

Commuting and migrating: A multi-regional perspective

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Abstract

The "spatial mismatch hypothesis" describes a situation of disequilibrium between a "center" with high levels of unemployment and low levels of income, and "suburbs" with high labor demand and high levels of income. This paper attempts to find an explanation for such a situation by adding to the "two regions" model (center and suburbs) a third regional dimension – the periphery, and considering such factors as differences between the regions in land prices, agglomeration economies and diseconomies, and commuting behavior. Data from Israel seem to support a pattern of labor and population mobility where population migrates to the suburbs or to the periphery as a function of land prices, while compensating by commuting back to original places of work and by creating new agglomeration economies outside the center.

1. Background: Labor market as conceived by the "spatial mismatch hypothesis"

The "spatial mismatch hypothesis" states that the dispersal process of jobs from the center to suburbs creates a distorted equilibrium, with high levels of employment and income in the suburbs and unemployment and low income in the

center. This is attributed mainly to the existence of a "housing segregation" effect, preventing the poor population from migrating to richer areas. Bar-El (2006) tried to identify a mechanism of inter-regional labor markets that would explain the existence of such apparent regional imbalances, as a function of the influence of such variables as land costs, commuting behavior, and economic structures. He presented a survey of the theoretical background behind the "spatial mismatch hypothesis", and developed a general theoretical model based on two regions (center and suburbs) that would help in the explanation of the labor market behavior. We bring here a summary of the theoretical background and of the general model, adding a third regional dimension, the periphery, and test them with some data from Israel.

The "spatial mismatch hypothesis" (Kain, 68, 92) basically states that the process of job dispersal from the center to the suburbs induced a "people follow jobs" effect, leading to migration of labor force to the suburbs. However, people who can afford migration are mostly richer, while the poorer population remains in the center (Selod and Zenou, 06). This effect is further reinforced by a "housing segregation" or "income segregation" effect (Boustan, 07). Commuting is also limited because of the cost it implies and because employers prefer local workers. Therefore, in spite of an increasing labor demand in the suburbs, we find unemployment and low levels of income in the center (Ihlanfeldt and Sjoquist, 98). Empirical evidence is not always clear (see Gordon, Kumar and Richardson, 89, Holzer, 91, Martin, 04, Raphael, 98, Taylor and Ong, 95).

However, we find in the literature some evidence that migration to a given region is not necessarily driven solely by economic activity. Assuming the existence of a labor demand driven regional growth as shown by Mathur and Song (2000), it is found that increasing labor demand in neighboring regions (suburbs) can actually

attract population to the center (Khan, Orazem and Otto, 01). An important aspect is the potential for the achievement of equilibrium through commuting as an alternative to migration. However, the main conclusion is that commuting costs discriminate against the poor population in the center (Glaeser, Kahn and Rappaport, 08, Zenou, 02). Most of the labor force is unskilled and commuting costs are higher in proportion to their salary, leading to an increase in the gap between the center and the suburbs. Arnott (98) makes an important step forward by suggesting a general equilibrium model, in which the variables that are included relate to the distinction between skilled and unskilled workers and between types of economic activities, land prices, prices of goods, costs of commuting and land area.

2. Some factors reconsidered in light of empirical behavior

The Israeli experience in three regional levels as reported in the literature leads us to the elaboration of a set of rules or of principles that may explain the empirical situation of a regional equilibrium where various locations coexist at different levels of employment and income, with no "free market" movement of population or of economic activity from one region to another. We present here some of those principles, as described in a more formal manner by Bar-El (06), and in the next section provide some empirical findings from the Israeli case that tend to support them.

a. Job dispersal is not exogenous:

The "spatial mismatch hypothesis" considers job dispersal as given, or as a starting process that subsequently leads to the movement of some parts of the population. In fact, job dispersal should not be considered as an exogenous variable, but can be explained by the changing balance between agglomeration economies in

two (or more) regions, and by changes in relative land prices and in relative sizes of markets (for a detailed discussion of various types of agglomeration economies and diseconomies, see Parr, 04).

