor surplus.

Dualistic labor market theories were fruitful in various ways: with their broader approach and their opposition to neoclassic concepts they opened new fields for economic research. Neoclassic economists felt an urge to respond; they started testing for labor market segmentation and incorporated various elements of the segmentation theories in their own approaches, enriching neoclassical models in this area. The way to set up the models was the key difference between neoclassical and dualistic labor economists. While the neoclassical models started from the general idea of a perfect labor market and later on relaxed strong assumptions and deductively explain specified problems from within this general theory, dualists started by observing labor market problems and tried to explore them empirically to inductively derive theoretical explanations. This is also the reason why there is not the one well-defined theoretical framework within the dualistic area. Dualistic labor economists worked on many different labor market phenomena, including but not particularly emphasizing unemployment. The main differences to the neoclassic assumptions can be summarized as follows (Sesselmeier and Blauermel 1997):

- The focus of the analysis of labor market agents is less biased towards the supply side.
- The effects of institutional, social, historical and juridical factors are included in the explanation of persistent disequilibria in the labor market.
- The wage rate is not regarded as the only or dominant regulating mechanism for labor allocation.
- The existence of a market-clearing wage rate leading to full employment is questioned.
- The efficiency of wage differences for reducing structural scarcity and mobility rigidities is doubted.
- The validity of the marginal productivity as the unique decision variable for the labor demand side is questioned.

In the dualistic view, the structure and requirements of the primary segment containing formal employment and the secondary segment containing
informal occupation evolve in very different ways thereby almost excluding mobility between these segments. The different working conditions and rules of each of the two segments have an impact on the working habits and skills of the workers employed in the respective segments, resulting in a declining employability in the 'other' segment. The longer a worker is employed in one of the segments, the more decreases his probability of transiting to a job in the other segment (Gordon 1972; Doeringer and Piore 1971). This more balanced treatment of the labor supply and demand sides allows frictions to originate not only from the supply but also from the demand side.

2.3.2 Concepts of Segmentation

Primary and Secondary Labor Markets

Doeringer and Piore (1971) and Piore (1972) formulate an institutionalistic approach of labor market segmentation that provides a basis for the works of many other dual labor economists. Their model describes a labor market that is segmented in a high-wage, good working conditions primary segment and a low-wage, poor working conditions secondary segment with the properties described above. The basis for this segmentation is a dualism in the markets for goods: there are two producing sectors, a core economy with cycle-independent, standardized mass production, and a peripheral economy. The core economy provides secure employment and is characterized by capital-intensive production and an oligopolistic structure. In contrast, the peripheral economy mainly comprises small and medium sized enterprises producing labor-intensive goods that can neither be produced in a standardized way nor by mass-production. Demand for goods produced in the peripheral economy is volatile, acting as a buffer for the core sector. Piore (1972) starts his theoretical reflections with Adam Smith's constatation that increasing labor division increases productivity, but that the degree of labor division is proportional to the size of the market of the goods produced. Piore then extends his model by introducing additional factors influencing the degree of labor division: the standardization of production and the stability and predictability of the demand. Piore recurs in his argumentation to a sociologically founded differentiation of employers into different classes.

In a later paper Piore (1975) further refines this structure by dividing these segments into upper and lower subsegments. In addition to the characteristics of the primary segment, the upper subsegment requires characteristics including formal qualifications regarding educational and vocational formation, enabling the individuals to be creative, responsible and flexible. Jobs
in the upper subsegment of the primary segment are mainly professional and management jobs. In contrast, jobs in the lower subsegment require characteristics like loyalty, working discipline and tolerance concerning monotonous tasks. Following Piore and Doeringer, the secondary segment then simply absorbs all those individuals who do not satisfy the criteria to find a job in the primary segment. By introducing this division into subsegments, Piore allows for additional heterogeneity within the original two segments.

**Internal and External Labor Markets**

The above mentioned segmentation of the labor market into a primary and a secondary partial labor market is the common segmentation assumed when talking about dual labor markets. In their early paper on labor market segmentation, Doeringer and Piore (1971) used two theoretical concepts of segmentation as a basis for their empirical study: next to the already discussed primary and secondary labor markets, they differentiate between internal and external labor markets. Internal labor markets are characterized by wage determination processes that do not follow neoclassical ideas. For an example, wages in the craft labor markets in industrialized countries are usually negotiated by unions; the same applies to wages for many of the professions in industrial production. Doeringer and Piore classify these labor partial markets as internal labor markets, because their wage setting mechanism depends on internal structures like organizational forms of employers and employees, and less on the neoclassically assumed market forces. In this approach, wages in the internal market are the result of negotiations between groups of individuals and not between an individual applicant and an individual employer. The external labor market in Doeringer’s and Piore’s concept is a labor market with a wage determination mechanism depending on market forces, like the ones assumed in the neoclassical approach. Internal labor markets can only form in the presence of institutions and rules on both the labor demand and the labor supply side. The institutions create rules that stabilize the internal labor market. They fix wages, at least over a period of one or two years, they introduce severance payments and minimum wages. This stability reduces transaction costs on both sides of the labor market. Access to the internal labor markets is no longer via the wage negotiation but via so called ports of entry, determined by the internal structures and rules of the specific market. Parts of the labor market, like the crafts segment, may have special incentives to build internal labor markets, as in these partial labor markets special firm specific skills and special customs evolved, sometimes over the course of several centuries. Concerning the firm specific skills Doeringer and Piore (1971) recur implicitly to the human capital theory, equally distinguishing between "general traits"
and "task-specific traits". By "traits", they subsume not only skills necessary to perform the productive actions but also characteristics like punctuality and reliability. Within the internal labor markets approach, the firm-specific "traits" are passed on to the entrants via informal on-the-job learning, while the general "traits" are taught in formal training. But senior workers will only pass on their knowledge if they do not have to fear dismissal and replacement by younger, cheaper workers later on. The structure of internal labor markets therefore eliminates the wage competition to assure the informal knowledge transfer as a central part of internal training. The formation of firm or labor market segment-specific rules leads to a common identity of the members of the concerned group, making the group more stable because all members of the group, including the employers, are expected to comply to these rules.

