

Spatial mismatch

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Glossary

Commuting costs: Any time or monetary costs incurred while traveling to work.

Endogeneity: Statistical issue which prevents the inference of causality in a regression.

Job decentralization: The trend of jobs locating in or relocating to the suburbs at a faster pace than in the central city.

Labor-market outcomes: A term used in the spatial mismatch literature that refers to the impact of spatial mismatch on unemployment and wages.

Natural experiment: A change in conditions due to external factors which makes it possible to circumvent endogeneity issues and infer causality.

Controlled experiment: An artificial design set out by an evaluator to circumvent endogeneity issues and infer causality.

Redlining: Discrimination behavior based on the area of residence, as if circled by a red line on a map. This is also referred to as territorial discrimination.

Spatial mismatch: The physical disconnection between places of work and places of residence, which can have adverse labor market effects. The term is most often used to describe the location of inner-city African Americans away from the suburban jobs they could occupy. By extension, it also refers to the whole mechanism leading from disconnection from jobs opportunities to adverse labor market outcomes.

White flight: The flight of white families out of racially-mixed neighborhoods.

Synopsis

Spatial mismatch is a topic in urban economics that relates the bad labor-market outcomes of unskilled groups, mainly unskilled ethnic minorities, to the physical disconnection between the neighborhoods where these groups reside and job locations. Initiated in the 1960s in the context of US cities, the topic gave rise to an abundant literature over five decades which is now expanding beyond the US context. In this chapter, we review the main causes of spatial mismatch, the potential mechanisms at work and the empirical tests that have been carried out. We also discuss policy and research implications for the future.

¹ The views expressed in this paper are those of the authors and do not necessarily reflect those of the World Bank, its Board of Directors, or the countries they represent.

Introduction

Spatial mismatch is a topic in urban economics that relates the bad labor-market outcomes of unskilled groups, mainly unskilled ethnic minorities, to the physical disconnection between the neighborhoods where these groups reside and job locations. The topic, which emerged in the US context, was initiated by the economist John Kain in 1968 to account for the particularly high unemployment rate and low wages among inner-city African Americans. Spatial mismatch immediately became a key focus of the urban debate with the Kerner Commission² designating the lack of local economic opportunities available to inner-city blacks as a major cause for the riots that had burst out in many black neighborhoods during the long, hot summers of the mid-1960s. It also became the focus of an abundant literature in urban economics.

Kain's initial contribution was a simple intuition (the so-called Spatial Mismatch Hypothesis, or SMH hereafter) which standard version revolves around the following twofold argument:

- (i) Job decentralization (which started in the 1940s) combined with housing market discrimination in the suburbs causes inner-city blacks to be residentially disconnected from suburban job opportunities
- (ii) The physical disconnection from jobs exacerbates the bad labor-market outcomes (high unemployment and low wages) of blacks residing in central cities

Kain's test of the SMH initially focused on the specific cases of Detroit and Chicago, two cities where blacks were highly segregated. It mainly consisted in checking that there was a positive correlation between the percentage of jobs held by blacks in a given neighborhood and the percentage of black residents in the same neighborhood, suggesting that the employment of blacks depended on the local availability of jobs. Kain estimated that restrictions on residential choices could have cost Afro-American workers in Detroit as many as 9,000 jobs and in Chicago as many as 24,600 jobs.

Although the American urban landscape has changed since the 1960s, spatial mismatch has remained an important issue. The physical disconnection of blacks from jobs in general and from retail jobs in particular continued to increase until the nineties and only started to decrease afterwards.

The persistence of social ills in central cities with few entry-level jobs opportunities justified the continuous scrutiny of spatial mismatch over the years. The initial intuition gradually evolved into a fully fledged theory with a corpus of models, empirical tests, policy recommendations, and controversies.

The research program on spatial mismatch followed several directions. While empirical works tried to improve the statistical methodology and provide adequate tests of the SMH, theoretical models shed light on the mechanisms whereby disconnection from jobs may cause unemployment and low wages, in turn laying the ground for refined empirical tests and reformulations of the SMH. Recent advances include the consideration of contexts where the

² The National Advisory Commission on Civil Disorders (1968) was appointed by President Lyndon Johnson to investigate the causes of riots. It was chaired by Illinois governor Otto Kerner Jr and became referred to as the 'Kerner Commission'.

disconnection of African Americans from jobs may result from market forces, as well as investigations of the relevance of spatial mismatch for other minority groups and in other countries.