Exogenously induced job dispersal can indeed be caused by a public policy of incentives, or by transferring some public services or firms to regions out of the center. This has been done in Israel as a measure against unemployment in the peripheral regions, but most of the job dispersal processes in the past few decades have probably been endogenously-driven. This is mainly true for the dispersion of jobs from the center to the suburbs: the increasing cost of land in the densely populated center has led to the shift of economic activities to the "suburbs" or to smaller cities around Tel-Aviv that can supply land at a lower cost. Job dispersal to the more peripheral regions in the south or in the north of the country may still be attributed mostly to the exogenous factor of public policy, but the much lower land costs in those regions may also have played a role in the attraction of economic activities.

a. Agglomeration economies influence labor demand, but not as a linear function:

The mobility of economic activity from one region to another may be explained by the creation of better conditions in the new region. However, the dynamic growth of economic activity in a given region is heavily influenced by the existence of "agglomeration economies". These are defined by Isard (1956) as scale economies which are external to the firm, and internal to the city or the region. They include localization and urbanization economies. Still, agglomeration economies respond first with an increasing marginal productivity to agglomeration at the first stages, and later with a decreasing marginal productivity. This means that the dispersal process is limited, and that it may proceed to outer ring regions. Therefore,

economic advantages of investment in peripheral regions may not be apparent in the short run, but they can be revealed in the longer run. This is probably best illustrated by the stages of development and regional dynamics as analyzed by Catin (1995): The first and second stages of regional development are characterized by specialization, based on low cost production factors and low technology products, but the third and fourth stages require the development of agglomeration economies for the increase of productivity and of competitive advantage.

Following this rationale, "job dispersal" as described in the spatial mismatch hypothesis may actually be a sign of a healthy economic process and not necessarily of a degradation of the center. The metropolitan center of Israel, Tel-Aviv, has followed the path of many big cities in the world, showing stable levels of population and of economic activity in the last decades (while the surrounding regions have shown a continuous growth). The cities in proximity of Tel-Aviv have grown quite rapidly, probably reflecting the influence of a growing level of agglomeration economies. Still, the metropolitan center of Tel-Aviv has not necessarily shown any signs of degradation of economic activity, and the unemployment level there is still low. The more distant periphery has not yet shown any significant signs of the existence of agglomeration economies.

a. Agglomeration economies differ between economic sectors:

The location of economic activity (labor demand) in a region does not necessarily respond to the same factors in all sectors. Agglomeration economies may be stronger for a certain type of economic activity and weaker for another type. Consequently, instead of only considering economic concentration and high levels of labor demand in a region, we should differentiate between various types of economic activity, and we may then discover economic concentrations of various types in

various regions. We suggest the following distinction between types of economic activities:

1. Non-tradables: Production is linked to regional demand.
2. Tradable manufacturing goods: Production is not linked to regional demand and is highly sensitive to land prices.
3. Tradable services: Production is not linked to regional demand, is less sensitive to land prices, and is highly sensitive to agglomeration economies.

Again, empirical evidence in most countries shows that the center and the peripheral regions tend to develop different economic structures, from the point of view of the leading sectors. As will be shown later for the case of Israel, the metropolitan center tends to specialize in services, and the periphery in land intensive industry. Therefore, the tentative conclusion is that we do not necessarily have a situation where labor demand concentrates in one place and other places suffer from unemployment, but rather a situation where different places develop different types of economic structures, which may also result in different levels of employment and of income.

b. "People follow jobs" – not entirely accurate:

A basic assumption of the "spatial mismatch hypothesis" is that population tends to follow the labor demand. Given such an assumption, we can find a situation where labor demand moves from one region to another because of the prevalence of improved conditions in that region, and some of the population migrates to that region in order to be closer to employment opportunities. This means that the part of the population that cannot afford migration (the poorer part) would not be able to respond to labor demand mobility and therefore would remain unemployed in their region, as

stated by the mismatch hypothesis. We reconsider this too-simplistic assumption in the following two ways.

