Journal of Public Economics 134 (2016) 19–34

Contents lists available at ScienceDirect

Journal of Public Economics

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

Income redistribution in open economies

Áron Tóbiás

Department of Economics, Yale University, 28 Hillhouse Avenue, New Haven, CT 06511, USA

ARTICLE INFO

Article history:
Received 16 July 2015
Received in revised form 14 October 2015
Accepted 18 December 2015
Available online 29 December 2015

Keywords:
Income redistribution
International migration
Tax competition
Race to the bottom

ABSTRACT

I propose a model of income redistribution in an open-economy environment. The world consists of a finite number of countries whose governments seek to maximize the welfare of their low-skilled populations by taxing skilled workers' labor income. While tax competition limits the extent to which redistribution is possible—as compared to the closed-economy outcome—when skilled people are internationally mobile, I argue that race to the bottom does not necessarily occur, even if the number of countries becomes arbitrarily large. The asymptotic sustainability of the welfare state crucially depends on the statistical properties of the probability distribution of skilled people's location preferences.

1. Introduction

1.1. Motivation

What limitations does international labor mobility impose on the extent to which income redistribution is feasible? In this paper, I seek to explore this question by examining a world economy that consists of a finite number of countries, each inhabited by low-skilled people who can neither work nor move and high-skilled people who provide labor effort that can be converted into consumption. The government's goal is to maximize low-skilled people's welfare subject to the requirement that high-skilled persons not find it profitable to imitate being low-skilled and collect welfare benefits intended for low-skilled people instead of working. High-skilled people are internationally mobile; they may leave the country if they find that supporting the low-skilled would impose too heavy a burden on them. They also take their personal idiosyncratic location preferences into account when making migration decisions. Labor mobility, in turn, gives rise to strategic interaction between governments by making the aggregate resource constraint endogenous to the tax policy they seek to implement, and imposes a further constraint on redistributive goals. I define and characterize an equilibrium concept according to which governments seek to provide low-skilled people with as much consumption as possible, subject to incentive compatibility and feasibility adjusted for migration concerns.

According to the resulting equilibrium concept, there exists a unique symmetric equilibrium in which all countries offer the same allocation. Consequently, the equilibrium mass of high-skilled people will be the same as in the closed economy. However, the equilibrium allocation is typically less generous than the one that would prevail in the absence of migration, in that low-skilled people's consumption is lower in the open-economy equilibrium. This is because the sheer threat of losing skilled workforce compels each country to diminish resource extraction from high-skilled people. This effect becomes stronger in the presence of more countries and, accordingly, the generosity of the equilibrium open-economy income redistribution scheme decreases in the number of countries. Essentially, each country's government is faced with a fundamental trade-off: the only way to retain and attract high-skilled people is to extract fewer resources from them at the cost of making redistribution towards the low-skilled less generous.

As the number of country grows, one might expect that governments engage in an ever fiercer tax competition for human capital and the ultimate outcome is race to the bottom—that is, mutual brain drain becomes so strong that it leads to the collapse of the welfare state and no income redistribution whatsoever is feasible asymptotically. Despite what economic intuition might first suggest, however, redistribution does not necessarily collapse as the number of countries diverges to infinity. This is because even though tax competition between countries for high-skilled workers becomes fiercer with there being more countries, those people also exhibit idiosyncratic location preferences for particular countries beyond pure economic considerations in formulating their migration decisions. If mobility frictions embodied by those preferences are sufficiently strong, then the extent to which more high-skilled people can be attracted at the expense of diminishing welfare benefits remains limited. In this case, governments' incentives to further decrease taxes in order to induce human-capital flight from other countries are diminished, even asymptotically as each country faces a multitude of other countries from which to attract skilled workers. This dampening effect on tax competition prevents race to the bottom from occurring for a certain class of distributions of

E-mail address: aron.tobias@yale.edu.

http://dx.doi.org/10.1016/j.jpubeco.2015.12.005
0047-2727/

idiosyncratic location preferences. I demonstrate also that income redistribution does collapse as high-skilled people's idiosyncratic preferences disappear—that is, as labor mobility becomes perfectly frictionless—even for as few as two countries.

The main results of this paper are thus twofold. Firstly, the characterization of asymptotics with respect to the number of countries in models of open-economy tax competition has been a hitherto unexplored area of the theoretical public-finance literature. In this sense, the article proposes a methodological and conceptual innovation. Secondly, the analysis reveals that the subtle details of the distribution of idiosyncratic location preferences are of crucial importance in evaluating the effects of international labor mobility on the sustainability of income redistribution. The statistical properties of those preferences determine whether or not international tax competition destroys the welfare state by triggering a race to the bottom.

The rest of the paper proceeds as follows. Subsection 1.2 reviews the related literature. Section 2 sets forth the formal model of the analysis. Section 3 characterizes the *laissez-faire* outcome that prevails without government interference, and also the benchmark redistribution scheme that would be implemented by a single government in a closed economy. In Section 4, I demonstrate the manner in which high-skilled people's migration decisions are affected by the governments' redistribution policies and describe how the world economy's high-skilled workers are distributed across countries subsequent to migration. In Section 5, I propose an equilibrium concept that captures the strategic interaction between countries' governments and show the existence, uniqueness, and key characteristics of that equilibrium. Section 6 analyzes how the equilibrium allocation depends on the number of countries. In particular, the asymptotic properties of the equilibrium are exhibited as the number of countries grows without bound. In addition, it is also here that I examine the consequences of frictionless international mobility unhampered by idiosyncratic location preferences. Section 7 illustrates several numerical examples. Section 8 concludes, discusses the model's key assumptions, and proposes possible extensions. Technical proofs are reported in Appendix A and a separate Supplementary Appendix.

