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Report on

Corporate Taxation, Tax Evasion, and Tax DesignSubmitted as a PhD thesis by **Boryana Madzharova** to CERGE-EI at Charles University Prague

External reviewer: Prof. Peter Egger

Summary

The thesis of Boryana Madzharova presents a collection of four independent research papers. The chapters have a strong empirical orientation, but the author shows that she is familiar with and can apply economic theory in Chapter 1. The scope of the thesis is relatively broad, since the author does not focus on one type of tax but considers a broad range of instruments, reaching from payroll taxation (in Chapter 1) corporate profit taxation (in Chapters 1 and 2) to value added taxation (in Chapters 3 and 4). Apart from demonstrating good knowledge of the theoretical and empirical literature and data sources on tax instruments, the thesis shows that author has gained solid knowledge of the institutional background.

For her empirical work, the author utilizes panel data at the level of the firm and the country. While Chapters 1-3 employ data in the analysis, Chapter 4 uses (macroeconomic) data for illustration. Specifically, the author employs data on Bulgarian firms in Chapter 1, firm-level panel data for six Central and Eastern European countries in Chapter 2, country-level data for European Union members in Chapter 3, and country-level data on income tax rates, value added tax rates and other macroeconomic variables in Chapter 4.

From a bird's eye view, it is evident that the candidate has gained excellent knowledge on matters of taxation by way of formulating and analyzing models of firm behavior in response to taxation,

of collecting micro- and macro-level data for analysis, and of using econometric tools to analyze such data. The language use and writing skills are very good. In what follows, I will turn to specific comments by chapter and I will conclude with an evaluation of the thesis when considering both the aforementioned general remarks and the subsequent specific comments.

Specific comments about Chapter 1

Chapter 1 is concerned with a vital problem in taxation: tax evasion. It addresses a specific problem, namely the tax evasion of firms by misreporting wages. While the author uses Bulgarian firm-level data and argues that this is a particular problem there and in other Central and Eastern European countries, I would even argue that such practice is -- in the described and other forms -- also an issue in some western European economies. The author motivates her empirical analysis with a model of the firm, where the unit faces a trade-off between payroll tax and profit tax. In that model, the firm chooses the optimal payroll misreporting factor in its tax planning. The model is set out transparently, and I do not have anything to criticize about it, since it is not meant to be an own-standing piece of work.

Regarding the empirical analysis, I have a few questions. First, I understand why the formulation of the tax terms is chosen as in equation (1.4.1). However, I did not understand, why the author then opted for a tax wedge specification as in (1.4.3). It would have been natural to choose the difference in tax terms as in equation (1.4.1). In general, this is a fine chapter, and I like the author's quantification by taking the parameter estimates and making inference about the economy as a whole. This chapter has good potential for publication in a solid field journal.

Specific comments about Chapter 2

Chapter 2 is concerned with inter-temporal income shifting and employs data on Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovak Republic over the period 1999-2005. These countries are interesting examples, since they entered in corporate income tax competition with the European Union member countries in the last couple of decades by lowering the statutory tax rates and narrowing the income tax base, depressing the effective average tax rates by both measures. The author firms that inter-temporal shifting of corporate income is particularly important for smaller rather than larger firms.

I find the analysis in the chapter sound and only have one quibble. The author utilizes data from Bureau van Dijk's Amadeus data-base. This is fine, since the data-base exhibits a particularly

good coverage for the covered countries. However, Bureau van Dijk pursues a strange strategy in maintaining the data: each and every edition of Amadeus deletes firms which exited the market prior to the edition year. This leads to an exaggerated persistence at the extensive firm margin. I would find it interesting to assess the extensive margin effects of the discussed policy changes in the six countries. It could be the case that there was a positive selection effect in particular on the part of large companies. The latter could eventually lead to a modified statement about the relevance of inter-temporal shifting practices for small versus large companies. This chapter has good potential for publication in a solid field journal as well.

Specific comments about Chapter 3

Chapter 3 is concerned with the effect of "plastic money" on value added tax revenues. On the one hand, the use of cash or credit cards improves transparency about transactions and reduces the opportunities for tax evasion on the part of firms. On the other hand, the increasing use of card payment methods was simultaneous to the increasing web representation of firms and the integration of the EU market, and hence, the facilitation of cross-border transactions. Overall, the author does not find a significant impact of an introduction of card payments on value added tax revenue.

Given the macroeconomic level of analysis, I have nothing to criticize about this chapter. I think what the author does is the best one can do with the data at hand. However, the paper's main drawback is that the level of analysis will not be considered convincing enough -- lacking micro-level evidence or a causal type of analysis by way of a quasi-natural experiment -- to draw firm conclusions. For that reason, I would not recommend sending this chapter to a top field journal but trying to publish it in a decent second-tier field journal or the like.

Specific comments about Chapter 4

Chapter 4 is a solid policy paper. I have nothing to criticize about the piece. Certainly, the authors papers of that kind are targeted towards specific outlets. The author's co-author is experienced about this. I guess, apart from *International VAT Monitor*, *Fiscal Studies* or *Journal of Common Market Studies* are outlets where such work could be published.

Evaluation

With the preparation of this thesis, Boryana Madzharova demonstrates that she has acquired remarkable skills to formulate models and derive hypotheses in a broad range of tax-related issues

in public economics as well as gather data and analyze them econometrically. The first two chapters are particularly remarkable but all four chapters have the potential to be publishable in peer-reviewed international journals of the economics profession. The writing and language use are excellent. Hence, I recommend accepting the thesis without hesitation.

A handwritten signature in black ink, appearing to read 'Peter Egger', written in a cursive style.

Prof. Peter Egger

Zürich, March 3, 2013