In contrast to the neoclassical labor market approaches developed up to then, the internal labor market concept explicitly includes the behavior of human beings. Sociological and psychological factors enter the analysis as well as economic considerations. The approach was subsequently refined by various economists, and served as a base for a neoclassical approach on internal and external labor markets at the beginning of the eighties.

Critiques to this approach have been that Doeringer and Piore developed the approach on the base of labor market data from the USA (Sesselmeier and Blauermel 1997; Franz 2003). Later work on this subject, performed on data from the USA and West Germany, lead to doubt being voiced that this concept might be easily transferred to countries with labor market segments that do not look back on a century-old tradition, or the existence of long-established unions. Furthermore, the approach concentrates on explaining the dichotomy of the labor market but does not yield any explanation for the origin of employment or the existence of unemployment.

Within the dual labor market framework, wage determination and labor allocation are often considered to follow mechanisms where human capital factors play a less significant role. Within this theory frame employers screen potential new employees for several characteristics. One of the characteristics is education, but it is only one of several criteria. The characteristics serve as proxies for the ability of the worker, but contrary to the human capital approach, the relationship between education and productivity is not regarded as a causal one. Other characteristics are previous work experience, whether a person has been recommended to the employer etc.. The employment decision may also be explained in part by the theory of internal labor markets. Internal labor markets may exist within a company, or within a certain group of economically active individuals. The usually assumed market rules do not hold inside internal markets and worker selection follows a different mechanism in this market.
Human capital theory indicates that further investment in education and training leads to access to better jobs with higher wages. While certainly no dual labor market economist would dispute that better trained workers are likely to earn more money, they claim that segmentation between segments is rigid. This implies that investment in education may lead to higher wages but does not allow the individual to transit from informal to formal employment. The argument underlying this assumption is the influence of the different working conditions and structures within the different segments on the behavior and performance of the worker. The workplace conditions mould the worker in a permanent way, they scar him so that he gets less valuable for the employers of the other segment. This is especially claimed for informally employed workers. A more detailed discussion of the role of education and training and the scarring hypothesis can be found in Chapter 7.2.

2.3.3 Unemployment in Segmented Labor Markets

Because of their higher wage and better working conditions, jobs in the primary segment are assumed to be more desirable for workers. So workers try to find jobs in this segment, and those who do not manage to find work there will take a job in the secondary segment. The labor market in the high-wage segment does not clear, so some individuals end up in the low-wage segment, the latter being implicitly assumed to provide infinite vacancies for everybody who wants to work. How can unemployment emerge in this setting?

Piore (1975) attributes unemployment to the prevailing job-insecurity and poor working conditions in the secondary segment: As hiring and firing costs are comparatively low or nonexistent, at least in the low-skilled jobs, employers tend to lay off workers quite easily. This implies that most of the unemployed were formerly working in the low-wage segment. In contrast, employers in the high-wage segment are assumed to invest in the qualification and performance of their workers and therefore tend to keep these workers in order to secure their investment. The rent that has to be included in the efficiency wages to prevent workers from shirking and absenteeism may be the lower the more stable a job appears to its occupant, and the longer its stream of future income seems to be secure. Another argument to explain the lower job rotation in the primary segment is the higher investment in production capital that requires a certain number of workers to produce efficiently. Stable employment is essential for a stable production.

In the classic models of rural-urban migration, first formulated by Todaro (1969) and Harris and Todaro (1970), workers migrate from the traditional agricultural sector with low and flexible wages to the modern urban sector...
where significantly higher wages are paid. Migration is a response to the wage gap between these sectors, the decision to migrate is made on the basis of the difference in expected wages, that is the formal sector wage multiplied by the probability to find a job in the formal segment. As wages in the modern sector are assumed to be rigid, the number of vacancies in this sector is finite, not all migrants are able to find a formal job with a high wage. Those who fail to find employment end up either unemployed and searching or with employment in the lower paying informal urban sector. This fact lead subsequently Bulow and Summers (1986) to argue that all unemployment in the dual-market-context is waiting unemployment: individuals queuing up for jobs in the primary segment. In this case all workers unemployed have a higher utility by waiting for a high-wage job than by taking up a job in the secondary segment. This will naturally occur in an efficiency-wage model of a segmented labor market, as future rents from higher wages will compensate for loss of income during the time of searching and waiting. By taking up a low-wage job these rents would be lost. Additionally, the existence of an unemployment insurance will keep more former high-wage workers waiting for another job in the primary segment, as the opportunity costs of job searching are reduced by the benefits.