The disconnection of ethnic minorities from job opportunities

Kain's initial formulation of the SMH stressed specific causes for spatial mismatch and is rather vague about the mechanisms leading to harmful labor-market outcomes. A more general approach is warranted though, investigating:

- (i) the diversity of causes that can lead to spatial mismatch
- (ii) the variety of spatial mechanisms that may influence the labor market outcomes of ethnic minorities

Theoretically, spatial mismatch can be caused by either restrictions on or barriers to residential choices. In this respect, Kain's analysis stressed housing-market discrimination as the main cause for the persistence of black residential concentration in inner cities, while jobs (and whites) had began to suburbanize.³ In practice, housing discrimination may be enforced by real estate agents in suburban areas who hide house offers from potential buyers that belong to minority groups. This can be explained by sheer prejudice or customer discrimination (e.g. if selling houses to blacks makes neighborhoods less attractive to future white customers). There is significant evidence of this phenomenon occurring in US cities. Indeed, controlled experiments have shown that real estate agents propose fewer visits to black customers than to white customers. In addition, sheer and statistical discrimination on credit, mortgage and insurance markets may also prevent blacks from relocating to the suburbs.⁴

Other types of restrictions on the functioning of housing markets that can cause spatial mismatch involve public interventions. In white suburbs, locally-voted zoning regulations such as minimum lot sizes may indirectly be used to prevent a possible inflow of low-income minorities. Housing policies may also contribute to prevent black suburbanization when sites for housing projects are chosen within city centers where land is cheaper and where blacks already live.

Several other channels can explain how spatial mismatch can occur even in the absence of restrictions on residential choices. In land use models, differences in human capital and income translate into residential sorting along income (and the ability to pay for housing) and this sorting can disadvantage minority groups in terms of job accessibility. Segregation, possibly at a distance from job locations, may also occur when households have racial preferences for the racial composition of their neighborhood (either because of distaste for the other group which is at the origin of the so-called "white flight", or because of the willingness

³ The reasons for the job decentralization within metropolitan areas may include various reasons such as the need for cheaper space associated with industrialization, flight from inner-city criminality, or relocation close to a suburbanized labor pool.

⁴ Statistical discrimination in lending occurs if an observable characteristic like ethnicity is used as a proxy for unobservable characteristics to determine whether customers are credit worthy. If lenders have a negative prior on blacks, then particular individuals who should otherwise obtain credit will not because they are wrongly attributed the expected average unobserved characteristics of their group.

of minorities to live among themselves as in the “ethnic enclave” scenario). Minorities may also be reluctant to relocate to white neighborhoods because of the hostility they might feel in white areas. Finally, ethnic minorities may have preferences for public goods or amenities that differ from whites. With households voting with their feet, this might cause the residential segregation of black households in inner cities while white households reside in the suburbs (where many entry-level jobs happen to be located).

The labor-market implications of spatial mismatch

The spatial mismatch literature has come up with a variety of possible mechanisms whereby disconnection from job opportunities can affect the labor-market outcomes of ethnic minorities. These are summarized below:

- (i) When workers reside too far from places of employment, they will be deterred from accepting a job offer whenever the proposed wage net of expected commuting costs does not exceed their reservation wage. This argument relies on the high level of both time and monetary transport costs and is particularly relevant for low-paying jobs for which transport expenditures are likely to represent a large fraction of the corresponding wages. This commuting cost effect can further be exacerbated by the low rate of motorization among low-skilled workers or the low quality of the public transportation system, which may not properly serve the needs of poor neighborhoods.⁵
- (ii) The efficiency of job search may decrease with distance to job opportunities as distance makes it more difficult for job seekers to obtain information on job vacancies. This argument is justified by the fact that some firms resort to local recruiting methods such as ads in local newspapers or “wanted” signs. Workers may be inefficient in their job search as they may be searching in the wrong places where the local labor demand does not match their skills.
- (iii) When search costs are high, workers may restrict search to a short perimeter around their place of residence. In the US, it is indeed observed that black workers apply less to suburban jobs than to central-city jobs. This search cost effect can be exacerbated by the bad state of public transportation or by minority worker’s poor access to cars. In the case of blacks in the US, it has been shown that increasing their motorization or decreasing their average distance to search areas is likely to lead to job search within a larger geographic scope.
- (iv) The intensity of the search effort may be lower among workers who reside in poor areas as they may feel less pressured to search for a job in order to pay their rent. From a spatial mismatch perspective, this is consistent with the situation of inner-city minority neighborhoods where distance to suburban job opportunities accompanies lower housing prices.
- (v) Firms may discriminate against long-distance commuters as these workers’ productivity could be lower. This argument is based on the fact that long-distance

⁵ This is typical not only of US cities but also of other contexts as in sprawling South African cities where townships are located very far away from city centers.

commutes are likely to make workers tired or more often late in the event of congestion or unexpected disruption of transportation services.

