Research Question: This project studies the extent to which local education spending affects the growing productivity divergence across cities by building on existing spatial sorting literature by developing an overlapping generations spatial equilibrium model with a policy lever system for cities involving subsidies for low-income workers to attend college.

Motivation: Workers of different skill levels have been making increasingly different choices about where to live and work. Lower skilled workers tend to move to low-wage, low-cost cities whereas higher skilled workers tend to move to high-wage, high-cost cities (Berry and Glaeser 2005). This divergence is significant because where people live determines the economic markets they participate in and affects inequality in welfare.

While education's impact on worker productivity is well explored, its role in directly shaping migration choices within a general equilibrium setting remains largely unexamined, partly due to the lack of post-graduation spatial location data. Recently, however, the direct effect of education on migration appears clear. Approximately half of public 4-year college graduates stay and work in the same metro area in which they attended college in while two-thirds work in the same state; this effect is larger for graduates of public 2-year universities likely due to having developed a stronger professional network in these areas (Conzelmann et al. 2024). The higher education channel plays a significant role in the American population as the percentage of people aged 25 or older who had completed a bachelor's degree or higher in 2021 was 37.9% (CPS 2021). Existing literature has rather historically been focused on the role of the housing market and city specific amenities in shaping this spatial inequality. The relationship between education, productivity, and migration offers a unique mechanism for policymakers to influence the migratory behavior of workers of various skill levels.

Model and Empirical Approach: Education, in the form of college, enters the model in three ways. First, if a worker chooses to go to college they augment their productivity by some stochastic amount. Second, to capture the direct effects of college graduation on migration choices in a tractable manner, workers who choose to attend college value the city amenities of their current city more than if they were to not go to college. Third, cities have the choice to subsidize the cost of attending college in their city.

A general equilibrium framework is important for this project because it grants us the ability to study responses to policy across the entire economy. To be more specific, workers exist in an overlapping generations framework and live for two periods following Gregory, Kozlowski, Rubinton (2023). In the first period, workers are born into a city with some endowments from their parents and decide on going to college in their city for some cost; they are also exogenously randomly determined to do either skilled or unskilled work regardless of their education choice. In the second period, workers make both a costly migration decision and a choice on how much wealth to leave for their children in the next period.

Consumption goods are perfectly tradable across cities, but housing serves as a local non-tradable good. Crucially, following Rossi-Hansberg, Sarte, Schwartzman (2019), cities are a separate block in the model and are faced with production externalities that depend on their total workforce and its distribution of skill levels. Cities optimize their workforce by either funding tuition or through consumption subsidies/taxes. To retain tractability, workers do not form forward-looking expectations about city policies. The quality of a college, the stochastic amount by which attending a given college affects a worker's productivity, is heterogenous across cities and is an exogenous feature of the model.

Qualitatively, college quality, college attendance, lower rent prices, city amenities, and a more favorable job market are the push and pull forces of migration acting on workers. I will estimate the model using two-step Generalized Method of Moments as in Diamond (2016) since this paper estimates a similar worker migration preference setup.

Data: I will base my analysis of cities on metropolitan statistical areas (MSAs) as is standard in the literature. I will then retrieve both population density data and regional educational attainment data from the Census. I will obtain both wage data and construct the price of housing for each of these MSAs with the American Community Survey (ACS) from IPUMS following Albouy (2016). Occupational group data

will follow Jaimovich and Siu (2018). Finally, I will obtain data on public tuition aid expenditures from the National Association of State Student Grant and Aid Programs annual survey.

Intellectual Merit: My research will contribute to the existing literature on spatial sorting by exploring a new channel of productivity and migratory dynamics. The richness in the worker's problem and the direct relationship to the policy levers that cities have allows for a unique perspective into the links between migration flows, inequality, and productivity that has not been thoroughly explored; there has been little work studying the role of education on migration outside of a productivity context and this proposal bridges that gap. Exploring this channel offers policy makers a more diverse set of tools that were not previously available which is important because of the project's ability to conduct counterfactual policy analysis specific to education spending in this spatial inequality context.

Broader Impacts: Beyond a normative claim about the general increase in the wage inequality gap between workers of different skill levels, understanding the effect of levers on the migratory and productivity dynamics is a salient question for policy makers; from a political perspective, 42% of Americans say reducing inequality should be a top policy priority (Pew Research Center, 2020). On the other hand, economically, the urban agglomeration literature points to strict welfare arguments for achieving specific concentrations in skill levels and types of workers (Duranton and Puga 2004) and speaks to clear impacts on underrepresented communities. The linkages between income inequality, migration mobility, and spatial fixed effects is evident in the data and is well studied from a correlative perspective (Chetty et al. 2014); my model design induces a causal welfare analysis across productivity and wealth class over a diverse set of cities. Ultimately, studying this question within a general equilibrium framework provides policymakers with a critical tool for understanding how their policies influence the dynamics between migration, productivity, and inequality.

References

Conzelmann, Johnathan G. et al. 2023. "Grads on the Go: Measuring College-Specific Labor Markets for Graduates." Upjohn Institute Working Paper 23-393. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Berry, Christopher R, and Edward L Glaeser. 2005. "The divergence of human capital levels across cities". Papers in Regional Science 84 (3): 407–444.

Victoria Gregory, Julian Kozlowski, and Hannah Rubington. The impact of racial segregation on college attainment in spatial equilibrium. Working paper, Federal Reserve Bank of St. Louis, 2022.

Albouy, David. 2016. "What are cities worth? Land rents, local productivity, and the total value of amenities". Review of Economics and Statistics 98 (3): 477–487.

Juliana Menasce Horowitz, R. I. and R. K. (2020, January 9). 2. views of economic inequality. Pew Research Center.

Chetty, Raj, et al. 2014. "Where is the Land of Opportunity: The Geography of Intergenerational Mobility in the United States." Quarterly Journal of Economics 129 (4): 1553-1623.

Duranton, G. and D. Puga (2004). Micro-foundations of urban agglomeration economies. In Handbook of regional and urban economics, Volume 4, pp. 2063–2117. Elsevier.

Rossi-Hansberg, Esteban, Pierre-Daniel Sarte, and Felipe Schwartzman. 2019. "Cognitive Hubs and Spatial Redistribution." NBER Working Paper Series, No. 26267. Cambridge, MA: National Bureau of Economic Research.

Bilal, Adrien, and Esteban Rossi-Hansberg. 2021. "Location as an Asset." Econometrica, 89(5): 2459-2495.

Jaimovich, N. and H. E. Siu (2018). The trend is the cycle: Job polarization and jobless recoveries. The Review of Economics and Statistics.

Diamond R. 2016. The determinants and welfare implications of US workers' diverging location choices by skill: 1980–2000. Am. Econ. Rev. 106(3):479–524