One is that migration is not caused solely by changes in the location of economic activity; an additional important factor is housing costs in the regions. Inter-regional migration may be a function of the gaps in housing costs between two regions, as compared with the gaps in other factors such as labor demand or wages. A worker may hardly decide to migrate to another region if he or she has a permanent job with a high level of wage that cannot be compensated by a lower housing cost in another region. However, the Israeli experience during the massive migration from the former Soviet Union to Israel in the 1990s shows that a peripheral region with a low level of labor demand but also with low-cost housing, may be attractive to immigrants who are not yet settled in a permanent job.

The other one is that while it may be true that people follow jobs, it is also true that "jobs follow people", in the sense that some economic activity depends on local markets (mostly the production of non-tradable goods and services, as stated above). There is a circular causation between jobs and people: jobs attract people (migrants or commuters), but population growth caused by lower housing prices induces labor demand for non-tradables, and may at a later stage also induce the creation of agglomeration economies. It is not yet quite clear at which stage this may happen, but the historical trend in Israel shows a growing tendency at least of the region neighboring the metropolitan center to increase production of non-tradables.

b. Migration and commuting are not necessarily alternatives to each other:

Another simplistic assumption that is implied in most models of labor market equilibrium is that migration and commuting are considered by the labor force as two alternatives: labor demand in another region leads the labor force to a consideration of

commuting to that region, or to migrating to that region, depending on commuting costs, housing costs, etc. They are actually defined simultaneously, as shown in a few labor market models (some, like Van Ommeren, Rietveld and Nijkamp, 00, also include the element of job mobility). But we must add that the actual behavior of the labor force implies that there may be a complementarity (and not only a trade-off) between migration and commuting, when housing prices induce migration away from jobs without discontinuing employment, through increased commuting (Romani, Surinach and Artis, 03, find for Catalonia that workers who have recently changed residence tend to commute more than others; see also evidence by So, Orazem and Otto, 01). As will be shown in the next section, we can see a trend of migration in Israel from the metropolitan center to neighboring regions, despite the fact of a stronger labor supply in the metropolitan center. This migration trend may be explained by the existence of low cost housing in the other region, which justifies migration while commuting back to the original region, without changing place of employment.

3. Empirical evidence from three regions in Israel

A complete and meticulous articulation is needed in order to transform all the speculations mentioned above into a real model that explains the behavior of the labor market. A first step was taken by Bar-El (06), who presented a set of equations for a two-region model, center and suburbs. We make here a second step by exposing some empirical evidence from the case of Israel, and adding a third dimension of the periphery region, in order to illustrate at least some aspects of market behavior, to help in the future elaboration of such a complete model.

Israel has a population of about seven million, within an area of about 20,000 km², distributed across six statistical districts (the West Bank and Gaza are not included in Israeli statistics, with the exception of East Jerusalem, which is included in the Jerusalem District). For the purposes of this article, we consider three districts: the metropolitan center (C), the suburbs (S), and the periphery (P).

The metropolitan center (C) is defined as the Tel-Aviv district; it includes the main urban center Tel-Aviv, which, together with a few smaller cities, forms the continuous urban area of Greater Tel-Aviv (Bar-El and Parr, 03). This has a population of about 1.1m, concentrated in an area of 170 km². Thus, 16% of the population is concentrated in less than 1% of the area of the nation, representing a high density of 6,700 persons/km².

The suburbs (S) region is defined as the so-called Center District and includes a wide area surrounding the Tel-Aviv District. Its population is comparable to (but somewhat greater than) that of the Tel-Aviv District, although it is distributed over an area almost eight times larger. Most of the population is urban, and is distributed among centers located within commuting distance of Tel-Aviv, the largest being Rishon Lezion, which has a population of around 175,000. Compared to the Tel-Aviv District, population density is relatively low (about 1,000 persons/km²), although it is still greater than that of other districts with the exception of Jerusalem.