- (vi) Employers may discriminate against residentially segregated workers because of the stigma associated with their residential location such as bad work habits or a greater likelihood to be criminal. This phenomenon is often referred to as “redlining” to indicate that individuals living within the boundaries of an imaginary red line drawn by employers are discriminated against.
- (vii) Employers from majority areas may discriminate against minority job applicants for customer discrimination motives. In the US, suburban firms may be reluctant to hire black workers because this could displease their white customers.

Observe that these explanations of the SMH can be grouped into two types, depending on the nature of the physical disconnection at work. Whereas (i), (ii), (iii) and (v) directly involve distance, (v) and (vii) rather involve the separation between minority neighborhoods and the places that concentrate job opportunities without necessarily requiring distance to play a significant role. (iv) could involve both types of mechanism.

Tests of the Spatial Mismatch Hypothesis

Most of the spatial mismatch literature is empirical and revolves around tests of a more or less standard version of the SMH. In the absence of spatial mismatch models—which only emerged in the late 1990s—early works did not convey a clear understanding of what was to be tested and interpreting these results in view of an articulate theory was not always possible. This confusion probably contributed to the mid-1980s controversy surrounding spatial mismatch and the idea that race rather than place was the problem. But a series of sociological work which presented new evidence on the lack of job opportunities in central cities and its effect on the black underclass provided a new impetus to the spatial mismatch literature and a renewed interest for testing the SMH.

Such tests typically try to identify a causal link between residential disconnection from jobs and labor market outcomes. But the need to adequately address the endogeneity of location has plagued the spatial mismatch literature for years and fueled the related controversies. Although the abundant empirical literature on the topic provides mixed evidence of spatial mismatch, it must be acknowledged that the most convincing and recent works—which make use of instrumental variables, natural experiments or sensitivity analyses to address endogeneity issues—are rather supportive of the SMH. We present a selection of the results from these studies below, distinguishing between those which investigate the general validity of the SMH and those which focus on a specific mechanism.

General tests

The general tests of the SMH focus on the effect of the centralization of minorities and/or the decentralization of jobs on minority unemployment—with variants looking at the impact of job accessibility or job density on unemployment—but without specifying any specific mechanism through which the effect could percolate.

In line with the SMH, there is evidence regarding the effect of the immobility of central-city blacks on their labor market outcomes. For instance, it has been shown empirically that the unemployment rates of blacks increased in cities where jobs moved out of black residential locations.

While these results are suggestive of spatial mismatch effects, a direct test of the spatial mismatch hypothesis should focus on whether blacks would be less unemployed if they were better connected to jobs (for instance through increased residential suburbanization or less job decentralization). In this respect, it has been shown that the larger centralization of blacks relative to that of whites accounts for around half of the black-white employment differential among young workers living in the central cities of large MAs. Alternatively, an increase in the fraction of jobs located in the central city raises black employment relative to that of whites.⁶

Variants of these direct tests look at the overall effect of local job density measures—often at the zip code level—on the employment of black male residents. Another variant focuses on how differences in job accessibility also account for differences in job finding among blacks and whites.

General tests for spatial mismatch in European cities have also been carried out although the studies are scarce and led to mixed results. In London, it has been found that job density is correlated with the employment of some ethnic groups. But no evidence could be obtained in the Paris and Brussels region, where job accessibility does not decrease the chances of unemployed minority workers to find a job (in these cities the problem seems more to be one of residential segregation). In contrast, in Sweden—a country where international refugees are randomly assigned a place of residence—it has been shown that the refugees located in areas with poor job access subsequently experienced higher unemployment rates.

Specific tests

Specific tests of the SMH have mostly been carried out in the US context, usually on the role of commuting costs or their effect on job search.

Concerning commuting costs, the most appealing tests are natural experiments following firm relocations. A famous example in the literature examines the relocation of a Detroit firm to the white suburb of Dearborn on the decisions to move or quit among black and white employees. It has been found that whites whose commuting trip had lengthened because of the relocation were likely to move, whereas blacks whose commuting trip had lengthened were likely to quit. This experiment lends credibility to the idea that blacks are somehow more constrained than whites in their residential choices and that high commuting costs can deter them from being employed.

