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STRUCTURE OF REGIONAL LABOUR MARKETS

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1. Introduction

Labour market problems receive increasingly attention from economists, social scientists, geographers and policymakers. Two reasons are responsible for the current interest in labour market analysis: First the present-day unemployment rates associated with the worldwide recession (the efficiency problem); and second, the unequal distribution of employment opportunities over individuals, groups or regions in an economy (the equity problem). The neoclassical marginality theory has taken for granted an automatic correction mechanism on the labour market: the value of the marginal labour product should be equal to the wage rate, so that in case of friction on the labour market the wage rate has to be adjusted. The atomistic nature of this economic allocation theory, its equilibrium framework and its homogeneity assumptions about labour supply have often been criticized (see Gordon, 1972). Adjustments and extensions of the traditional theory have been put forward inter alia by the human capital theory (see among others Mincer, 1970) and the job search (see among others Miron, 1978, Phelps et al., 1970, and White, 1970). Alternative approaches have been developed among others in sociologically oriented studies, for example, the institutionalistic theory (see Gordon, 1972 and van Voorden, 1975), the job competition theory (see Thurow, 1972), the dual labour market theory (see Piore, 1971) and the segmentation theory (see Edwards et al., 1975, Osterman, 1975, and Vietorisz and Harrison, 1973).

Two main problems emerge in studying equilibrium and adjustment processes on the labour market:

- Job seekers are not moving freely within the national labour market due to psychological and/or geographical distance frictions. This implies that we have to subdivide the labour market into smaller categories from the spatial point of view (spatial segmentation).
- The labour market is not homogeneous and job seekers are not fully informed, so that also on the regional level a frictional and a structural disequilibrium may exist, caused by both supply and demand factors (functional segmentation).

The labour pool is highly diversified owing to differences in individual motivations, capabilities, occupational skills, so that a structural disequilibrium on the labour market is often occurring. Such a permanent disparity between supply and demand is even more likely owing to the limited geographical mobility of job seekers; distance frictions (in a physical or socio-psychological sense) appear to hamper very often adjustment processes on the labour market.

In the majority of labour market studies the spatial aspects of the labour market are often neglected; comparatively little is known about the working of the urban and regional labour markets (cf. Button, 1976). A spatial labour market can be regarded as a nodal area with a certain concentration of employment (for example, various segments at the supply and demand side such as professional groups or economic sectors). Such a spatial submarket determines the employment opportunities of people in that area (and its surroundings), while it also plays a role in linking together various parts of the regional economic system (for example, the regional production structure, the regional income pattern, the regional housing market, the regional quality of life, and so forth).
Several reasons can be mentioned to account explicitly for regional labour markets:

- the regional labour market is the major spatial factor market where demand and supply meet each other,
- the regional labour market determines to a great extent the welfare level of the area at hand,
- the regional labour market may reveal certain frictions in the labour market which are neglected in a national approach (for example, a local disequilibrium between demand and supply emerging from a specific industrial orientation of a region),
- an analysis of the regional labour market may reveal certain spatial welfare elements which are neglected in a global national analysis,
- the regional labour market is an open system, so that it is affected by surrounding labour markets and vice versa.

Due to the heterogeneity of the labour market and the role played by distance frictions, it is meaningful to divide a labour market into certain segments. In this respect, professional mobility reflects essentially the dynamics between various (occupational) segments on the labour market. In the framework of a system of a system of regional labour markets, spatial mobility reflects in fact the interregional dynamics between spatial entities of the total labour market. Thus, geographical and occupational mobility may be regarded as the outgrowth of discrepancies between labour submarkets, viz. between regions and segments, respectively. This is briefly summarized in fig. 1.

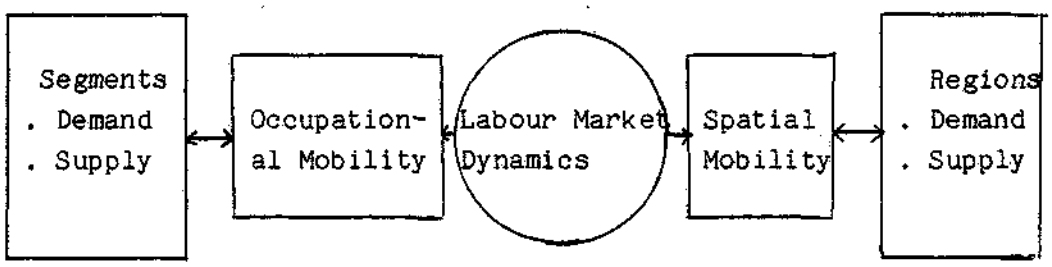

Fig. 1: Mobility Pattern of a Labour Market.