2.4 Some Empirical Evidence

The dual labor market approach has been criticized for not providing a theoretical base for its assumptions. Some of the critiques, see for example Cain (1976), argued that the results obtained could also be obtained by a neo-classical analysis. With the development of new theoretical concepts like the imperfect-information-theory and efficiency wage models, the dual labor market theory returned to the focus of attention during the 80ies (Dickens and Lang 1988). Additionally, new econometric estimation techniques allowed for testing parts of the assumptions made by dual labor market economists. Even declared proponents of the neoclassical labor market theory started working on segmented labor market approaches. McDonald and Solow (1985) and Bulow and Summers (1986) with their theoretical works are some examples. Heckman and Hotz (1986) tested the dual market hypothesis on the wage differences of Panamanian males. The results Heckman and Hotz obtained did not allow them to reject the model, but they claimed that test methods were not appropriate and came to the conclusion that the dual market theory was untestable. This argument, that the dual labor market approach could not be

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8 The concept of labor market segmentation does not necessarily imply that there cannot be more than two segments in the labor market: "We do not propose that the labor market consists of exactly two distinct segments, only that dualism is a useful simplification." (Dickens and Lang 1988).
tested, had already been put forward in an earlier paper by Heckman and Sędłacek (1985). They claimed that the dual labor markets model only provided a more parsimonious model of the wage distribution than the neoclassical model with just a single market. They tested their hypothesis and succeeded, showing as a side effect that it is possible to test the dual labor markets model. The difficulty rather was to test for market clearing itself, but this is a problem for single market theories as well as for dual market theories and is therefore no critique uniquely aimed at the dualistic approach (Dickens and Lang 1988).

While the neoclassical approach explains the wage differences between individuals by their different characteristics, the dual labor market theory is able to explain wage differences of individuals with similar characteristics. This helps to understand why the high wages observed in the primary segment are persistent in spite of unemployment and the presence of qualified workers in the secondary segment waiting for a job in the primary segment. Within the dual labor market approach the wage distribution is assumed to follow different patterns in each of the segments. Variables like education, job-experience or labor history do not have the same impact on the income distribution of workers in the primary and secondary segment, allowing for the wages to differ. Within the neoclassical framework, the coefficients of these variables are implicitly assumed to be the same for all individuals, as they are estimated for the one and only wage equation valid for every person entering the estimation. In contrast, Dickens and Lang (1985) estimate a segmented labor markets model using two different wage equations, one for each segment, and an additional switching function, determining the sector in which an individual is employed. The three equations are then estimated together. Their results confirm the predictions of the dual labor market model. This model-setting additionally allows to test for the single market approach, and Dickens and Lang report that the model had to be rejected. As these results may also originate from the fact that two wage equations capture more non-linearities than a model with just one wage equation, Dickens and Lang (1987) develop a single-market model including higher-order variables and allowing for heteroscedastic error terms to compensate for the advantages of the dual labor market model. Nevertheless, they still find that the dual labor market model yields by far the better estimates for the wage distribution.

These results indicate that the dual labor market model outperforms single-market models in approximating the empirical wage distributions. The labor market does not necessarily have to be split up in only two segments; dualism just proved to be a workable simplification (Dickens and Lang 1988).

Several studies have been performed on wage differentials, based on the efficiency wage approach and focussing mainly on interindustry wage differentials.
2.4. SOME EMPIRICAL EVIDENCE

(Bulow and Summers 1986; Dickens and Katz 1987; Krueger and Summers 1988). All these studies find remarkable wage differentials that are correlated over long periods of time (decades up to almost a century). It seems therefore implausible to assume temporary disequilibria as a reason for the differentials. If market clearing is assumed then either workers in the primary segment must be particularly skilled, or employers in this segment must pay some compensation such as efficiency wages. A market-clearing model consistent with these findings would be that some workers have skills that are only useful in the high-wage segment. This result nonetheless is conform to the dual-markets assumption that workers in the different segments develop different skills only useful in that specific segment. Additionally, Chahad, Orellano, and Picchetti (2001) observe that job rotation in the primary segment is considerably lower than in the low-wage segment, allowing one to conclude that workers in the former segment receive rents. This can also be observed in Brazil, where workers in the formal segment show high persistence compared to informally employed workers. A more detailed discussion of the Brazilian case can be found in Chapter 6 of this thesis.

While much of the discussion of the validity of models centered on explaining wage differentials, another important question is the degree of rigidity of the prevailing segmentation. This more recent question is addressed by some authors performing tests of labor market segmentation and wage differentials. Maloney (1999) started to work on the Mexican labor market and found that different segments can be observed. He differentiates between formal dependent work and informal labor, focussing on self-employment within the latter group. He observes that these two segments are not rigidly separated, workers transit between segments in both directions. Navarro-Lozano (2002) comes to the same result, also using Mexican labor market data. Still, the question of the degree of segmentation is not easy to answer as the criteria for segmentation are not sharply defined. There are no clear cut levels of transition rates between segments indicating whether a labor market is segmented or not.

Having given a short survey on the concepts of labor market segmentation in both the neoclassical and the dualistic labor market theory and major empirical findings in that context, I will now turn to a description of the Brazilian labor market and its institutions and regulations in the following chapter.
Chapter 3

The Brazilian Labor Market

3.1 The Brazilian Labor Market in the Last Two Decades

The development of the structure of the Brazilian labor market has been heavily influenced by various macroeconomic shocks during the last two decades. For a better understanding of the current state of the labor market, I begin with a short introduction to the economic history of the last two decades.¹