Other commuting-related tests focus on the organization of public transport systems or access to cars. In Atlanta, one-third of the differences in the black employment share between central city and suburban fast-food restaurants is attributable to the fact that suburban firms are less frequently served by public transit. Similarly, the expansion of the railway system in San Francisco to a predominantly white, high-growth and low unemployment suburb increases the relative employment of minority workers near the station. The lack of access to automobile is

⁶ The centralization of blacks is usually instrumented by historic features of the housing stock or historic data on black residential centralization. The centralization of jobs is usually instrumented by the composition of economic activities.

also proven to be an important factor in generating poor labor market outcomes, implying that a hypothetical raise in the minority car-ownership rates to the level of the white car-ownership rate should considerably narrow interracial employment rate differentials.

Concerning job search, it has been estimated that whites have a better job search quality than blacks because they search in areas where employment growth is higher. The difference in spatial job search quality could explain a large part of the black-white gap in unemployment rates.

Finally, a series of empirical studies provide support to the existence of customer discrimination in a spatial mismatch perspective. Concerning wages, it has been estimated that as distance from the CBD of Atlanta increases, there exists a negative effect on wages from greater customer discrimination (even though this negative effect is dominated by a positive wage gradient effect). Concerning employment levels, it has been found that the share of fast-food restaurant jobs held by blacks is smaller in the suburbs of Atlanta than in the central-city and that one third of that difference is attributable to the city/suburban differences in the race of managers and customers. The racial composition of customers has also been shown to have a significant impact on the race of who gets hired.

Policies

The above theories and empirical tests provide convincing evidence that spatial mismatch can entail different market failures in the housing and/or labor markets that may justify policy interventions. In this respect, an important interrogation is whether the role for policy should be to suppress the causes of spatial mismatch, or rather accept them while correcting their harmful labor-market implications. Conceptually, there is no reason to favor one option over the other but the choice should be guided by policy makers' understanding of the sources of spatial mismatch, the identified market failures, the costs and the feasibility of policy interventions.

Addressing the causes of spatial mismatch

As the immobility of minority workers is at the origin of spatial mismatch, any restriction on residential choice should be addressed through an increased enforcement of the law in order to fight housing-market discrimination, or through the facilitation of residential racial integration. In this respect, several US cities have experimented interesting relocation programs providing black families with vouchers to facilitate their relocation to white or racially mixed areas, carrying the hope that residential mobility would have a positive impact on wages and employment.⁷ Observe that although these experiments were more intent on facilitating racial residential integration, relocation to white neighborhoods would most probably also involve a move closer to jobs. Such experiments included the famous Gautreaux Program in Chicago (1976-1990) and the Moving to Opportunity (MTO) program in Baltimore, Boston, Chicago, Los Angeles and New York (1994-1999). To our knowledge, only the latter provided an adequate design for statistical evaluation and its assessment showed that the effect on unemployment was not significant. Furthermore, even if such programs were indeed successful in reducing unemployment, it remains unclear whether these

⁷ An alternative scheme could involve providing financial incentives to suburban jurisdictions to accept more low-income housing projects.

programs could be scaled up. They could also entail significant negative effects on those left behind.

Rather than moving people to jobs, another option consists in moving jobs to people, namely providing tax incentives for firms to locate in distressed areas that experience low job densities. In Atlanta, it has been estimated that neighborhood-based tax incentives had a positive effect on the neighborhood's share of regional employment, but it remains to be shown that these incentives had an effect on local hiring.⁸

Addressing the mechanisms of spatial mismatch

Given the difficulty of moving both people and jobs, policy makers are left with a third option, which is to improve the connections between people and jobs.

The main intervention is through transport policies, either by providing vouchers to buy cars or by improving public transport (through public or even private companies that may complement the existing transportation system). The rationale for promoting cars is their efficiency for complex itineraries, but the role of public transport should not be downplayed as suggested by the evidence presented in the empirical section above. Improving transport can help address spatial mismatch to the extent that it decreases commuting and search costs, or improves the search efficiency or the productivity of workers (according to mechanisms (i), (ii), (iii), and (v) detailed in section 3).

If the lack of information on job opportunities is believed to be a major problem associated with spatial mismatch, then transport policies can be complemented by policies to improve the information central-city residents have about job opportunities throughout the metropolitan area. This could be addressed through enhanced publicity concerning all job offers throughout the city using information and communication technologies.