It is clear that the degree of mobility is a result of supply-demand conditions at the various segments, but also of the communication network and the information network.

The idea of spatial mobility for certain segments on the labour market may be illustrated by making a theoretical distinction between the spatial threshold value (the maximum distance people are willing to commute between home and work every day) and the spatial range (the minimum distance associated with a supply of labour which is sufficient to guarantee a continuation of production). Given the location of potential workers, the threshold value (v) and the range (r) can be translated into contour lines around a certain local labour market (see fig. 2). this idea bears some resemblance to the Christaller framework for commodities (cf. also Lloyd and Dicken, 1977).

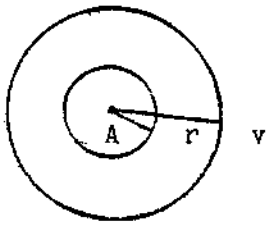

Fig. 2: Threshold and Range of a Local Labour Market.

It is easily seen that in the case of fig. 2 ($r < v$) there is no necessity for spatial mobility towards other areas, as long as demand and supply within the area are in equilibrium (no adjustment processes). If, however, demand is less than supply, the regional labour market is characterized by excess supply. Then adjustment processes such as wage decline or outmigration may take place. On the other hand, as sooon as $r > v$, the demand for labour can not be satisfied within the area itself (a situation of excess demand). In that case, adjustment processes (commuting from other areas, inmigration, wage rises etc.) may be necessary.

The previous remarks indicate already that a close interaction does exist between the functioning of labour markets and the geographical orientation of employers and entrepreneurs. Various aspects of this interaction will be further discussed in the next sections. The paper is organized as follows. Section 2 will deal with the issue of delineation of labour markets. Then the issue of dual labour markets and of segmented labour markets will be discussed in section 3 and 4, respectively, followed by a discussion of internal and informal labour markets in section 5. Next, section 6 will be devoted to the impact of technological changes on regional labour markets, while the chapter will be concluded with a section on regional wage and employment determination in regional labour markets.

2. Delineation of Labour Markets

The labour market is - as mentioned before - one of the major factor markets, in which supply and demand of labour (in both quantitative and qualitative terms) are determined simultaneously by the wage rate. In a regional setting, the main analytical focus is not only on equilibrium or disequilibrium tendencies on the regional labour market, but also on the spatial allocation of labour flows, on wage differentials between different segments of the market and on the locational and residential choice decisions associated with the labour market concerned. Consequently, the labour market is a major research issue in geography, regional economics and labour economics.

It should be noted that essentially two ways can be distinguished in delineating labour markets, viz. by type of industry and occupations on the one side and by geographical area on the other. Many labour market studies are primarily concerned with the analysis of national patterns and dvelopments in the national labour market. Then the demand for labour is often subdivided according to sectoral or professional categories. Under ideal circumstances, sectoral labour supply should correspond to the sectoral demand for labour. When the total labour pool would be homogeneous and when all agents would have full market information, a disparity between sectoral supply and demand would in the neoclassical view lead to an intersectoral adjustment process towards a wage rate such that it is equal all over the country and everybody who will work at that wage level is employed (see also Ratajczak, 1979). Due to sectoral discrepancies, however, such a smooth adjustment is not likely to take place. Furthermore, the unequal spatial dispersion of various sectors over the regions of a national system also leads to spatial frictions on labour markets. Consequently, it is important to pay attention to both an industrial sector typology and to a regional typology of labour markets (cf.

Mevissen, 1984). The industrial sector approach focuses particular attention on institutional and organizational aspects of factor demand and supply in various industries (for instance, the ways trade unions and entrepreneurs are organized and the impacts on industrial wage differentials), while the geographical approach regards a certain area as a spatial entity characterized by competitive forces among job seekers, by different mobility patterns, by wage differentials with respect to other regional labour markets etc.

