

Title of Project:

**Measuring the Displacement Deadweight Loss from Corporate Tax
Evasion in the Czech Republic**

Non technical summary.

Our research project seeks to model and measure a social harm from tax evasion, called “displacement deadweight loss.” Uneven enforcement of taxes creates an uneven playing field on which inefficient producers with a willingness and ability to evade taxes can oust honest, efficient producers from the market. Displacement loss arises when an efficient producer of a good who is either unwilling or unable to evade taxes is pushed from the market by an inefficient producer who is willing and capable of evading taxes. We define the difference between the costs of the surviving evaders and what costs would have been without evasion being the “displacement” loss from tax evasion. We put the term displacement in quotation marks because it is a term new to economics. Public finance theorists have ignored displacement loss, or have hurried past it, sprinkling but a few words of warning. Vito Tanzi (1982, p.88) is one of the few economists to have noticed that “untaxed underground activities will compete with taxed, legal ones and will succeed in attracting resources even though these activities may be less productive...There will of course be significant welfare losses associated with this transfer.” Jonathan Kesselman (1997, p.300) made a related point: “If pure tax evasion is concentrated in particular industries or sectors it will raise net returns from activities in those sectors, and this will in turn tend to expand those sectors and their products as against the efficient pattern arising with uniform compliance.”

In a series of papers and in a book Palda (1998, 2000a, 2000b, 2001, 2002) examined the circumstances under which a displacement loss from uneven enforcement of taxes arises. The amount of loss depends on how closely tied are a firm's productive efficiency and evasive ability. If efficient producers are honest tax payers and inefficient producers are dishonest, then a rise in taxes creates a climate that favors the survival of tax evaders above the survival of firms with low production costs. The less related are productive efficiency and honesty, the lower is this cost. When productive efficiency and honesty go hand-in-hand, displacement losses tend to be high. Using a simple model of profit maximizing firms he showed how displacement losses from the tax tend to rise as the correlation between honesty and efficiency rises. Crucial to his results were the type of correlation assumed to exist in the industry between productive and evasive abilities. What his work lacked was a conception of what this correlation might be.

Palda relied exclusively on simulations to get an estimate of the deadweight loss of tax evasion. His conclusions did not follow from data. The present paper takes as its basis Palda's framework and uses a survey of firms to calculate the displacement loss from evasion. We recapitulate Palda's work to show that displacement loss depends on two fundamental variables: a range of firm efficiency in production and a range of firm efficiency in tax evasion. If we know how firms are distributed along these two axes we can venture an educated guess of the displacement loss from tax evasion by weighting this distribution with the costs of surviving firms and subtracting this cost from the hypothetical cost of firms if there were no evasion.

To get an idea of the joint distribution of evasive and productive abilities we asked firms two sets of questions. First we wanted their general opinions about who are the firms evading taxes in their industry and whether these firms posed a threat to the survival of tax-paying firms. A strong majority of firms (82.2%) believed tax evaders undercut their businesses. While 66.4% of respondents believed there was a relation between whether a firm evaded and its efficiency in producing, no consensus emerged as to whether it was efficient firms who evaded the most or inefficient firms who evaded the most. We might well have been content with the answers to these questions as they rise above anecdotes to give the first statistically reliable indication that tax evasion which varies among firms is a threat to the survival of some.

We can go further than to affirm that tax evasion threatens economic efficiency by using Palda's model of displacement deadweight loss to cull the size of this deadweight loss from answers firms gave us in a second form of questioning. In Palda's theoretical model of displacement deadweight loss the correlation between evasive and productive abilities was crucial. Palda assumed correlations rather than measuring them. In the present project we measure these correlations by presenting each firm with a five-by-five matrix which has evasive ability on one axis and productive ability on the other axis. We asked each firm to state what percentage of firms in their industry they believed fell into each of the twenty-five cells of the evasion-productivity matrix. We then gathered the answers of all firms and used these answers to estimate a Lebesgue-type weighting scheme applied to the costs of firms. We then compared these costs to what costs would be in the absence of tax evasion. The difference in the two costs is the displacement loss from tax evasion.

The present analysis has pursued three interlocking objectives: to survey firms for their general impressions on whether tax evasion by some firms is a threat to the survival of other, possibly more efficient firms; to model the cost to an economy when inefficient firms which evade taxes displace from the market efficient firms which evade less than inefficient firms; to combine this model with firms' opinions on the joint distribution of evasive and productive talents to produce an estimate of "displacement deadweight loss," which is the increased costs from having inefficient firms oust efficient firms from the market.

In a series of calculations we find that as taxes increase linearly, displacement loss increases exponentially. This is a comforting result that snuggles nicely into the Harberger view of deadweight losses from taxation being a non-linear function of the tax.

Our analysis is the first of its kind and as such must be viewed as provisional. We see two important problems that need to be addressed in future research if the concept of an empirically measured displacement deadweight loss is to be taken seriously.

- 1) The astute reader will notice a quandary in our formulation of the joint distribution function of firms. We asked existing firms to comment on their view of the market *as it is*. Our theory postulates a distribution over existing and *potential* firms. Nothing says that the existing distribution is the same as the potential distribution. Our analysis assumes both distributions to be the same. Such an assumption is questionable and must be seen as casting a shadow over the validity of our results. Future research must find a theoretical justification for

- assuming that firm answers about actual joint distributions of evasive and productive talents are similar to the joint distribution of actual and *potential* firms.
- 2) What will also bother most readers is that we seemed to take evasive ability as exogenous. Firms may not be endowed with evasive ability but may decide instead to choose how much they evade. Their choice will depend on a decision function which we have neglected to model. What are the consequences of modelling firm choice remains to be seen and must form a chapter in any further investigations into the measurement of displacement deadweight loss. Such modelling is crucial because it will inform the researcher on how to pose his survey questions.

Papers finished within the project:

Hanousek, J. and Palda F. 2005. "Estimates of the Displacement Deadweight Loss from Tax Evasion: A Firm Survey Approach using Data from the Czech Republic," CERGE-EI Discussion Paper, January 2005.