Urban Ghettos and Spatial Mismatch
Answers to Exercises

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(a) Equation (1) aims at explaining in each city the employment rate differential between blacks and whites (controlling for human capital) by essentially black centralization and job centralization (these two variables capture the black access to jobs). If blacks reside in central locations and job are very decentralized, then we have indeed a "spatial mismatch" between where blacks live and where they work. So this is a relative good test of the spatial mismatch hypothesis. It should then be clear that the predicted sign of θ_1 is negative (more black centralization increases the difference in employment rates between whites and blacks or equivalently decreases the difference in employment rates between blacks and whites), of θ_3 is positive (the higher the job centralization, the lower is the difference in employment rates between whites and blacks) and θ_4 is positive (ER_c is a measure local labor market conditions).

Observe that we are testing the spatial mismatch hypothesis by comparing the employment rate difference between blacks and whites *between* different cities of different sizes (inter-city comparison). Others have tested the spatial mismatch hypothesis by comparing the employment rate difference between blacks and whites *within* a city (intra-city comparison). Both studies are complementary.

(b) It is easy to see in this table that, on average, people are mostly living outside the central part of cities (only 36% of the total population is living in central city). However, one can also see that blacks are overrepresented in the central part of cities (68.1% of blacks are living in central city) whereas whites are not (only 31.2% of blacks are living in central city). These data are not surprising and confirm the way we perceive US cities. It is also interesting to observe that 48% of the jobs are in the central city, with however important

differences from one city to another (the standard deviation is 15.7%). Finally, the segregation index (i.e. dissimilarity index) is quite high since it means that 65.9% of blacks would have to relocate in order to produce a homogeneous distribution of the population within the city. All these results tend to indicate that the spatial mismatch seems to be an important issue in US Metropolitan areas.

(c) These results confirm our initial intuition about the spatial mismatch. Indeed, access to jobs seems to be a real problem for blacks. In this table, increasing by 100% black centralization increases the white-black employment rate difference by 12% whereas increasing by 10% the job centralization decreases the white-black employment rate difference by 22.2% (both variables are highly significant).

(d) It is clear that size matters in explaining the spatial mismatch hypothesis. In particular, the severity of the spatial mismatch should be greater the larger is the city since, in big cities, workers are on average further away from jobs than in smaller cities. So when blacks are very centralized and jobs very decentralized, then access to jobs become a crucial problem. Compared (1), the predicted signs should be the same, but the value of the coefficients should be higher for larger Metropolitan areas.

(e) Observe first that the average size of population of big MAs is 6,249,851 inhabitants (with a large standard deviation) whereas the one of small MAs is 473,519 inhabitants (with a relative smaller standard deviation). So the difference in size is quite big between small and large MAs. Second, one can easily see that, in small MAs (under 1,000,000), people are on average more centralized and, in particular, blacks are more likely to live in the central part of cities (66.5% of blacks live in central part of big cities whereas it is 71.1% in small cities). However, the percentage of jobs that are in central city is much larger in big MA than in small (59.3% versus 42,2%) so the overall effect is unclear. Finally, big MAs tend to imply more segregation.

(f) This table confirms our intuition. The spatial mismatch (bad access to jobs) is much more severe in big (over 1,000,000) than in small (under 1,000,000). In fact, the effects of job access in large MAs are double those in small MAs, although black centralization affects black employment status even in small MAs. To be more precise, increasing by 100% black centralization, increases the white-black employment rate difference by nearly 20% in large

MAs whereas it increases it by nearly 10% in small MAs. The results are similar for job centralization. Indeed, increasing by 100% job centralization, decreases the white-black employment rate difference by 32.1% in large MAs but decreases it by only 11.8% in small MAs. Observe that all coefficients are highly significant.

(g) There are a number of theories linking black centralization and segregation to black employment. First, both variables reflect job access (high commuting costs, access to information, employers attitudes toward black workers). Second, social interactions models, which focus on the role of neighborhood social capital (peer influences, role models, social networks), reflect isolation from outside influence and is captured by segregation.

(h) Generally (regressions for all MAs), it is interesting to see that, on their own, black centralization and segregation have a strong and significant impact on the white-black employment rate difference. More black centralization, less job centralization or more segregation strongly increases this difference. These effects are much stronger for large MAs than for small MAs. Interestingly, when one regress together BC, JC and segregation, then the coefficient of segregation becomes statistically insignificant (even though it has the right sign). This is true when we regress all MAs or when we differentiate MAs by size. Thus, it appears that much of the effect of segregation on black employment is due to the effect of black centralization.