Journal of Public Economics 134 (2016) 100–113

Contents lists available at ScienceDirect

Journal of Public Economics

journal homepage: www.elsevier.com/locate/jpube

How to make the metropolitan area work? Neither big government, nor laissez-faire☆

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ARTICLE INFO

Article history:
Received 27 January 2015
Received in revised form 28 October 2015
Accepted 1 December 2015
Available online 15 December 2015

Keywords:
Metropolitan area
Tax competition
Local labor markets
Job decentralization
Administrative boundary

ABSTRACT

We study how administrative boundaries and tax competition among asymmetric jurisdictions interact with the labor and land markets to determine the economic structure and performance of metropolitan areas. Contrary to general belief, cross-border commuting need not be welfare-decreasing in the presence of agglomeration economies that vary with the distribution of firms within the metropolitan area. Tax competition implies that the central business district is too small and prevents public policy enhancing global productivity to deliver their full impact. Although our results support the idea of decentralizing the provision of local public services by independent jurisdictions, they highlight the need of coordinating tax policies and the importance of the jurisdiction sizes within metropolitan areas.

1. Introduction

Urban sprawl and the decentralization of jobs have given rise to metropolitan areas that include a large number of political jurisdictions providing local public goods to their residents and competing in tax to attract jobs and residents. A few facts documented by Brülhart et al. (2015) give an idea of the magnitude of this evolution. Metropolitan areas with more than 500,000 inhabitants are divided, on average, into 74 local jurisdictions, while local governments in the OECD raise about 13% of total tax revenue. Empirical works by Glaeser and Kahn (2001) and Cheshire and Magrini (2009) confirm the idea that the institutional structure of a metropolitan area has a significant impact on both the efficiency of its local public services and the welfare of its residents by influencing the distribution of jobs and the level of housing costs. This difficulty has not escaped the attention of policy-makers and analysts. According to Alain Juppé, a former prime minister of France and mayor of the city of Bordeaux, "governments are too small to deal with the big problems and too big to deal with the small problems" within today's political limits. Bruce Katz, a vice president at the Brookings Institution, went one step further when he said that "metro governance is almost uniformly characterized by fragmentation and balkanization, by cultures of competition rather than one of collaboration." Since metropolitan areas also produce a sizable and growing share of the wealth of nations, we may safely conclude that there is a need for a sound economic analysis of those entities.

The complexity of the metropolitan environment has led several policy-makers to stress the need for coordinating the actions of local governments. To seriously assess the desirability and scope of such a move, we need to understand how the institutional design of metropolitan areas affects the various channels that link the local governments, the labor market and the land market. The purpose of this paper is to develop a model with one central city and several suburban jurisdictions, in which tax competition among jurisdictions interacts with those two markets to shape the economic structure and performance of the metropolitan area.

The standard approach to jurisdiction/club formation is to focus on the trade-off between the crowding effect of public services, which increases with jurisdiction size, and the unit cost of public services, which decreases with population size. We contend that the problem may be tackled from a different, but equally important, angle by recognizing that the *administrative* and *economic* boundaries of jurisdictions

☆ We are grateful to K. Konrad and three referees for details comments and suggestions. We also thank M. Berliant, R. Braid, J. Hamilton, V. Henderson, R. Inman, S. Kok, F. Moizeau, H. Overman, C. Perroni, R. van der Ploeg, as well as participants to seminars at PSE, LSE, University of Warwick, and the Public Policies and Spatial Economics Workshop (Lyon-Saint-Etienne), for their comments and remarks. S. Riou and J.-F. Thisse gratefully acknowledge the financial support from, respectively, the Région Rhône-Alpes (grant ARC7) and the Government of the Russian Federation under the grant 11.G34.31.0059.

http://dx.doi.org/10.1016/j.jpubeco.2015.12.002
0047-2727/

usually differ within metropolitan areas. Put differently, workplaces and residences do not necessarily belong to the same jurisdiction. In practice, the central city attracts a large number of workers who live in adjacent areas, thus giving rise to a substantial amount of "cross-border" commuting. Therefore, workers face the following trade-off: either they can earn a high wage in centrally located firms and bear high commuting costs, or they can receive lower pay in firms located in secondary business centers and pay less for commuting. By combining these two trade-offs within a unifying framework, we distinguish between the administrative and economic limits of the central city, a distinction that has not attracted much attention in the literature (Glaeser, 2013; Brülhart et al., 2015).

This is not yet the end of the story. It is well documented that the productivity of labor is higher in larger cities. More precisely, there is a broad consensus to recognize that, everything else being equal, the elasticity of labor productivity with respect to the current employment density is about three percent. This elasticity measures the static gains generated by a higher employment density (Combes and Gobillon, 2015). The reason for this lies in the existence of various mechanisms, generically nicknamed "agglomeration economies," which have the nature of increasing returns external to firms (Glaeser and Gottlieb, 2009). Another major trend shaping modern metropolitan areas is the decentralization of jobs toward secondary employment centers, fostered by the development of new information technologies (Glaeser and Kahn, 2001, 2004). As a result, suburban jurisdictions accommodate secondary employment centers, thus making many metropolitan areas polycentric. Any serious attempt that aims to study how the metropolitan area works must take into account these two essential parts.