The emphasis in the present contribution will be on regional labour markets. The demarcation of a regional labour market is far from easy, however. In some studies, a regional labour market is regarded as a local market, while in others such a market may pertain to a whole country or province. It will be assumed in our contribution, that a regional labour market is a more or less independent factor market, so that the majority of job seekers is indeed employed within the geographical area concerned. Consequently, the majority of commuting flows takes place within the regional labour market. Its geographical radius is determined by the available transportation infrastructure, by the mode and speed of transport, and by transportation costs. It will be clear, however, that especially in cross-national comparisons, a uniform and unambiguous delineation of a regional labour market is an illusion.
Such a demarcation is once more a problem, as there is no single labour market in one geographical area, but rather a multiplicity of sub-markets linked together in terms of spatial and occupational mobility. Furthermore, the geographical range of each sub-market may differ, depending on the type of jobs. For instance, specialized and highly qualified computer personnel may regard the whole country as their relevant labour market. Education, income, costs of migration, time preference and travel costs determine to some extent the geographical range of a relevant labour market for the individual. Thus, it has to be concluded that the demarcation of a regional labour market rests necessarily upon a fuzzy choice. Nevertheless, in empirical practice various rules of thumb are sufficient to delineate such markets, based on criteria such as commuting radius, centripetal orientation on an employment centre in a certain area, a relatively strong spatial concentration of labour demand, the existence of spatial wage differentials, or the possibility to change job without changing place of residence. Consequently, in practice the demarcation is often based on second-best solutions seeking for a compromise between the functioning of the labour market at hand, the data availability, and the institutional policy structure. The assumption of demarcated segements is also a central element in dual labour market theory, discussed in the next section.

3. The Dual Labour Market Theory

Dissatisfaction with the neoclassical approach to labour market analysis has led to the development of segmentation labour market theories. Segmentation theories were originally developed in the USA in response to shortcomings of the neoclassical approach to explain the labour market disadvantage of minority groups. The most important segmentation theory is the dual labour market theory.

In several studies on the labour market situation in various city areas empirical evidence could be shown for the existence of two segments (a primary and a secondary one) on the labour market, which were, to a large extent, operating independently from each other (Doeringer and Piore, 1971, Gordon, 1972, Piore, 1975 and Valkenburg and Vissers, 1978). The primary segment is characterized inter alia by advanced production processes, job stability and responsibility, favourable working conditions, effective production planning, good career prospects and high wages. The secondary segment is characterized by the oppositie factors: small-scale traditional production processes, job instability, unfavourable working conditions and low wages. Each segment has its own institutional organization and specific behavioural and strategic rules. Once an individual has entered the secondary segment, it is hard for him to shift to the primary segment. On the other hand, it is possible - though not likely - to shift from the primary segment to the secondary one. Thus, the position in the labour market is crucial in the dual market concept. The origin of this duality may be found in industrial dynamics in American cities. Large and high-wage industries appeared to move out of the city-centres, whereas small and labour-intensive industries remained in the centres. Consequently, peoply who could not afford to follow the large industries (for instance, ghetto-inhabitants) were obliged to fill up the low-wage jobs offered in these centres. Consequently, two separate segments emerged in urban areas. Basically, two explanations for the emergence of these segments can be provided (Vissers and Valkenburg, 1977):

- The changing industrial structure (between firms): This has led to the growth of large, capital-intensive industries, which are able to pay high wages and to improve and control their market position by adopting new technologies and by enlarging their sales market (see Valkenburg and Vissers, 1978 and Schoemaker et al., 1978). The secondary segment is composed of stagnating, labour-intensive industries; some of those are involved in irregular production activities for large industries (Edwards et al., 1975).

. The changing functional structure (inside a firm):
This has caused the creation of firm-tied jobs. Industries are gaining benefits from internalizing the firm-tied jobs inside the firm in order to minimize on the job training costs. Clearly, this explanation is closely linked to the concept of internal and external market segments.

This makes clear that duality forces are operating at both the firm level and the job level (i.e. inside the firm). Valkenburg and Vissers (1978) have even distinguished duality attributes from four points of view:

(a) Branches of industries:
Primary branches are characterized by rapid growth, high profit ration, high capital intensity ratio and a relatively high average wage level. Secondary branches are characterized by the opposite factors.

(b) Industries:
The size of the industry is thought to determine the position on the labour market, namely in the primary segment (large industries) or in the secondary segment (small industries).