Finally, the periphery (P) is defined as the South District, which covers the majority of the nation's area and includes the Negev desert, and has an extremely low population density. Most of its population lives in small towns, and the largest urban center, Greater Beer-Sheva, has a population of about 180,000, which is barely larger than the population of Rishon Lezion, the largest city in the Center District, and is

located at a distance of about 90 km south of Rishon Lezion and about 110 km south of Tel-Aviv.

We present the empirical illustrations concerning these three regions, in two main aspects: labor demand and labor supply.

(1) Labor demand: Dispersal of jobs

Empirical findings actually support the existence of a process of job dispersal from the center to the suburbs (as in the "spatial mismatch hypothesis"), apparently instigated by three main factors: the decreasing return to agglomeration economies in the center, the increasing return to agglomeration economies in the suburbs, and the changing proportions of land costs. However, according to our approach, such a process may explain the following patterns of spatial behavior:

- a. Labor demand volumes – stabilization of the process at the Center-Suburbs level, instigation of a new process at the Suburbs-Periphery level:

According to our approach, the "spatial mismatch" does not necessarily lead to labor market instability. Given the quality of the influence of agglomeration economies (first increasing return to agglomeration, later decreasing return), the process of job dispersal stabilizes after at a certain level. The changes that are induced by the proportion of land cost between the regions also play a stabilizing role.

Furthermore, this dynamism cannot be limited geographically to the center and suburbs. Although in the spatial mismatch hypothesis no further spatial level is considered, the inclusion here of a third level, that of periphery, can explain wider processes in the labor market. The same factors that led to increasing labor demand in the suburbs in relation to the center could now also lead to the same process between the suburbs and the periphery, as can be seen in Table 1. This table shows the changes in labor demand in the three regions during a period of almost three decades, divided

according to the business cycles in Israel: 1977-90 and 1997-2002 as periods of relative recession, and 1991-96 and 2003-2005 as periods of fast growth.

Table 1: Average annual growth rates of labor demand by period and region

Region/years	77-90	91-96	97-02	03-05	Total
C	1.5%	4.3%	0.3%	2.4%	1.9%
S	2.0%	6.9%	4.9%	3.3%	3.7%
P	2.5%	8.7%	2.4%	3.3%	3.8%

Some indication for the existence of such processes can be seen in the case of the three regions in Israel. The labor demand in the suburbs (the Center District) grew rapidly (3.7% a year in average during the whole period of 1977 to 2005) in comparison with that of the center (the Tel-Aviv district), that was quite stable during this period and hardly followed the population growth. The peripheral region (the Southern district), on the other hand, showed the same growing trend as that of the suburbs.

The growth period of 1991-96, which was also characterized by a heavy migration flow to Israel from the USSR, showed a rapid growth in the whole country, much higher in the periphery than in other regions. However, during the following period of recession from 1997 to 2002, the increase in labor demand was more concentrated in the suburbs.

- b. Labor demand qualities – mixed economic activities at the center, gradual transition from low level to high level activities in the suburbs:

The consideration of separate influences for separate economic sectors in terms of agglomeration economies and commuting helps in the understanding of a situation where the center is characterized by a dichotomic labor demand: low level activities related to non-tradable products that serve the demand for local goods and

services of the population that could not migrate (housing or income segregation), and high level types of activities related to tradable services, that possess an agglomeration economies curve with decreasing returns only at high volumes of activity. The suburbs would show first a rapid growth in non-tradables as a consequence of increasing population commuting to the center, and some growth in tradable goods activities, beginning with mostly manufacturing (as a response to changes in relative land costs), with a later growth of tradable services activities when sufficient levels of agglomeration have been achieved.