The debt crisis triggered by Mexico's debt default in 1982 also led to major inflation rates in Brazil, leading the country into many attempts to comply with heterodox stabilization programs intended to contain inflation and to stabilize the economy. The first of these plans was the Cruzado Plan in 1986. For a short while this stabilized inflation and created a positive impulse for the economy but it did not deal with the excess demand problem which was the basic source for inflation at that time. Within a short time price controls failed to work, and inflation soared to even higher levels. Other, less successful, stabilization plans followed and ended in hyperinflation at the beginning of the nineties. In 1990 Brazil also started a trade liberalization, reducing external tariffs by about two thirds and ending a long period of import substitution. However, all these measures did not reduce inflation until, in 1994, Fernando Henrique Cardoso, then finance minister, implemented the Plano Real (Sachs and Zini 1996). He severely cut government spending and introduced a nominal exchange rate anchor. Together with the trade liberalization policy, these policies exposed

¹Fox, Amadeo, and Camargo (1994) and Urani (1998) provide detailed overviews about the macroeconomic shocks and their impacts on the Brazilian labor market. See also Hoek (2002).
Brazilian firms producing export goods to the rough competition in the world market. Without subsidies, facing very low external tariffs and an extremely overvalued exchange rate, conditions grew adverse. These policies not only affected the export sector of the economy, but also paved the way for imported goods for just the same reasons that impeded exports. With the plummeting of production the labor market was subjected to extreme pressure. A large proportion of the workforce moved out of the manufacturing sector. In fact formal employment in the manufacturing sector started to decline when the Plano Cruzado failed in the mid-eighties. From the start of the Plano Cruzado until the late nineties unemployment rose to some extent, but the share of informal employment in the manufacturing sector rose by about a third, being more than seven percent of the total labor force, while formal employment in this segment dropped from 20 % to 10 % in the same period. Most of the workers affected by the strict economic stabilization policies were simply too poor to afford being unemployed.

Figure 3.1 shows the evolution of labor in formal and informal services, and formal and informal manufacturing, in the period from 1982-2000. The values for informal services and manufacturing contain both dependent employees and self-employed individuals.

Informal jobs are characterized by the lack of a labor card, see also Section 3.3 for a definition of informal employment in Brazil. Many workers dismissed in the manufacturing sector found work in the informal services segment, while informal manufacturing stayed at a stable employment level. But unemployment also rose (see Figure 3.2), and overall labor force participation sunk during these years.

Source: "Hoek (2002)"

Figure 3.1: Employment proportions of the labor force in Brazil, 1982-2000.
In the following sections, different aspects of the Brazilian labor market, like the level of regulations, the wage structure, job rotation and unemployment will be treated in more detail to provide an overview of the characteristics of this huge labor market. Some of the aspects will be discussed in even greater detail later in the thesis.

3.2 The Institutional Background

There are two major sources containing laws and regulations concerning labor relations in Brazil (Lyra 1999). The constitution regulates the major principles determining the rights of Brazilian workers: the minimum wage, daily working hours, the unemployment insurance, the thirteenth wage bill, holidays and others.²

Detailed regulations are contained in the Labor Legislation Code, Código dos Leis do Trabalhador (CLT). This code dates from 1943 and has undergone substantial changes since its first enactment. The principal regulation for the questions of concern in this thesis is that the legislation forces employers to issue labor cards to their employees. The possession of a labor card distinguishes a formal worker from an informal one. By law all employed workers are entitled to a labor card, and labor legislation is valid for all employed

²See Paragraph 7 and subsequent paragraphs of the Brazilian Constitution.

Source: "Hoek (2002)"

Figure 3.2: Unemployment rate in Brazil, 1982-2000.
workers. In practice employees with a labor card are in a far better position to enforce their rights stated in the labor legislation than those without labor cards, the informally employed ones. Labor cards entitle workers to collect unemployment benefits during an unemployment spell.\(^3\)

Much earlier, and replacing the Law of Stability, the Fundo de Garantia por Tempo de Servico (FGTS) was established by Law N° 5.107 in September 1966. The system of this fund includes individual accounts for each worker, into which the employer pays 8% of the monthly salary every month. The rate of interest paid on these savings is 3% per year. By this payment, about one monthly salary is accumulated within each working year, if the worker remains employed over this period. Workers have the right to receive the amount saved in their account in three cases: (1) when they get fired without just cause; (2) when they plan to buy or build a house; (3) when they retire (their families receive the savings in case of the death of the worker). It is obvious that only the formally employed can participate in this program. In case of dismissal without just cause the company has to pay a fine to the worker that amounts to 40% of the savings accumulated in the account of the worker.

Workers with a formal labor contract are, at least theoretically, hard to dismiss. Camargo (1997) studies the positive and negative effects of the Brazilian labor legislation on labor market flexibility. He finds a very detailed set of laws and provisions and a huge incentive for employees to file complaints upon dismissal. As court appeals are lengthy processes and it can take years for a sentence to be pronounced, employers have strong incentives not to comply with the labor legislation. Originally intended as a fund to help workers to save for and finance their own houses, workers are also entitled to the money accumulated in their FGTS-account in case of unjustified dismissal. In practice formal workers generally receive the FGTS-savings, even if dismissal took place for a just reason, or even if the worker asked to be dismissed, because labor courts usually act in favor of the worker in this point. To avoid costly legal proceedings employers therefore very often agree to pretend to dismiss the worker without just cause. Camargo (1997) and Paes De Barros, Corseuil, and Foguel (1999) argue that the increased incentive to collect the FGTS-savings leads to higher labor market volatility. But when Paes De Barros, Corseuil, and Gonzaga (1999b) empirically test their hypothesis by estimating the impact of the 1988 constitutional change which brought significant increments in separation payments, they do not find evidence for increased fluctuations on the labor market.