(c) Jobs:
Some characteristics of primary and secondary jobs have already been mentioned before: job stability and responsibility, working conditions, career prospects and wage level versus instability, bad quality of labour and low wages.

(d) Employees:
Discriminating criteria for the existence of a dual labour market may be: race, sex, working attitude, and nationality (see Mok, 1975 and Schalkwijk, 1978). Individuals are then assumed to be treated on the basis of specific supply characteristics. In general, participants from minority groups have secondary jobs (see Gordon, 1972).

The concept of duality allows one to take also into account the dynamics of the labour market. Dynamic processes in a temporal context are related to shifts in industrial and functional structures (apparently both segments are related in a unidirectional way).

In conclusion, the dual labour market theory considers the inequality between groups on the labour markets as mainly a distributional equity issue. Especially the emphasis on the organizational aspects of labour

at a meso level is interesting in this context. From a geographical viewpoint the spatial duality of industries in an urban area is worth noting. Some weak and strong points of the dual labour market concept have been included in Table 1.

Our overall conclusion is that the dual labour market theory has called attention to several factors which were often neglected in traditional labour market research, but that its scope is too narrow to make it a useful general tool for regional labour market studies. Only in some specific situations (some American cities, cities in developing countries) this theory may still have some relevance. Therefore, in the next section some broader attention will be given to segmentation theories.

Table 1: Judgement of the Dual Labour Market Concept

Strong Points	Weak Points
. Integration of demand and supply characteristics in both an economic and a social sense.	. Strict duality is not easy to find; on the contrary, some empirical studies conclude that segmentational forces cause the emergence of a multiplicity of segments.
. Empirical applications have proven the existence of segmentation forces operating on industrial labour markets.	. The indicators for duality and hence for the primary and secondary segments themselves are not clearly defined.
. The concept is derived from reality (urban labour markets in the USA) and thus not from mere theoretical reflection.	. The relation with the concept of internal-external labour markets is not entirely clear.
. The concept is able to take into account dynamic processes operating on the labour market.	. The importance of and the processes behind strategic organizational behaviour of the market parties are ambiguous.
	. The role of spatial mobility is underrepresented.

4. Labour Market Theories on Segmentation

Piore (1975) has adjusted the original dual labour market concept by dividing the primary segment into upper- and lower tiers jobs. The upper tier of the primary segment is composed of professional and managerial jobs, which are distinguished from the lower tier by the higher wage and status, and the greater career prospects afforded.

In general, segmentation theories may be regarded as more realistic than duality theories. The main difference between the duality concept and the segmentation theories is the number of segments to be distinguished and their mutual interactions. Growth processes of segments are usually explained in the same manner (though segmentation theories allow to account for specific competitive forces between segments); changes in industrial and functional structures are considered to be the most important ones.

Mok (1975) has distinguished 4 segments; these segments result from a combination of the duality-concept and the concept of internal and external labour markets: an internal primary and secondary segment and an external primary and secondary segment. Valkenburg and Vissers (1978) have divided the labour market into 12 segments. These are shown in Table 2.

demand-side

		primary industries		secondary industries	
		primary jobs	secondary jobs	primary jobs	secondary jobs
supply-side	primary employees				
	secondary employees				

Table 2: Segmentation Scheme for the Labour Market

In Table 2 segmentation forces appear to prevail at both the demand side and the supply side (employees). Elsewhere, Vissers et al. (1977) have distinguished only three segments:

a) a stability-oriented segment (mainly internal);
b) the traditional labour market (by definition external);
c) a segment of low-classified and irregular jobs.

The abovementioned examples of segmentation theories show the heterogeneity in approaches. This concerns mostly the number of segments distinguished. To test the relevance of the segmentation concepts, obviously practical applications are required. In this respect, it is necessary to construct a set of relevant characteristics of the labour market (see also Doeringer and Piore, 1971, Mok, 1975, Piore, 1975, and Valkenburg and Vissers, 1978).

A distinction can be made between segmentation indicators at the demand side (branch of industries, industries and/or jobs) and segmentation indicators at the supply side (personal characteristics). An example of such a list of relevant indicators is presented below in Table 3. Clearly, not all of these indicators are entirely quantifiable. Several of them can only be measured in an ordinal or qualitative way. In such cases, multi-dimensional scaling techniques may be applied to draw quantitative inferences about segmentational forces (see for an empirical application Arntzen et al., 1979).