Labor demand in the various economic sectors was therefore classified into three groups, as detailed above. For reasons of simplicity, each of the main economic sectors was classified as one of the three groups, although it is clear that various specific activities in any given economic sector may have different classifications:

- *Non tradable*: mainly public and community services and services for households by domestic personnel.
- *Tradable manufacturing*: all manufacturing activities.
- *Tradable services*: mainly banking, insurance, and other financial institutions and business services.

In the following three tables we describe the changing patterns of labor demand during the last 30 years for each of the three categories. The results show the apparent existence of the behavioral patterns as described above:

The suburbs as can be seen in Tables 2 and 3; in the end of the 1980s the non tradable sector began to increase rapidly and a few years later it facilitated the conditions for the acceleration of the tradable services sector in the middle of the 1990s.

As to the periphery, it can be seen that it enjoys the highest growth levels of labor demand in the manufacturing sector, as this sector is relatively sensitive to the land prices. Actually, the share of the manufacturing sector in the periphery out of the total manufacturing sector in Israel almost doubled,. While in the center that share decreased by half.

Table 2: Average share of labor demand for non-tradable services by period and region

Region/years	77-90	91-96	97-02	03-05	Ratio 05 to 77
C	0.28	0.27	0.24	0.23	0.7
S	0.18	0.19	0.23	0.23	1.2
P	0.09	0.11	0.12	0.12	1.2

Note: In this table and the following tables, the other regions of the country are not included, which explains why the total of each column is not equal to 1.

Table 3: Average share of labor demand for tradable services by period and region

Region/years	77-90	91-96	97-02	03-05	Ratio 05 to 77
C	0.56	0.50	0.43	0.40	0.7
S	0.10	0.13	0.21	0.24	3.3
P	0.05	0.07	0.07	0.08	2.2

Table 4: Average share of labor demand for manufacturing by period and region

Region/years	77-90	91-96	97-02	03-05	Ratio 05 to 77
C	0.30	0.24	0.18	0.17	0.5
S	0.23	0.23	0.26	0.27	1.2
P	0.11	0.12	0.15	0.15	1.7

First, as expected, the labor demand for non-tradable services increases in each region more or less as a function of the respective demographic growth. We can see in Table 2, for example, that the center had a 28% share of the labor demand for non-tradable services on the average during the period of 1977 to 1990, and this share decreased constantly over the years, following the decreasing share of the center in the population, reaching an average of about 23% during the last years, from 2003 to 2005. The last column in the table shows that the share of the center in labor demand for non-tradable services decreased by about 30% (see ratio of 0.7) from 1977 to 2005. In parallel, the share of the suburbs and the share of the periphery constantly increased over the years, following the increase in their share of the population, stimulating the basis for agglomeration economies.

Second, we find a constant decrease in the share of the center in labor demand for tradable services, against a sharp increase in their share in the other regions, especially in the suburbs, an apparent response to decreasing agglomeration economies in the center, and to a process of increasing agglomeration economies in other regions.

Finally, the share of the periphery in labor demand for manufacturing activities increased more rapidly than that of any other region, again as a probable result of relative sharply decreasing agglomeration economies mostly in the center, as a consequence of the higher component of land prices in manufacturing: the share of the center in 2005 is no more than half its share in 1977 (see Table 4).

(2) Labor supply: Migration and commuting

The spatial mismatch hypothesis is generally explained by an inadaptability of labor supply through migration or commuting to new places (in the suburbs) of labor demand. Migration is hindered by the so called "housing segregation" or "income

segregation"; commuting of the labor force from poor center areas to richer suburbs is reduced because of the relatively high cost of commuting for unskilled workers.