Most of the formal workers get a medical insurance paid by their employer, while employers usually do not pay contributions for medical insurance, pen-

\(^3\)If they meet some specific conditions such as a minimum time of employment etc..
3.3 INFORMAL EMPLOYMENT AND SELF-EMPLOYMENT

Informal workers are not protected from immediate dismissal and thus find themselves in a much weaker position to enforce their rights.

3.3 Informal Employment and Self-Employment

In spite of the precise regulations found in the Brazilian labor legislation, informal employment is a very common form of working relationship. Informality is defined quite differently in different countries, but still Brazil is one of the countries with the highest rate of informal employment in Latin America. Ramos (2002) studies the evolution of informality over the last decade and finds a constantly rising degree of informality (regarding informal employment and self-employment as the same) from around 40% in 1991 up to a peak of 51% of the economically active population in 2000 and a slight decrease to 50% in 2001. Carneiro (1997) reports the same and relates the increase in informality to excessive government intervention in the productive system. Figure 3.3 shows the participation of the economically active population in the different labor market segments in the year 1999. Less than half of the economically active population held formal labor contracts (42.7%), while informal employment accounted for 24.7%. Self-employment was a source of income for 23.5% of the individuals and 9.1% were searching for a job.

Unlike in some other countries, the definition of informal employment in Brazil is rather simple: all workers being employed but not holding a labor card are classified as informally employed. Employers issuing labor cards must offer their workers labor contracts complying with the labor laws. Formal workers profit from set wages and they can collect unemployment insurance benefits (if fulfilling the necessary conditions). Informal workers are not eligible to these rights, and in case of dismissal they lack resources to maintain living standards and to perform an efficient job search. While contributions to the social security or the pension fund are deducted directly from the wages paid to formal workers, informally employed workers may contribute voluntarily, but most of them do not. The resulting lack of protection and resources in case of emergencies or old age often leads to impoverishment. It is therefore a major concern to increase formal employment and so to provide protection and access to security systems to a larger proportion of workers.

In 1999, about 25% of the urban occupied labor force was employed informally. About 45% held formal labor contracts, and nearly all of the remaining
economically active individuals fell in the category 'self employed'. This labor market structure was by no means rigid and there was mobility of workers between sectors in both directions.

### 3.4 Wages and Labor-Related Costs

Paes De Barros, Corseuil, and Leite (2000) and Ferreira and Barros (1999) show that informal labor in Brazil is usually lower paid than similar formal labor. Kassouf (1998) estimates wage differentials between the formal and the informal sector in Brazil and reports that about 20% of the observed differential is caused by segmentation of the labor market. Informally employed workers have no possibility to enforce the wages negotiated by the unions. Wages in Brazil are already concentrated at the lower end of scale, Figure 3.4 shows the overall wage distribution in Brazil.

The unions are involved in the wage negotiations in most industrial and service sectors, and many formal workers profit from that (Carneiro and Henley 1998). The effect of the unions though is not equal for all groups of formal workers. Arbache (1999) studies the impact of an increase in unionization on the wage distribution of unionized and other formal workers and finds that
unionization contributes to an increased inequality among union members, as well as between them and others. Menezes Filho et al. (2002) report negative impacts on employment, average wages and productivity when unionization rates rise above a level of 50% of the employees. Wages for informal employment are often orientated at the minimum wage, which is taken as a guideline for wages (Amadeo, Gill, and Neri 2002). In fact most wages in the informal segment are equal to or multiples of the minimum wage (Neri, Gonzaga, and Camargo 2001). Workers with no or low skills may still find low paid jobs in the informal sector contrary to the formal one. Employers compensate for less productivity by paying lower wages. Fajnzylber (2001) studies the effect of changes in the minimum wage on pay and employment for formal and informal Brazilian workers. He finds that low-income workers are generally more affected by a rise in the minimum wage, and within this group, the informally employed are most likely to lose their jobs. This contradicts the hypothesis that the informal segment serves as a buffer segment for those who do not find jobs in the formal segment (IDB 2003).

Informal employment is taken up by many individuals who did not manage to find formal employment. In the informal segment of the labor market entrance and exit costs for both employee and employer are substantially lower than in the formal segment.
Entry costs are lower, because employers do not face the registration of the worker with the social security system and medical insurance. Labor cost itself is usually lower, too, because no contributions are made to the social security and the medical insurance. Another factor important to employers is the prospect of an easy dismissal of informally employed workers, as employers do not face firing costs in form of severance payments (Amadeo, Gill, and Neri 2002). In contrast, formally employed workers automatically accumulate money in a compulsory savings fund, the Fundo de Garantia, FGTS. Each month 8% of their wage is deducted from their wage and flows directly into the FGTS, so that over the span of a year, about one monthly wage is saved.

3.5 Unemployment

Unemployment in Brazil has always existed next to informal employment, although numbers up to the mid-nineties have been rather low compared to OECD-averages in the same period. However, during the second half of the last decade, unemployment rates have increased and now exceed the standardized OECD values around 7% for 1999 (OECD 1999). As remarked in the new IDB-Labor Market Study on Latin America (IDB 2003), high levels of unemployment indicate a problem in the labor market, but low levels of unemployment not necessarily signal a well-working labor market. This is the case in Brazil, where many people are simply too poor to remain unemployed, "unemployment is a luxury only few can afford" (Bienefeld and Godfrey 1975), p.6). Most of those not able to find a job in the formal segment take up employment, or become self-employed, in the informal segment.

Unemployment in Brazil is measured according to standards used by international organizations like the IDB (IDB 2003). A person is considered unemployed during a reference period if he (i) did not work, (ii) had been available for work, and (iii) had been searching for a job. The age range considered for the calculation of the unemployment rate is from 10 to 60 years.

