XV EAAE Congress – Towards Sustainable Agri-Food Systems: Balancing between Markets and Society

eaae 2017 PARMA ITALY

Impact of Tax Exemptions on Agricultural Productivity Growth in Ukraine

O. Nivievskyi, Project 'Capacity Development for Evidence-Based Land & Agricultural Policy Making' at Kyiv School of Economics (Ukraine)

Introduction

In this paper we looked at how agricultural value added tax (VAT) and profit tax (PT) exemptions affected productivity growth. The effect of explicit budgetary outlays on sector performance is relatively well explored, but theoretical and empirical evidence is mixed (see Minviel and Latruffe, 2017; Martin and Page, 1983; Kalaitzandonakes, 1994). The effect, however, of implicit forms of subsidization on efficiency and productivity is not well explored. And this is despite the fact that implicit subsidies in the form of, for example, tax incentives are very popular in developing and transition countries and sometimes largely dominate the total volume of support to agriculture. In Ukraine, for example, more than 90% of the total budget transfers to farmers was in the form of tax benefits/exemptions in 2011-15.
Tax benefits in Ukraine accrue from two sources: a single tax (PT) and a special VAT exemptions. The single tax is a flat rate tax that replaces mainly profit and land taxes and its rate varies from 0.09% to 1.00% of the farmland value. In 2010, the PT resulted in an average tax payment of only roughly 0.75 US$/ha of arable land ($US9/ha in 2015), which is very low compared to farmers' gross margins in the range of USD 200-400/ha. VAT regime: farmers were entitled to retain the VAT received from their sales to recover VAT on inputs and for other production purposes at the discretion of farmers. In 2015, the benefits from the VAT accrued to USD 1.8 bn. Since 2017 the VAT regime ceased to exist, while PT continues to exist.

Modelling Framework and Data

Two-staged approach: In the first stage we calculate productivity growth using a conventional Divisia TFP change index for each farm in the dataset : $T\dot{F}P = \sum_{k=1}^{K} s_k \dot{x_k} - \sum_{m=1}^{M} r_m \dot{y_m}$. s_k denotes the costs share of input $\dot{x_k}$, while r_m denotes the revenue share of output y_m.
In the second stage, similar to Alston et al (2010), we model farm-specific productivity growth as a function of time-lagged tax benefits, accounting for other control variables. In our modelling exercise we estimated three models with contemporaneous and one period lagged tax benefits, and models 2 and 3 add to the model 1 two and three periods lagged tax benefits, correspondingly.

We use Ukraine-wide farm-level accounting data provided by the State Statistics Committee of Ukraine (based on 50 AG Form data), it is an unbalanced panel of 165777 observations over the period 1995-2014.

Results

Tax exemptions is a very cost-inefficient instrument for stimulating TFP growth. We found very inelastic and similar in sign impact of VAT and PT with respect to TFP growth rates, although the effect of VAT is almost three times bigger. A combined (across the time) effect of VAT is +0.034% (1% increase of VAT increases TFP growth by 0.034%), while a combined effect of PT is 0.016%

Farm size does not matter when considering the effect of VAT, while PT tend to be more advantageous for smaller farms

VAT exemptions tend to benefit more livestock farms, while PT exemptions benefit more crop farmers.

Tax exemptions undermine efficiency and productivity convergence processes in agriculture. We found a strong case for convergence in efficiency and productivity among agricultural enterprises, i.e. less efficient farms tend to have significantly higher TFP growth rates. This encouraging effect, however, is undermined almost by a half by the effects of VAT and PT.