Commuting from the suburbs to the center is generally assumed as non-existent. We try here to provide a different and more detailed explanation of migration and commuting, and their influence on the equilibrium of the population distribution and labor markets.

a. Migration

The traditional assumption that serves as a basis for the spatial mismatch hypothesis claiming that "people follow jobs" is complemented here by the assumption that people follow low housing cost as well. Furthermore, the generally accepted assumption that migration and commuting are necessarily alternatives is rejected here; they may also be complementary. We can therefore show the existence of three patterns, based on combinations of job-driven and housing-driven migration:

- (1) One is the regular migration for jobs, as in the spatial mismatch hypothesis.
- (2) The second pattern is the migration of population from one region to another, mainly driven by the increasing relative cost of housing in the first region, even if the expectation for a job in the second region is quite low. This is the case when the influence of housing is stronger than that of labor demand. This may happen mostly with workers with high job mobility (confident in finding a job in the future after migration to any place) or with new entrants to the labor force who are not yet strongly linked to a job (young persons joining the labor force, or new immigrants).
- (3) A third one is a migration caused by changes in housing price proportions as above, but strengthened by low commuting costs, permitting the keeping of jobs at the region of origin. Here we have a case of complementarity (instead of trade-off)

between migration and commuting: low cost of commuting enables migration and benefits from lower housing costs.

Table 5: Average annual rates of population growth, by period and region

Region/years	77-90	91-96	97-02	03-05	Total
C	0.9%	0.7%	0.3%	0.8%	0.7%
S	2.9%	3.6%	3.2%	2.3%	3.1%
P	2.2%	5.7%	2.9%	1.9%	3.0%

Table 6: Average annual migration balance per thousand population, by period and region

Region/years	77-90	91-96	97-02	03-05	Total
C	-3	-15	-13	-1	-7
S	7	7	14	9	9
P	-5	13	0	1	0

Table 7: Average annual growth of labor supply, by period and region

Region/years	77-90	91-96	97-02	03-05	Total
C	1.2%	2.9%	0.9%	1.6%	1.5%
S	3.2%	4.8%	4.9%	2.8%	3.8%
P	3.1%	8.5%	3.3%	2.0%	4.1%

The data in the tables above indicate that:

- 1) Labor supply increases very slowly in C (the district of Tel-Aviv), excluding the period of 91-96 that was characterized by a strong flow of immigration mostly from the former Soviet Union (though it was weaker in C), indicating a steady process of out-migration, mostly to S.
- 2) Migration to S during the 13 years from 1977 to 1990 is concomitant with an increasing gap between labor supply and labor demand in that region. During that period, unemployment levels remained as low as in C,

indicating that migrants from C to S continued mostly in their employment at C, as will be seen next in commuting figures.

- 3) This process creates agglomeration economies in S, that is explained by the fact that since the 1990s the increase of labor demand was higher than the increase in labor supply in S.
- 4) This process of adaptation seems to have stabilized during the last few years, with a stable population in C, and a balance between the growth of labor demand and labor supply in S.
- 5) During the period from 1977 to 1990, the periphery experienced an increase in labor demand that was higher than other in regions, and this can be attributed to the natural rapid population growth. However, this growth was much lower than the growth in labor supply (and can be attributed to the too low level of agglomeration economies), leading to a negative migration balance. The longer inter-regional distances disabled the effect shown above of migrating to the periphery for low cost housing and commuting to the center or suburbs. The heavy migration to the periphery during the period of 1991-1996 was due to the low housing cost for new immigrants who were not yet linked to a job. The parallel increase in labor demand stimulated by the government enabled this process. In the period of 1997-2002 the labor demand growth is again slower than that of the labor supply, leading to a migration balance back to 0, as well as to steady high levels of unemployment.

b. Commuting

The following tables are a simple illustration of the changes in commuting patterns.