During the last years both the proportion of those employed in the informal segment and the proportion of unemployed have been increasing. See Figure 3.5 for the rate of total open unemployment, and rates split up by sex from 1997 to 2001, and Figure 3.6 for the unemployment rates of the year 1999 used for the investigations in Part II and III of this dissertation.

Female unemployment constantly lies above male employment, a fact that does not reflect the female labor force participation in the overall economically
3.6 Job Rotation and Labor Market Flexibility

The extent of labor market flexibility in Brazil has been much in discussion (Corseuil, Ribeiro, and Santos 2002). One group of labor economists claims that rigidity is quite high because of high non-wage labor costs impeding the creation of new jobs. This includes the limited possibilities of companies to negotiate wages directly with the applicants, as for some sectors, the employers negotiate wages with the unions and the outcome then is set for the companies (Camargo 1997). Another criticized feature is the severance payment that employers have to pay when dismissing employees without just cause, and a labor legislation favoring workers' interests (Camargo 1997). Opponents to this opinion argue that the rigidity only holds for formal employment and even there, the above mentioned arguments are not generally valid. High non-wage labor costs in the formal segment are circumvented by many employers

Source: "PME, Monthly Labor Survey (PME) (1999)."

Figure 3.5: Open unemployment rates in Brazil, 1997 – 2001, split up by sex.

active population. Soares and Izaki (2002) study female labor force participation during the last decades and find an increase of participation from 39% in 1977 to 58% in 2001 for women aged between 16 and 60 years. Male participation in this age frame shifted from 88% to 87% in the same period. Soares and Izaki (2002) find evidence that the strong increase in female participation is mainly fed by an increase of the entry of married women into the labor force.
offering informal employment or even jobs that are only partly formal (Hoek 2002). The high severance payments very often are not paid either, as those workers trying to claim their FGTS savings often negotiate with the employer and renounce the 40% fine to be paid by the employer (see Section 3.2 for more details on the FGTS regulations).

Looking at some labor market figures, labor turnover in Brazil indeed looks quite high: Chahad, Orellano, and Picchetti (2001) report that 47.3% of the formal workers in 1989 held their job for less than two years, and that this figure did not improve very much during the nineties. In comparison, labor market studies on labor rotation in OECD countries report that the proportion of workers employed less than two years is less than 25% of the overall labor force. Even countries with very deregulated labor markets like the U.S.A. show lower labor turnover rates. The fact that the Brazilian population is relatively young compared to those of OECD countries may be one reason for the high rate of short labor relationships: the number of labor market entrants is comparably larger. Nevertheless this fact does not account for the overall magnitude of rotation. Additionally, Corseuil, Ribeiro, and Santos (2002) show

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4In the case of partial formal employment, only a part of the wage the employee receives is registered on the labor card, and the non-wage labor costs are contributed only for this part.
that about 40% of the overall reallocation of labor results from companies going out of business and other companies being created.

The high level of job rotation means that workers and employers do not build very close bonds; on average mutual commitment is weak. As a consequence, the accumulation of human capital during the work spell is low, as both parties anticipate short contract durations. The incentive for employers to offer training for their employees, be it company-specific or general, is low. Employees, on the other hand, are equally weakly interested in acquiring firm-specific knowledge, as it does not pay off in short term. This behavior leads to relatively low firing costs for the employers considering the level of firm specific skills loss in case of dismissal. In fact the usual response of companies during times of recession is the dismissal of a large part of their work force. Still, workers will acquire skills to some extend while working for a company, even when there are no training programs. Chahad, Orellano, and Picchetti (2001) show that the probability that a worker with a formal contract resigns or gets dismissed decreases with the length of his work spell within the company. Transaction costs on both sides grow as the acquired specific human capital begins to pay off for the worker and also gets more valuable for the employer. Additionally, the severance payment to be paid by the employer increases over the work spell and so increases the incentive for the employer to keep the worker after a certain point of time. This mechanism has the advantage of decreasing excessive rotation, but it may gain a negative momentum when firing costs grow so much that they impede firing unproductive workers and hinder necessary restructuring of companies. In the Brazilian case it can be observed that labor turnover is high within the group of low skilled workers and especially within the informally employed (Chahad, Orellano, and Picchetti 2001). Most of the formal workers trying to collect their FGTS savings by asking for dismissal also come from the low skilled group. They usually do not have any career options in this or another company, and their firing costs are rather low as they did not accumulate much skills. This phenomenon may be one of the reasons of high labor turnover in Brazil: a relatively high percentage of workers is unskilled and does not accumulate much human capital while working. If they hold labor cards and therefore have to contribute to the FGTS, after a certain period the utility of collecting the FGTS savings will be higher than the utility of keeping this formal contract in the future. This behavior leads to a vicious circle: the high time preference rate of low skilled workers increases their speed of job rotation. By lowering the duration of the employment spell in each firm, the accumulation of human capital is heavily impeded, hindering these workers from acquiring more skills, and finding employment relationships with longer duration and better payment.
3. THE BRAZILIAN LABOR MARKET

3.7 Labor Market Policies

3.7.1 Active Labor Market Policies

The National Employment System SINE

In Brazil, several public programs have been implemented to assist labor allocation. The only one of them active in the area of job-placement, the National System for Employment (SINE), was created in 1974 to enhance active labor market policies. SINE agencies have been established in most of Brazilian cities, but coverage in rural areas is still poor. Core tasks of the SINE are the organization of qualification and training programs, and providing assistance in job placement and job matching both to the employed and unemployed. Another important function of the SINE is the operational support of the unemployment insurance (which did not exist at the time of the implementation of SINE). Law N° 8.019/90, article 13, and subsequently, law N° 8.900/94 and law N° 7.998/90 legislate that the unemployment insurance shall assist job search by offering counselling, job-placement and vocational training. These services shall be offered decentralized by SINE offices, receiving administrative, technical and financial support by the Ministry of Labor, MTE. SINE also administers parts of the unemployment insurance, like the benefit payments.