Figure1: Agricultural State Support in Ukraine (nominal), mln UAH

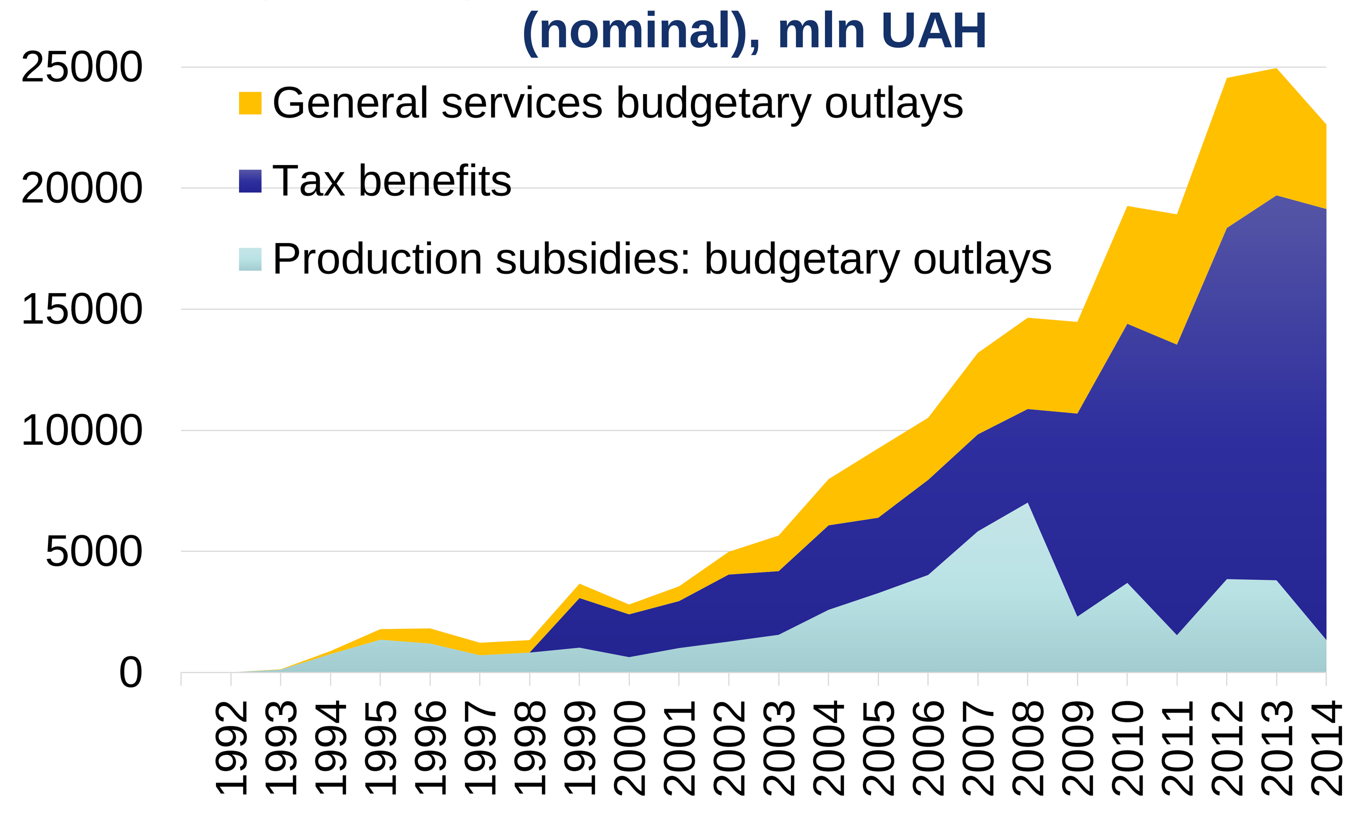

Table 1: Selected regression results

Log (TFP growth)	Model 1	Model 2	Model 3
log(vat)t	0.1642*** (0.0046)	0.1553*** (0.0051)	0.1575*** (0.0055)
log(pt)t	0.0567*** (0.0019)	0.0589*** (0.0021)	0.0559*** (0.0023)
log(vat)t-1	-0.1337*** (0.0046)	-0.1225*** (0.0062)	-0.1247*** (0.0067)
log(pt)t-1	-0.0415*** (0.002)	-0.0397*** (0.0022)	-0.0397*** (0.0024)
log(vat)t-2	-	9e-04 (0.0055)	0.0082 (0.007)
log(pt)t-2	-	-7.8E-06	-9.4E-06
log(vat)t-3	-	-	-0.0018 (0.0063)
log(pt)t-3	-	-	0.0012 (0.0022)
log(eff)t-1	-0.0546*** (0.0028)	-0.033*** (0.0036)	-0.0235*** (0.0044)
log(vat)t-1*log(eff)	-7e-04 (8e-04)	0.0126*** (0.0017)	0.0134*** (0.0019)
log(pt)t-1*log(eff)	0.0122*** (6e-04)	0.0119*** (7e-04)	0.0117*** (8e-04)
Adj. R-Squared	0.47117	0.49518	0.50721

References

Manviel, J.J., and L. Latruffe (2016). Effect of Public Subsidies on Farm Technical Efficiency: A Meta-Analysis of Empirical Results. *Applied Economics*, 49 (2): 213-226

Martin, J.P., and J.M. Page, Jr. (1983). The impact of Subsidies on X-Efficiency in LDC Industry: Theory and Empirical Text. The Review of Economics and Statistics 65(4): 608-17

Kalaitzandonakes, N.G. (1994). Price Protection and Productivity Growth. American Journal of Agricultural Economics 76 (Nov). p. 722-732

Alston, J. M., Andersen, M. a., James, J. S., & Pardey, P. G. (2010). Persistence Pays. US Agricultural Productivity Growth and the Benefits from Public R&D Spending. New York: Springer, 2010

KSE | Kyiv School of Economics

The World Bank financed Project "Capacity Development for Evidence-Based Land & Agricultural Policy Making"