To carry out our study, we develop a general equilibrium model that accounts for the following features: (i) consumers are free to choose their locations, (ii) there is cross-border commuting, (iii) local governments compete strategically, (iv) the labor and land markets determine wages and land rents, and (v) the level of agglomeration economies depends on the distribution of firms. The flip side of the coin is the need to reduce the complexity of the problem by assuming that consumers are homogeneous.

Our main findings may be organized in three distinct, but complementary, categories.

1. We study the first-best outcome, which we use later on as a benchmark. The planner, who aims to maximize welfare within the *whole* metropolitan area, determines the areas providing the public services and the employment centers by choosing where consumers live and work. First, it is not desirable to amalgamate the suburban areas with the central one. Moreover, the economic boundary of the central city always encompasses its administrative boundary. Put together, these results imply that *the optimal political and economic boundaries of the central city do not coincide*, a result that clashes with the general belief that these boundaries should be the same (OECD, 2006). This difference stems from the trade-offs that determine each type of boundary. The optimal size of jurisdictions is tightly related to the optimal degree of decentralization in the supply of local public goods. More precisely, decentralizing the provision of local public goods is socially desirable as long as the degree of increasing returns in producing these goods is not too high. By contrast, the optimal size of central and secondary business centers depends on the interplay between commuting and agglomeration economies, that is, parameters that do not enter the above trade-off. When commuting costs are not too low, agglomeration economies are not too strong, or both, jobs are shared between the central and suburban areas.
2. We then analyze the decentralized outcome when the number of jurisdictions and their administrative boundaries are exogenously given. The game involves three types of players: a large number of consumers, a large number of firms, and a finite number of local governments. Consumers choose a residence and a workplace. Firms choose a location and the wages paid to their employees. Local governments provide local public goods and choose non-cooperatively a *business tax* paid by the firms located in their jurisdiction and a *land tax* levied on the aggregate land rent. Since agglomeration economies are unevenly distributed while workplaces and residences need not belong to the same jurisdiction, tax competition unfolds within the entire metropolitan area, which leads to a game richer than those used in standard models of fiscal competition.
   We show that, under mild conditions, *the central city typically levies a higher business tax than suburban governments*, a result that is backed up by the empirical literature (see Koh et al. (2013) and Brülhart et al. (2015) for references). The reason for this is that consumers working in the central city need not reside therein, which incentivizes the central city's government to practice *tax exporting*, the extent of which depends on the relative size of jurisdictions and the intensity of agglomeration economies. Once the agglomeration economies in the central city exceeds a certain threshold, the tax policy adopted by the suburban jurisdictions is predominantly governed by the residents working in the central city, which leads these jurisdictions to set a positive business tax. Moreover, as they influence the location choices, tax policies affect the overall productivity of the metropolitan area. Specifically, we demonstrate that the equilibrium size of the central business center is too small and, therefore, the potential provided by agglomeration economies is not fully used. In other words, *tax competition reduces the gross domestic product per capita of the metropolitan area through an excessive decentralization of jobs*. This result shows the importance of using a spatial setting in which the commuting pattern is endogenous through the location choices made by firms and consumers.
   What is more, under tax competition, when the population size of the central city is optimal, the central business district is too small, whereas the former is too large when the size of the latter has its optimal size. Therefore, redrawing the limit of the central city is not the remedy to correct the misallocation of jobs within the metropolitan area. This tension stems from the fact that the distribution of jobs is governed by a system of forces that overlaps imperfectly with that taken into account by the local governments. As a consequence, there is no reason to expect the two types of boundaries to coincide. It should be stressed, however, that the misallocation of jobs is exacerbated when the relative population size of the central city is small. Furthermore, although higher agglomeration economies, lower commuting costs, or both raise the global efficiency of the metropolitan area, the gap between the optimal and equilibrium size of the central business districts grows.
3. Once it is recognized that suburbanites commuting to the central business district may consume the public services supplied by the central city, the tax gap widens because the central city sets an even higher tax rate to reduce the production costs borne by its residents. All in all, *the central city residents bear higher provision costs for their public services and earn lower wages*. In other words, they are hurt twice.
   Our analysis suggests that neither the amalgamation nor the decentralization among competing jurisdictions is the best way to govern large metropolitan areas. Instead, combining a multi-jurisdictional political system with an economic government of the metropolitan area or a deep inter-jurisdictional cooperation seems to be a more efficient way to solve the various distortions inherent to the working of a metropolitan economy. In particular, our findings point to the need for common governance in local tax policies within metropolitan areas. Such a recommendation has been implemented in a few European countries under the concrete form of fiscal coordination (OECD, 2006). In the United States, the tax-base sharing program implemented in Minneapolis-Saint Paul has decreased incentives for local governments to compete for a larger tax base (Inman, 2009).
   A last comment is in order. The legal environment in which metropolitan areas operate vastly differs across countries. The model