Evaluation of the program by the Brazilian Ministry of Labor (MTE 1999) has shown very poor performance of most agencies and in all three main activities, due to missing technical support and antiquated administrative instruments. A difficult funding concept adds to the problems (SINE is financed from a federal fund, but money is first transferred to state funds before reaching the agencies, as the states are responsible for the administration of the SINE). This turns administrative and operative processes very slow and leaves the SINE politically quite vulnerable. The net of SINE agencies is still weak and just being implemented in remoter areas. In some regions, job-placement rates are as low as 5% of people requesting to be placed. Recently, SINE has been returning to the focus of interest. An improvement of services and infrastructure is discussed. Furthermore, there have been proposals to link the payment of unemployment insurance benefits to the proof of job search conduct and participation in qualification programs (Chahad 2000b).

In practice unemployment insurance benefits may be collected in three different locations: at a federal bank, at the local representation of the MTE or at a SINE office. As SINE offices in some regions are still quite rare, and walking

5The SINE and evaluation of its services are presented in more detail in Section 12.2.1 in Part III of this thesis.
up to the representative of the MTE may be stigmatizing, most unemployed prefer to collect their benefits at the local branch of the federal bank. Many people hold personal banking accounts at branches of the federal banks and stigma of going there is low. These facts lead to a rather low rate of public frequentation at the SINE agencies, diminishing considerably the probability of motivating unemployed to take advantage of job counselling and available labor market information or of participating in qualification programs. Combined with the poor execution of services, frequentation of the SINE agencies is understandably low.

Vocational Training

In 1945 the SENAI was established to provide professional training for Brazilians of all educational levels. During the second part of the 90s, a public program for vocational training was set up, namely the Plano Nacional de Educação Profissional (PLANFOR). The objective of this program is to coordinate and restructure the different institutions active in the field of training and qualification programs in order to improve access to these programs to underprivileged groups like young unemployed, female heads of household, low-skilled workers, handicapped, and unemployed persons.

Promotion of self-employment and the creation of small enterprises

To complete the list of active labor market policies, the Brazilian government also set up a program to promote self-employment and the creation of small enterprises: Programa Nacional de Geração de Renda e Emprego (PROGER). This program facilitates access to micro-credits and offers help with the paperwork for registration. Additionally, training courses are held on basic managerial skills like book keeping.

3.7.2 Passive Labor Market Policies

The Unemployment Insurance and the Fundo de Amparo ao Trabalhador (FAT)

In the Constitution of 1967, under Title III (Economic and Political Order) the implementation of an unemployment insurance is mentioned for the first

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6See Section 6.1.2 for a more detailed description of the different institutions offering vocational training and qualification programs.
time. Its realization, though, only came two decades later, when the first unemployment insurance system in Brazil was installed in 1986.

As a part of the Plano Cruzado a second program was launched in 1986 that comes closer to the known system of unemployment insurance in European and North American countries. During the constitutional changes in 1988 the Fundo de Amparo ao Trabalhador (FAT) was created and major reforms of the former unemployment insurance systems were implemented. More legislative changes occurred in 1990, when the access to benefits was broadened by lowering the required number of months of work from 36 within the last 48 months to 15 within the last 24 months. Waiting time for repeated application was lowered from 18 to 16 months and the value of benefits was increased. Benefits were raised in 1994 by another law that raised the maximum payment period from three to five months. In 1990, the council CODEFAT was created to administer the financial resources of the FAT (Theodoro 2002). The council is formed by a representant of each of the following ministries: the Ministry of Labor and Employment, the Ministry of Social Security (MPAS), the Ministry of Agriculture (MA), and one representant of the National Bank for Economic and Social Development (BNDES). The labor supply side is represented in the council by a member of each of the four big unions (FS, CGT, CUT and SDS), and employers are represented by a member of each of the employers organizations of industry, the financial institutes, commerce and agriculture (CNI, CNF, CNC, CNA).

To qualify for benefits from this program workers actually have to be formally employed during the last six months and at least six months during the last 36 months. Their dismissal has to be without just cause. They receive benefits according to the length of time of their employment: if they have been employed from six to eleven months they will receive three months of benefits. From twelve to twenty-three months they will receive four months of benefits, and from twenty-four months of formal employment workers will receive benefits for the maximum length of five months. The size of the benefit is limited and is calculated on the basis of the three last wages received prior to dismissal. The minimum value of benefit a worker can get is 1 minimum wage, the maximum value is 1.87 minimum wages. At the time of writing a minimum wage equivalents 151 R$ (about 70 US$) per month. Once the benefits have been paid, there is a waiting time of sixteen months before the worker may again claim benefits from this program.

All benefits paid by this program come from the PIS/PASEP fund. In a strict sense the unemployment insurance program does not constitute an insurance. The PIS/PASEP fund is financed by a tax that every formalized
company has to pay on its revenues.\textsuperscript{7} The tax is not related to the number of workers nor to the pay bill size of the company. There are no individual contributions effected by the workers neither does the program represent a risk distribution among all contracted workers and their employers, contributions are paid only by companies, which roll-over these costs to their product prices. This means that in fact the program is financed by all consumers in Brazil.

