

Taxation and International Migration: Evidence from a Special Tax Scheme to Foreigners in Denmark

Application for the EPRN, May 2010

Researchers

Principal Investigators are Esben Anton Schultz (The Danish Economic Councils and CEBR), Henrik Kleven (London School of Economics), Camille Landais (UC Berkeley), and Emmanuel Saez (UC Berkeley).

Motivation and Previous Literature

Tax-induced international mobility of talent is a crucial public policy issue, especially when tax rates differ substantially across countries and immigration barriers are low as in the case of the European Union. In this case, high tax rates on high-paid workers may induce such workers to migrate to countries where the tax burden on high-income individuals is lower. Therefore, international mobility may severely limit the ability of governments to redistribute income through highly progressive taxation. This problem is particularly acute in a country such as Denmark, which imposes higher tax rates on workers than most other countries.

A theoretical literature, following the seminal contribution by Mirrlees (1982), has analyzed optimal taxation in the presence of international migration (e.g., Bhagwati and Wilson, 1989; Cremer et al., 1996; Wildasin, 1998). Moreover, there is a large theoretical literature on tax competition. Most of this literature has focused on capital income taxation, but some of it has analyzed labor income taxation with internationally mobile labor (e.g., Wilson, 1995 and Wildasin, 2006). This literature suggests that the mobility of skilled workers may generate harmful tax competition driving down the progressivity of taxation across countries.

There is an enormous empirical literature on labor supply and taxable income responses to taxation (see, e.g., Blundell and MaCurdy, 1999 and Saez, Slemrod and Giertz, 2009 for surveys of these literatures). For Denmark, the effect of taxation on taxable income has been studied by Kleven and Schultz (2009). However, the literature on the effect of taxation on the international mobility of workers, and especially mobility among high-skilled workers, is extremely limited due to lack of good micro data containing citizenship information and compelling identifying variation. There is a small empirical literature on tax-induced mobility across local jurisdictions within a given country, including Feldstein and Wrobel (1998) on the case of US states and Kirchgassner and Pommerehne (1996) on the case of Swiss cantons.

As far as we are aware, the only previous study that estimates the effect of taxation on international migration is the study of top football players by Kleven, Landais, and Saez (2009). They gather exhaustive data on the careers and mobility of professional football players in 14 European countries over about 30 years. The main source of identifying variation is the introduction in several countries of preferential tax schemes to high-income immigrants and sometimes to athletes specifically. They find substantial effects of taxation on the migration of football players. One of the most compelling natural experiments considered in the paper is the Danish *Tax Scheme for Foreign Researchers and Key Employees (Forskerordningen)* – the Researchers’ Tax Scheme for short – which offers preferential tax treatment to foreign scientists and high-income foreigners in other professions working in Denmark.

Contribution

The project intends to estimate the effect of taxation on migration using the quasi-experimental variation created by the Researchers’ Tax Scheme. The paper will be the first to rigorously identify the relationship between tax policy and mobility across international borders. Compared to the aforementioned paper by Kleven, Landais, and Saez (2009), this project makes three key contributions. First, it extends the empirical analysis of top football players to the entire labor market. This is very important in order to make general policy conclusions and to be able to apply the empirical analysis to optimal taxation. The market for top football players is unusual in several ways and may be characterized by an exceptionally high degree of international mobility. In particular, top footballers are young workers who earn most of their lifetime income over a short time period, and their profession involves relatively little country-specific capital. Second, this project will be based on a very rich administrative dataset containing detailed information about the full population of taxpayers in Denmark over a long time period. Compared to the study of football players, a central advantage is that the Danish data contains information about wages. An empirical model that specifies location choice as a function of tax rates without controlling for wages will be biased if local wages and tax rates are correlated. One reason for such a correlation is the fact that the equilibrium wage responds directly to tax-induced changes in labor supply. This study will be able to control for such effects. Third and related, the variation created by the tax scheme allows us to estimate the incidence of income taxation on high-skilled workers, an important aspect of tax policy evaluation that is understudied in the empirical public finance literature.

The Researchers’ Tax Scheme and Empirical Strategy

In 1992, Denmark enacted a preferential tax regime for foreign researchers and high-income foreigners in all other professions, who sign contracts for work in Denmark after June 1, 1991. Under this scheme, the tax rate on income was

reduced to 30% (25% after 1995) for contracts exceeding 6 months and for a total period of up to 36 months. Except for researchers, eligibility for this tax scheme requires an annual income of at least DKK 511,200 in 1992 prices. The scheme also applies to Danish citizens, who have been working and paying taxes abroad for a period of at least 3 years. When the 36 months of preferential tax treatment have been used up, the taxpayer will be subject to the ordinary tax scheme imposing very high tax rates. In the original law, after 7 years of residence in Denmark, a worker who had benefited from the preferential tax treatment would be subject to a claw-back whereby ordinary tax rates applied retroactively to the entire income earned during the period of preferential tax treatment. For a high-income worker, this rule implied a very large retroactive tax bill after 7 years of residence. The rule was eliminated for researchers in 1998 and substantially relaxed for all other professions in 2002, so that today the retro-active tax applies to very few workers.