Table 3: Some Indicators for Segmentation.

Demand-side	Supply-side
. job stability and responsibility	. sex
. quality-of-working conditions	. race
. filling of vacancies (external or internal)	. age
. firm-specific job characteristics	. educational level
. career prospects (mobility within the firm)	. working attitude, with regard unemployment, aspirations, etc.
. size of the firm	. membership of unions
. capital intensity, labour productivity	
. average wage level	
. growth perspectives (based on investment ratios, e.g.)	

There are some weaknesses left in most segmentation theories. Again, time dynamics is dealt with in an unsatisfactory manner, while spatial dynamics is generally lacking. Therefore, attempts should be made to incorporate explicitly temporal and spatial dynamic forces in regional industrial labour market research. It remains also difficult to prove the existence of clear segments on the labour market. This presupposes the use of operational indicators for segmentation and the availability of techniques in order to operationalize these indicators. Valken-

burg and Vissers (1978) have presented some empirical results concerning segmentation tendencies on the Dutch labour market, while Osterman (1975) has shown some results regarding the U.S. labour market. Altogether it may be concluded that segmentation theories are richer in scope than the dual labour market theory, but the behavioural context (in terms of search behaviour of employees and of organizational and locational behaviour of firms) is not yet very well developed.

Having discussed segmentation theories in the present section, we move on to the related concepts of internal and informal labour markets in section 5.

5. Internal and Informal Labour Markets

In this section particular attention will be paid to two interesting aspects of labour markets, viz. internal and informal labour markets. In various countries, many - especially large-scale - industries have adopted a strategy of creating an internal labour market, which is almost seperated from the external regional labour market. Institutional rules and regulations rather than market forces are central elements in the pricing and allocation of labour within internal markets. The interest in internal labour markets has particularly been advocated by neo-institutional economists, who focused attention on institutional and administrative regulations for job allocation inside firms instead of market rules (see among others Doeringer, 1967, and Van Voorden, 1975). Internal labour markets are usually characterized by a limited accessibility at specific levels of skill for jobs, by an internal filling of new vacancies, and by improvement of skilled grades through internal training and educational programmes (see also Osterman, 1982).

The existence of large internal labour markets may have serious impacts on regional labour markets, as the selective accessibility to new jobs may generate separate sub-markets which may hamper an efficient allocation of jobs. Instabilities at a regional level are likely to occur in case of stagnation phenomena in firms with a large internal labour market. Then rather isolated segments without clear future perspectives on the regional labour market may emerge.

Internal labour markets with their on-the-job education appear to make up an increasingly large part of a regional labour market. So far, however, empirical research on internal labour markets and their interactions with the external labour market has hardly taken place, mainly due to lack of empirical data on internal labour market dynamics. This is no doubt an important gap in regional labour market research.

Another important gap in regional labour market research concerns the knowledge on informal labour markets. In many developing countries, the informal labour market accounts for a large share of total employment, but there is some evidence that this phenomenon is also rapidly expanding in Western industrialized countries. In contrast with the segmentation phenomenon, the informal labour market is strongly connected with the official labour market. The main difference between the informal and the formal labour market concerns the socio-economic position of workers. The informal part ios based on less stable production structures, a low degree of institutionalization, informal management structures and (often) small-scale handicraft, whereas the formal sector is based on efficient management, official and institutionalized labour organization, legally registered status, and a high rate of capital intensity. Consequently, official statistics usually take only the formal sector into account, so that information on the informal sector is very rare.

The informal part of the labour market has several important functions: it serves to solve or diminish frictions on regional labour markets through its greater flexibility, it is able to provide temporary and part-time jobs on an ad hoc basis without bureaucratic regulations and it may act as a breeding ground for innovative behaviour. Gershuny (1983) has explained the emergence of the informal sector from a productivity gap between the secondary and the tertiary sector. Wage rates in both sectors have gone up in the past decade to almost the same extent while the productivity rise in the secondary sector has been much higher, so that wage costs in the tertiary sector are relatively higher. This has led to a decline in the demand for services from the formal tertiary sector and has induced the emergence of informal circuits in the tertiary sector. The employees in the informal part are recruited from low-wage or low-skilled segments or from an unemployed labour reservoir (cf. radical economic theories).