1.2. Related literature

The complications associated with the effects of migration on income redistribution had been recognized shortly after the birth of the Mirrleesian public-finance paradigm.[1] Mirrlees (1982) considers the implications of differential taxation of income earned abroad and that earned at home. In the work of Wilson (1980), the social planner takes emigrants' welfare into consideration but restricts attention to linear income taxation. In a subsequent article, Wilson (1982) provides a characterization of tax systems that are optimal from the point of view of a hypothetical worldwide government seeking to maximize the social welfare of the global population, and shows that the optimal worldwide tax policy exhibits aggregate production efficiency. Bhagwati and Hamada (1982) present a model that involves dynamic features in terms of human-capital accumulation. They consider only linear taxes, which are levied separately on emigrants and residents, and find that the optimal marginal tax rate is lower when the economy is open.[2]

More recently, Leite-Monteiro (1997) presented a two-country model with asymmetric initial population structures and showed that the country with an initially lower level of high-skilled population may actually implement a more generous redistribution scheme *via* attracting high-skilled people from the other country.[3] Hamilton and Pestieau (2005) study the effects of migration on income redistribution under the assumption that the tax policy is determined by majority voting. Gordon and Cullen (2012) analyze how the presence of a higher-level government can mitigate the effects of tax competition between lower-level governments on income redistribution, and the implications of these findings for the division of redistribution between different levels of government. In a two-country model with finitely many skill types, Bierbrauer et al. (2013) demonstrate that neither government taxes the highest-skilled people in any equilibrium and the lowest-skilled cannot ever receive any transfers, either, if people are perfectly mobile.

In terms of *capital taxes*, Mendoza and Tesar (2005) provide an explanation for why increased integration of financial markets within the European Union has failed to give rise to race to the bottom. Since consumption taxes had become harmonized within the EU, the only way to recover tax revenues lost due to decreased capital tax rates and maintain fiscal solvency would be to increase taxes on labor. However, this leads to considerable distortions provided that labor supply is sufficiently elastic, which deters governments from engaging in tax competition in terms of levies on capital. Itskhoki (2008) emphasizes yet another aspect of how the openness of an economy may influence tax policies, showing that the international integration of *goods* markets may exacerbate the classical trade-off between equity and efficiency in the design of redistributive tax systems. It is possible that welfare gains from international trade can be realized only at the cost of equity, because greater inequality caused by trade liberalization may be accompanied with an intensified trade-off between equity and efficiency. In this case, the social planner may need to optimally curb the progressivity of income taxation and endure greater inequality in response to openness to trade. This finding may undermine the conventional wisdom that the distributional effects of openness to international trade can be mitigated by more progressive income taxation.[4]

As for empirical evidence on the interaction between tax policies and international migration, Kleven et al. (2013) show that taxes on foreigners' income in the destination countries strongly influence professional soccer players' migration across borders, which suggests that international labor mobility imposes a substantial check on top income-tax rates. That high-skilled foreigners respond to tax instruments has been highlighted also by Kleven et al. (2014), who argue that Denmark has been successful in attracting high-income immigrants by offering tax incentives.[5]

Simula and Trannoy (2010) consider two countries, one of which is “large,” non-strategic, and exogenously implements a given linear tax schedule. The other country is “small” and is populated by a continuum of taxpayers with skill-dependent migration costs. The small country's Rawlsian government seeks to ensure that no migration occurs in equilibrium by imposing skill-dependent participation constraints. Their main finding is that the sheer threat of migration may well render the optimal tax schedule not only regressive but also “perverse,” in the sense that the optimal (marginal) tax rate may be negative for the highest-skilled people. Intuitively, if high-skilled workers are the ones who are the most willing to emigrate, it is less mobile middle-skilled persons who must bear the costs of subsidizing the poor under the optimal redistributive tax policy.

[1] Indeed, Mirrlees (1971, p. 176) notes already in his seminal work about the trade-off between efficiency and equity inherent in income redistribution that “the threat of migration is a major influence on the degree of progression in actual tax systems.”

[2] For other early Mirrleesian models of optimal taxation in open-economy environments, see the monograph edited by Bhagwati and Wilson (1989).

[3] See also Piaser (2007), who considers two *ex-ante* symmetric countries with Rawlsian social-welfare functions. Lipatov and Weichenrieder (2012) extend this analysis to asymmetric countries and government objectives other than the Rawlsian one.

[4] From a more general point of view, Caplin and Nalebuff (1997, p. 333) highlight the importance of and provide a general theoretical underpinning for the interaction between institutional frameworks and competition between institutions; as they put it, “the policy that each institution adopts depends on the memberships, and the memberships depend upon the policies of all institutions.” In the current framework, this message can be interpreted as income-redistribution policies depending on high-skilled people's migration decisions and, *vice versa*, induced migration depending on redistribution policies.

[5] For empirical analyses of bilateral migration flows in the modern era, see Abel and Sander (2014) and Castles et al. (2013). The monograph by Goldin et al. (2011) provides a historical overview of the trends and determinants of international migration, as well as a discussion of future challenges. Gordon and Hines (2002) provide a review of international taxation in general. Hines (2006) and Hines and Summers (2009) discuss the challenges governments are faced with in designing optimal tax policies in a globalized economy.