The program consumes about 0.4\% of the GDP. The average value of benefits is 1.5 minimum wages, around 75\% of employees dismissed without just cause are covered.

If the social protection of unemployed workers is a public goal, the objective of any program implemented for this reason should be to cover the largest possible part of eligible, e.g. contracted workers. As eligibility for unemployment benefits is connected to the possession of a work card, it should be in the public interest to increase the number of formally contracted workers. The eligibility for unemployment benefits is a possible incentive for workers to look for a formal work. If demand for formal work increases, companies should increase the supply of such labor contracts. However, investigations have not presented evidence to support the development of such an increase. Cunningham (1997) took advantage of the increase of benefits in 1994 to study the impact of benefits on the reentry of unemployed into the formal labor market segment. The results showed no increase of the ratio of formal work after unemployment. Chahad and Fernandez (2000) studied the impact of the implementation of the unemployment insurance in 1986 on the choice of formal or informal work and could not find increased transition. Low benefit ceilings and short length of payments may be one reason for this low incentive effect. As the also working-card related social insurance is considered to provide a rather poor service, too, the general attractiveness of formal work may be not that high.

Some studies reveal evidence that unemployment insurance increases both participation in the workforce and occurrence of unemployment (Holen 1977). Atkinson and Micklewright (1991) and Holmlund (1998) provide surveys on the performance of unemployment insurance systems and the unwanted effects of prolonged and increased unemployment provoked by these systems. Chahad and Fernandez (2000) estimate the impact of the unemployment insurance on the Brazilian rate of unemployment. Contrary to the above studies, they find that the rate of unemployment would have been higher had there been no insurance system. They also find that most recipients of unemployment insurance benefits transit into inactivity, especially among non-heads of household.

\textsuperscript{7}See Gill, Dar, and Thomas (1999) and Chahad (2000a) for a detailed discussion of the financing structure of the Brazilian unemployment insurance.
Labor market data collected by the CODEFAT focussing on repeated request of unemployment benefits do not present evidence of increased rotation. According to members of the CODEFAT, the observed rotation is a normal one resulting from workers changing into better jobs or quitting jobs to stay inactive.

Other investigations for Brazil showing increased job rotation attribute this fact to the design of the FGTS (Camargo 1997; Amadeo and Camargo 1997). As workers only have access to the money saved in their FGTS account if they are dismissed, the argumentation in these studies is that workers deliberately try to get dismissed. Originally created to increase job security and to prolong the time spent in one job by fining employers when dismissing, this same mechanism seems to have a counter productive effect on workers incentives. (Chahad, Orellano, and Picchetti 2001) estimate the impact of both unemployment insurance and FGTS on labor turnover rates but do not find significant impacts.

In summary, unemployment benefits in Brazil do not influence the rate of rotation neither positively nor negatively, and the effect of the FGTS seems to be ambiguous on labor turnover rates as well.
Chapter 4

The Database

The data used throughout this thesis are taken from a pool of all Monthly Employment Surveys (PME) collected by the Brazilian Institute for Geography and Statistics (IBGE) in 1999. Each monthly data set of the PME contains about 100,000 observations collected in the seven major metropolitan areas in Brazil: Belo Horizonte, Curitiba, Porto Alegre, Recife, Rio de Janeiro, Salvador da Bahia and São Paulo.

A special methodology of data collection is implemented within the PME: The members of a household are interviewed in four consecutive months. This process is repeated after an interval of eight months. One quarter of the questioned households surveyed every month are entrants, replacing those that already have been questioned for four months. So every monthly survey is composed of four different lots of households: one quarter is interviewed for the first time, one for the second, one for the third and the last one for the fourth time. This structure allows me to investigate workers transitions from one labor market state to another. It does not allow one to follow the labor history of one individual over a prolonged period of time with monthly values for the covariates. This fact limits the investigation in some aspects, as persons who have been unemployed and found a job again in the time before the sample is taken are missing in the sample of unemployed and searching workers. Short-time unemployed have a lower probability to enter the sample as those unemployed for a longer time as a person who has been unemployed for just one or two months is less likely to have been so just in the months of survey. Because of the rotating design of the PME survey it is unfortunately not possible to correct for this sample bias. The results in the following parts of this thesis therefore have to be interpreted in the light of this shortcoming: they are rather useful to interpret the behavior of individuals unemployed for a longer period.
The PME-panel data contain information about the current labor market status of each observed individual, and distinguish between formal and informal employment, self-employment, searching or inactivity. For those currently unemployed, the previous labor market state is also registered, using the above categories with the exception of newcomers in the category searching. The PME-questionnaire also contains a question about the possession of a labor card, allowing one to distinguish between formally and informally employed workers, a very important feature for the analysis of transitions between the different labor market states. The usual information on the individual level, like sex, age, educational background and position in the household, is also recorded. Information about wages is only available for those individuals working at the time of the survey, not for those unemployed. In addition to the individual data, the PME-Survey allows to calculate income at the household level.\textsuperscript{1} To adjust for inflation, I use deflators for the wage data, as proposed by Corseuil and Foguel (2002).

In this first part of the thesis, the basic underlying theoretical concepts for the two empirical parts to come were presented. A general description of the structure of the Brazilian labor market and an outline of the used labor market survey data were added to provide a base for the following parts. Theoretical aspects as well as those aspects of the Brazilian labor market structure and the data that are only relevant for one of the two investigations following are presented in the respective part of the thesis.

\textsuperscript{1}Income from capital assets or property is not included.