As mentioned, the informal sector may assure a smooth adjustment of the regional labour market to new developments such as industrial stagnation, large flows of foreign inmigration, etc. Unfortunately, the effect of the informal sector on the functioning of regional labour markets has not been studied in many empirical analyses due to lack of information on this highly dynamic interwoven pattern. This is no doubt a potentially rich research area.

It is often argued that modern technology may induce a segmented labour market through the division of tasks over skilled (higher) and unskilled (lower) segments. The impact of such technologies on the functioning of regional labour markets will be discussed in the next section.

6. The Impact of Technological Change upon Regional Labour Markets

Technological changes in a spatial context may have three different aspects: First, the generation and origin of new technologies, second, the diffusion and adoption of new technologies, and, third, the impact of technological change. These three elements will briefly be discussed here (for more details the reader is referred among others to Nijkamp, 1986, and Gillespie, 1983).

The ways in which technological changes are generated have been the subject matter of extensive research in the past years (cf. Nelson and Winter, 1982). Much attention has also been devoted to the role of technological innovation in the context of long-term economic waves (cf. Kleinknecht, 1986). In this framework much emphasis is placed on entrepreneurial innovation behaviour, based inter alia on the depression-trigger, the technology-push or the demand-pull hypothesis.

Recently, also the earlier theories of Hoover and Vernon (1959) on the breeding place (or incubator) function of large agglomerations havev gained increasing popularity. These theories claim that urban areas - through their diversified labour markets, their accessibility as nodes on a spatial network and their flexible industrial structures - may act as the seedbeds for industrial innovations. A good example of this phenomenon can be found in the greater Boston area. The history of Route 128 (since the 1950's) shows that essentially the presence of an accessible knowledge infrastructure in the Cambridge/Boston area, the availability of inexpensive industrial areas and the presence of a favourable living climate were acting as driving forces for the offspring of new firms in the area concerned.

In the context of the present section, it is an important question whether large agglomerations are favouring innovative ability. The conventional urban economic view supports the hypothesis that city size induces the innovative potential of entrepreneurs. In recent years, however, it has been demonstrated that large urban agglomerations loose their innovative potential in favour of medium-sized towns (see Malecki, 1983). Apparently there are urban bottleneck factors that are prohibitive for a further expansion of innovative activities. In addition, there may be a close relationship between the phase in a product cycle and the locational requirements of a firm (see Malecki, 1983). These observations may imply that the incubator function is not necessarily best fulfilled in large cities, but may as well be fulfilled in smaller agglomerations. Therefore, it may be worthwhile to gather more empirical evidence regarding the relationship between industrial innovations and their geographical location.

Furthermore, the spatial dispersion patterns of technological change deserves some attention. The analysis of diffusion patterns has been an intensive subject in the geographical literature (see Pred, 1977, for instance). In this context, an important research issue concerns the question whether knowledge infrastructure (universities, R & D institutes) are mainly regionally oriented with respect to innovations, or whether - given their position on an accessible network - they may have a nation-wide effect. This is especially important for public policy aiming at fulfilling equity goals by means of the creation of knowledge and transfer centres in specifically designated areas. Thus, the regional dimensions (including the spatial diffusion aspects) of an innovation-oriented regional policy are of utmost importance (see also Mouwen and Nijkamp, 1985, and Pred, 1977).

In addition, one may raise the question whether a generic innovation policy (without discriminating among firms or sectors) may be successful in a regional context, given the specific locational aspects of innovative firms (focusing on spatially segmented markets, desiring high quality residential areas, or needing specifically-trained personnel in certain areas) (see also Thwaites, 1978). Consequently, it is extremely important to know how the innovation potential of regions can be favoured by a selective public policy (see also Andersson and Johansson, 1984). The answer to this question requires more detailed insight into the reaction patterns and the geographical orientation of entrepreneurs with regard to the supply of an innovation-oriented public R & D infrastructure (such as the provision of regional transfer centres).

Finally, some brief attention will be given to the impacts of technological change on the labour market. It is increasingly being realized that technological change has both a positive and a negative impact of the labour market (measured in terms of jobs) (see also Freeman et al., 1982, and Gunning et al., 1986). In addition, also qualitative changes are more and more taking place, so that also structural changes may occur on the labour market leading to the rise of new segments and the disappearance of old segments. This will of course exert a profound effect on the structure and evolution of regional labour markets.