Table 8: Average share of out commuters from the region out of labor supply, by period and region

Region/years	77-90	91-96	97-02	03-05	Total
C	13%	13%	16%	17%	14%
S	30%	30%	30%	28%	30%
P	12%	12%	12%	11%	12%

Table 9: Average share of in commuters to the region out of labor demand, by period and region

Region/years	77-90	91-96	97-02	03-05	Total
C	21%	27%	34%	41%	27%
S	17%	19%	21%	21%	19%
P	6%	6%	6%	5%	6%

Table 10: Average unemployment rates, by period and region

Region/years	77-90	91-96	97-02	03-05	Total
C	5.2%	7.7%	7.9%	8.6%	6.7%
S	5.2%	8.4%	8.0%	9.5%	6.9%
P	7.3%	11.8%	11.8%	12.4%	9.7%

The data in the tables support some of the principles of our approach:

- 1) The heavy migration out of the center as shown above does not lead to any diminution in its economic role: the share of commuters to the center increases constantly from an average of 21% in the 1970s and 1980s, to an average of 41% of the labor demand in the recent years. This supports the thesis of a "housing cost driven" migration out of the center to the suburbs, which is enabled by the ability to commute back to jobs in the center. Recall that the share of the center in total labor demand did not grow and even decreased during this period.

- 2) The share of commuters from the suburbs out of the labor supply is quite stable during the years (30%), showing a good integration into the regional economy: the heavy migration to the suburbs was followed by a parallel growth in labor demand, generated by the creation of agglomeration economies (tradables) and by increasing market demand (non-tradables). Another sign is the growing attraction of commuters from other regions to the suburbs. Still, in absolute terms, the number of commuters from the suburbs (with a growing labor supply) to the center (with a stable labor supply) grows constantly, as a consequence of the "migration with commuting" pattern.
- 3) Commuting is not the answer to labor market changes in the periphery: the share of commuters out and in is low, and most important, does not respond to any changes in the labor market. The result is a heavy level of steady unemployment in the periphery.

4. Conclusions

Beginning with the concept of the "spatial mismatch hypothesis", we have attempted to show that the understanding of the labor market equilibrium should take into consideration the existence of a wider regional perspective: beyond the relations between center and suburbs, the addition of the third dimension of the periphery helps in the understanding of the mechanisms of the labor market. Some empirical data from the case of Israel have illustrated some of our considerations.

The data seem to support our argument that the "spatial mismatch" does not necessarily lead to labor market instability. Given the quality of the influence of agglomeration economies (first increasing returns to agglomeration, later decreasing

returns), the process of job dispersal stabilizes after a certain level. The changes that are induced in the proportion of land cost between the regions also play a stabilizing role.

Furthermore, this dynamism cannot be limited geographically to the center and suburbs. The inclusion here of a third level, that of "periphery", can explain wider processes in the labor market. The same factors that led to increasing labor demand in the suburbs in relation to the center could now lead also to the same process between the suburbs and the periphery. The data show that in the end of the 1980s the non tradable sector in the suburbs began to rapidly increase, and a few years later it facilitated the conditions for an accelerated growth of the tradable services sector in the middle of the 1990s. As to the periphery, it enjoys the highest growth levels of labor demand in the manufacturing sector.

The generally accepted assumption that migration and commuting are necessarily alternatives is rejected here: they may be also complementary. The heavy migration out of the center does not lead to any diminution in its economic role: the share of commuters into the center increases constantly, from an average of 21% in the 1970s and 1980s, to an average of 41% of the labor demand in more recent years.. This supports the thesis of a "housing cost driven" migration out of the center to the suburbs, which is enabled by the ability to commute back to jobs in the center.

In the periphery we can also identify a "housing cost driven" migration, as illustrated by the growing migration balance, which shows that the assumption of "people follow jobs" is not necessarily true. However, the cost of commuting from the periphery to the center region is relatively high, and thus we cannot identify any pattern of "migrating and commuting". Actually the data shows that in the periphery the share of commuters out and in is low and most important, does not respond to any

changes in labor market. The result is a heavy level of steady unemployment in the periphery.

The elaboration of a rigid theoretical model in the future taking these arguments into consideration, and the empirical testing of such a model, would widely contribute to the understanding of the inter-regional behavior of the labor market.

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