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Taxes, incentives and production: The case of Turkey

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Abstract

This paper investigates the effectiveness of investment incentives and corporate income taxes in influencing production and investment decisions in the Turkish electrical machinery, non-electrical machinery and transportation equipment industries. Three tax instruments are considered; the corporate income tax (CIT), the investment tax allowance (ITA), and the capital cost allowance (CCA). The results show that since there are significant capital adjustment costs, it is important to distinguish between the short, intermediate, and long-run effects associated with the tax instruments. Production decisions are relatively more responsive to changes in the ITA rate compared to changes in either the CCA or CIT rates in each of the runs. However, the ITA and CCA rates are equally cost effective in stimulating investment and superior to the CIT. The CCA and ITA rates generate investment expenditures of 1.5 to 2.5 times the loss in government revenue. Thus targeted instruments outperform the general CIT instrument. In addition, although the incentive to invest is enhanced, there is little effect on output and employment. Therefore, these tax incentives essentially alter production techniques.

Keywords: Corporate income taxes; Investment incentives; Production; Investment decisions; Turkey

JEL classification: H3, O1

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1. Introduction

The Turkish government has had long-standing policy to create incentives in order to encourage firms to invest in manufacturing activities (see Krueger and Tuncer (1982) and Conway (1986)). Tax policy is one important instrument that has been used to influence output supply, labor requirements and capital expenditures. The purpose of this paper is to develop and estimate a model in order to investigate the effectiveness of investment incentives and corporate income taxes in altering production and investment decisions in the Turkish economy. The model is applied to the Turkish electrical machinery, non-electrical machinery and transportation equipment industries. These industries account for 20 percent of manufacturing output and employment and 24 percent of labor compensation.

Most econometric studies focus on the effects of corporate tax policy on investment behavior (see Bernstein and Nadiri (1988)). It is difficult to find an assessment of tax policy on the structure of production, or, in other words, on output supplies and input demands (notable exceptions are Kesselman et al. (1977), Fraumeni and Jorgenson (1980), and Jorgenson (1981) dealing with U.S. production and Bernstein (1986) who analyzes Canadian production). The significance of the production approach is that changes in corporate tax policy can be analyzed simultaneously in terms of both output and input decisions. For example, increases in the capital cost allowance rate affect the incentive to invest in plant and equipment, but also affect the demands for labor, intermediate inputs and consequently the supply of output (see Diewert (1982) and Jorgenson (1986) for various applications of the theory and econometrics of production). Thus the production approach allows for the determination of the direct and indirect effects of changes in corporate tax policy initiatives. This paper is the first to apply this approach to developing countries.

There are three tax instruments that are considered in this paper; the corporate income tax, the investment tax allowance and the capital cost allowance. An important feature of the model is that it allows for deviations from long-run equilibrium in the analysis of the effects of these three instruments. The ability of tax rates and incentives to influence output supplies and input demands can be severely hindered in the short-run because of capital adjustment costs. Capital adjustment costs relate to the completion of plant construction and the installation of equipment. Indeed, for developing countries these costs can be substantial.

Adjustment costs are associated with changes in the level of the capital input as opposed to the costs associated with the use of the input. Adjustment costs create rigidities which prevent factors of production and thereby also output from moving to their long-run magnitudes. These costs can also affect the pattern of changes associated with tax policy. For example, in the intermediate run, an increase in the capital cost allowance rate lowers the user cost of capital and thereby increases the demand for capital. However, adjustment costs limit the ability of producers to incur additional capital expenditures. As a result of the tax policy, production