This unusual piece of tax policy implies large discontinuities in tax liability depending on the contract start date (before and after June 1, 1991), employment history (three- and seven-year rules), income level (DKK 511,200 lower bound), and occupation (researchers versus other professions). Moreover, there has been variation in some of the rules since the scheme was first implemented, which creates additional variation over time. Hence, the reform creates very large quasi-experimental variation along several different dimensions, and provides a very powerful way of identifying the effect of taxation on migration. It is very unusual to have large discontinuities in tax liability (as opposed to discontinuities in marginal tax rates) in tax systems. We will explore the different aspects of the tax scheme using quasi-experimental techniques such as Regression Discontinuity Design, bunching approaches, and difference-in-differences.

Data

To carry out our project, we need detailed tax return data for the entire population in order to be able to simulate tax liabilities and tax rates under the ordinary tax system for every individual. In addition, the dataset has to be augmented with variables relating specifically to the Researchers' Tax Scheme. Moreover, we need labor market and socio-demographic information for the full population in Denmark. We apply for funds to acquire these data. To simulate tax rates under the ordinary tax scheme, we will use the Danish TAXSIM model developed by Kleven and Schultz (2009). The final dataset will be a panel running from 1980-2008 containing data on the full population in Denmark, including foreigners residing in Denmark, and with detailed information about citizenship, immigration history, tax variables, labor market variables, and socio-demographic information. The project will be carried out at the Centre for Economic and Business Research (CEBR) and our dataset will be located on their server.

Output and Timeline

The project will yield an academic paper co-authored by Henrik Kleven, Camille Landais, Emmanuel Saez, and Esben Anton Schultz. The paper will be targeted to a leading international journal. A first draft of the paper will be completed during the Fall of 2010 and sent out as an NBER Working Paper before the end of the year. Journal submission will happen no later than in the Spring of 2011.

References

Bhagwati, J. and J. D. Wilson, eds. (1989). *Income Taxation and International Mobility*, MIT Press, Cambridge.

Blundell, R. and T. MaCurdy (1999). "Labor Supply: A Review of Alternative Approaches," in O. Ashenfelter and D. Card (eds.), *Handbook of Labor Economics*, Volume 3A, North-Holland, Amsterdam.

Cremer, H., V. Fourgeaud, M. Leite-Monteiro, M. Marchand, and P. Pestieau (1996). "Mobility and Redistribution: A Survey." *Public Finance* 51, 325-352.

Feldstein, M. and M. V. Wrobel (1998). "Can state taxes redistribute income?" *Journal of Public Economics* 68, 369-396.

Kirchgassner, G. and W. W. Pommerehne (1996). "Tax harmonization and tax competition in the European Union: Lessons from Switzerland." *Journal of Public Economics* 60, 351-371.

Kleven, H. J., C. Landais, and E. Saez (2009). "Taxation and the International Mobility of Superstars: Evidence from the European Football Market." Working Paper, December 2009.

Kleven, H. J. and E. A. Schultz (2009). "Estimating Taxable Income Responses Using Danish Tax Reforms." Working Paper, March 2009.

Mirrlees, J. A. (1982). "Migration and Optimal Income Taxes." *Journal of Public Economics* 18, 319-41.

Saez, E., J. Slemrod, and S. Giertz (2009). "The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review." NBER Working Paper No. 15012, in preparation for the *Journal of Economic Literature*.

Wildasin, D. (1998). "Factor Mobility and Redistributive Policy: Local and International Perspectives," in P. B. Sørensen (ed.), *Public Finance in a Changing World*, MacMillan Press, London.

Wildasin, D. (2006). "Fiscal Competition," in B. Weingast and D. Wittman (eds.), *Handbook of Political Economy*, Oxford University Press, Oxford.

Wilson, J. D. (1995). "Mobile Labor, Multiple Tax Instruments, and Tax Competition," *Journal of Urban Economics* 38, 333-356.

Budget

We apply for Dkr. 191,647 to cover: i) wage buy-out for Esben, ii) data purchases (Statistics Denmark), iii) research assistance to prepare data and iv) travel expenses for collaboration between participants. The costs are distributed as follows:

One month wage buy-out for Esben	39,706 Dkr. (Level at 1 April 2010)
Data expenses	65,000 Dkr.
Research assistance and materials	25,000 Dkr.
Travel expenses	35,000 Dkr.
Overhead (20% of 164.706 Dkr.)	32,941 Dkr.
<u>Total amount</u>	<u>197,647 Dkr.</u>