Finally, it should be noted that transport policies are inadequate to address redlining and customer discrimination (mechanisms (vi) and (vii) above), and the need in this case is for anti-discrimination policies.

Concluding remarks

Although the subject of controversies and mixed empirical results, the spatial mismatch literature and its recent advances are rather conclusive of an important problem in US cities. It appears that spatial mismatch is probably city-dependent and more relevant in big cities where the disconnection between minorities and jobs is greater. Many of the potential mechanisms though remain to be tested.

The spatial mismatch literature has opened up to minority groups other than African Americans and showed the existence of a similar problem for these groups. Hispanics in particular are also disconnected from jobs and harmed by spatial mismatch, although to a lesser extent than blacks. This is consistent with the theory that the more a group is disadvantaged on the labor-market, the more its labor-market outcomes become dependant on location. The case of women should also be distinctly analyzed as their tendency to hold

⁸ Part of the literature on Enterprise Zones is rather pessimistic on this possibility, and believes that these policies have no long-lasting effect on local employment.

clerical jobs rather than manufacturing jobs relates to different patterns and intensities of physical disconnection from jobs. A major specificity is also that women are often time-constrained by family duties, which can make them more dependent on proximity to jobs. In addition, because the household car is often used by men, women can be more dependent on public transportation.

Interesting challenges for the research program on spatial mismatch in the future will be to deepen the research on the identification of the mechanisms at stake, to continue the assessment of spatial mismatch on other ethnic minorities than blacks, to carry on with the investigation of spatial mismatch issues in non-US contexts, and to study the relevance of spatial mismatch in different phases of the economic cycle. More thinking on policies would also be welcome. This would include a comparison between the potential impacts of spatial and non-spatial options to fight unemployment, or between city-specific or nation-wide policies.

Further Reading

- Aslund, O., Osth, J. and Zenou, Y. (2010). How crucial is distance to jobs for ethnic minorities? Old question – Improved answer. *Journal of Economic Geography*. Forthcoming.
- Brueckner, J. and Zenou, Y. (2003). Space and unemployment: the labour-market effects of spatial mismatch. *Journal of Labor Economics* **21**, 242-266.
- Dujardin, C., Selod, H. and Thomas, I. (2008). Residential segregation and unemployment: the case of Brussels. *Urban Studies* **45**, 89-113.
- Gobillon, L., Magnac, T. and Selod, H. (2010). The effect of location on finding a job in the Paris region. *Journal of Applied Econometrics*. Forthcoming.
- Gobillon, L., Selod, H. and Zenou, Y. (2007). The mechanisms of spatial mismatch. *Urban Studies* **44**, 2401-2427.
- Hellerstein, J., Neumark, D. and McInerney, M. (2008). Spatial mismatch or racial mismatch? *Journal of Urban Economics* **64**, 464-479.
- Holzer, H., Quigley, J. and Raphael, S. (2003). Public transit and the spatial distribution of minority employment: evidence from a natural experiment. *Journal of Policy Analysis and Management* **22**, 415-442.
- Ihlanfeldt, K. (2006). A primer on spatial mismatch within urban labor markets. In Arnott, R.J. and McMillen, D.P. (eds.) *A Companion to Urban Economics*. pp. 404-417. Oxford: Blackwell Publishing.
- Ihlanfeldt, K. and Sjoquist, D. (1998). The spatial mismatch hypothesis: a review of recent studies and their implications for welfare reform. *Housing Policy Debate* **9**, 849-892.
- Kain, J. (1968). Housing segregation, negro employment, and metropolitan decentralization. *Quarterly Journal of Economics* **82**, 175-197.
- Martin, R. (2004). Can Black workers escape spatial mismatch? Employment shifts, population shifts, and Black unemployment in American cities. *Journal of Urban Economics* **55**, 179-194.
- Raphael, S. and Stoll, M. (2001). Can boosting minority car-ownership rates narrow inter-racial employment gaps? *Brookings-Wharton Papers on Urban Economic Affairs* **2**, 99-145.
- Selod, H. and Zenou, Y. (2006). City structure, job search, and labor discrimination. Theory and policy implications. *Economic Journal* **116**, 1057-1087.
- Weinberg, B. (2004). Testing the spatial mismatch hypothesis using inter-city variations in industrial composition. *Regional Science and Urban Economics* **34**, 505-532.
- Zax, J. and Kain, J. (1996). Moving to the Suburbs: Do Relocating Companies leave their Black Employees Behind? *Journal of Labor Economics* **14**, 472-504.