7. Regional Wage and Labour Determination

As mentioned in sections 1 and 2, one of the major features of a regional labour market is its relative autonomy, so that each geographical area may have its own specific wage rate. Distance, communication and information barriers appear to cause spatially separated

markets with differences in factor payments, so that spatial equilibrium does not necessarily lead to equal wage rates.

Clearly, wage differentials may lead to spatial mobility. Wage differentials may act as a push-pull framework, while the wage determination itself may be based on either a free market or an institutionalized system. Psychological resistance factors may restrict geographical mobility. For instance, a favourable residential climate, living near friends or family, or duo-jobs of two partners may have a discouraging impact on spatial mobility between labour markets, so that wage differentials are plausible between different regional labour markets. Consequently, diversity of individual preferences is reflected in the functioning of regional labour markets.

But also within the same regional labour market wage differentials may occur, which is - apart from differences in training and education - inter alia due to the geographical size of the labour market, extremely high unemployment rates in an institutionalized market, a strong informal sector, a large share of an internal labour market, or a high degree of socio-economic inertia (see also Moser, 1962, and Muth, 1969).

It has to be added that institutional factors may also have a spatially discriminating impact on regional labour markets. For instance, if wage rates are negotiated at the national level, this may have a disturbing effect on regional submarkets, as demand and supply of labour in such separate markets can hardly react flexibly to a uniform national wage rate, so that a situation of upward and downward pressure on wage rates may simultaneously exist in separate spatial markets. Furthermore, uniform wage agreements are in many countries only sectorally-oriented, so that differences in sectoral concentration among regions may again exert a disequilibrating impact on regional labour markets.

Finally, it is worth noting that (racial, sexual, social, religious, etc.) discrimination may have a profound impact on the functioning of the labour market (including regional wage differentials). Especially the empirical evidence from the American situation (see Button, 1976, e.g.) indicates that discriminating behaviour on regional labour markets may lead to disequilibrium tendencies on these markets.

An important question in this context is the assessment of the demand for labour in regional labour markets. Conventionally, a macro- or meso-oriented approach has been adopted here; the assessment and prediction of the size of employment in regions or cities have often

made use of the economic base concept. A first test of economic base theory was provided by Pfouts (1957), followed by further contributions made by Harris (1958) and Tiebout (1958). This theory has ever since played an important role in regional employment research. The essence of conventional economic base theory is that, given an increase in basic employment, the regional employment can be expected to increase by some multiple - given by the multiplier - of the increase in basic employment, so that the growth of a region is related to the growth of its export activity.

The export base approach has clearly some serious limitations:

- the identification of the basic sector is not unambiguous,
- non-basic activities (or parts thereof) may have large employment impacts,
- competitive forces between regions and sectors are neglected,
- the interaction between wage rate and labour demand is assumed away,
- the export base multiplier is a crude indicator and neglects more detailed interindustrial reaction patterns,
- the theory is comparatively static in nature and is unable to take into account the effect of structural changes (like technological change),
- bottleneck factors (limited availability of scarce labour, institutional inertia, land use and infrastructure frictions) are neglected,
- the assumption of a smooth relationship between employment and population growth is usually invalid.

Given these limitations, it is clear that the predictive power of many economic base models was rather unsatisfactory. Consequently, the need for more appropriate analytical tools emerged. In this respect, various research directions can be observed; some of which have already been mentioned in previous sections:

- an extension of the economic base approach by means of (multi-)regional input-output models including demand for labour and investments,
- a further incorporation of the supply side by means of labour force participation rates, occupational classes, migration flows, dual or segmented market concepts, locational conditions for entrepreneurs, and residential conditions for employees,
- a further analysis of the growth potential of regions on the basis of development potential concepts (like accessibility, availability of amenities, etc.),
- a closer examination of spatial processes emerging from employment in certain locations, such as commuting, modal choice, etc.,
- research in the area of competitive forces among different sectors and/or entrepreneurs and the resulting impacts on wage rates, quali-

tative aspects of the labour market, etc.,

- an analysis of effects of technological changes and innovations on the labour market, including substitution effects between advanced technological capital and the labour force.

In the past decade, these elements have led to the design of regional labour market models, incorporated in a multiregional or national economic setting. More recently, also various types of disaggregate behavioural models for employer-employee interactions (including search models) have been designed. Altogether, various new ways of analyzing the complex mechanism of the regional labour market are emerging in current labour market research.

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