

Growth, revenue, and welfare effects of tariff and tax reform: Win–win–win strategies

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Abstract

We examine growth, revenue, and welfare effects of tariff and tax reform with a two-good, two-factor endogenous growth model. Learning-by-doing and intersectoral knowledge spillovers contribute to endogenous growth consistent with incomplete specialization. We obtain two main results. First, trade liberalization raises (or lowers) the growth rate if and only if the import sector is more effective-labor-intensive (or capital-intensive). Second, we can attain growth, revenue, and welfare gains by combining consumer–price–neutral tariff and tax reform for growth enhancement with an additional rise in the consumption tax on the less distorted good.

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1. Introduction

It has become increasingly apparent that governments in developing countries are relying more on consumption taxes such as value-added taxes and less on import tariffs in collecting their revenue.¹ A theoretical rationale for this policy movement is the relative inefficiency of

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¹ According to the World Bank (2002), in low- and middle-income countries, the shares of direct taxes (i.e., taxes on income, profits, and capital gains, plus social security), indirect taxes (i.e., taxes on goods and services), and trade taxes in total current central government revenue were 22%, 26%, and 17%, respectively, in 1990. Those shares became 22%, 36%, and 9% in 1999.

import tariffs: they distort not only consumption but also production decisions, and they have a narrower tax base (i.e., consumption minus production) than consumption taxes. Based on this notion, several authors (e.g., Michael et al., 1993; Hatzipanayotou et al., 1994; Abe, 1995; Keen and Ligthart, 2002) have formulated static general equilibrium trade models to show that tariff and tax reform can bring about a win–win outcome: the reform raises welfare without decreasing, and typically increasing, government revenue.

Although the existing theoretical literature focuses on the welfare and revenue effects of tariff and tax reform, in fact the reform also affects another fundamental policy objective: the growth rate of national income. There is much empirical evidence that changes in the relative price of capital goods to consumption goods, often caused by changes in trade barriers, alter the incentives for investment and hence economic growth (e.g., De Long and Summers, 1991; Lee, 1993; Eaton and Kortum, 2001). Taking account of the growth effect may complicate, or even reverse, the welfare and revenue effects of tariff and tax reform obtained in static models. First, changes in the growth rate mean reallocating the intertemporal consumption stream, which influences welfare and the present value of government revenue in a nontrivial way. Second, when a country imports a capital good, investment demand adds to the tax base of an import tariff (i.e., consumption plus investment minus production), which may now be superior to the consumption tax on the same good in raising revenue. The purpose of this paper is to reconsider how tariff and tax reform affects welfare, government revenue, and growth in a developing country in a dynamic general equilibrium model.

We develop a two-good, two-factor endogenous growth model of a small open economy. A capital good (e.g., machine) is either invested or consumed, whereas a consumption good (e.g., food) is only consumed. Each good is produced from domestically owned capital and labor. The engine of growth is learning-by-doing and economy-wide knowledge spillovers of the Arrow (1962)–Romer (1986) type: the effectiveness of a unit of labor in each sector increases linearly with the aggregate amount of capital stock.² As Ohdoi (in press) gave a natural two-sector extension of Barro's (1990) one-sector endogenous growth model with a flow-type public input, we extend Arrow (1962) and Romer (1986) to a two-sector model.³ Our formulation has two advantages. First, in parallel with static models, our economy is always incompletely specialized.⁴ Second, the existence of only one state variable enables us to focus on the steady state, making our problem analytically tractable.

We obtain the following main results. First, the growth effect of tariff and tax reform depends only on factor intensity ranking. Trade liberalization raises (or lowers) the growth rate if and only if the import sector is more effective-labor-intensive (or capital-intensive). This is because the growth rate is, as usual, increasing in the rate of return to capital, which is now governed by the Stolper–Samuelson theorem.⁵ Second, we can always design win–win–win (i.e., growth-, revenue-, and welfare-enhancing) tariff and tax reform as long as consumption of either good is

² Keller (2002), Frantzen (2002), and Park (2004), among others, provided the empirical evidence of intersectoral knowledge spillovers caused by R&D.

³ Drugeon et al. (2003) and Goenka and Poulsen (2005) made similar extensions to examine dynamic properties of a closed economy.

⁴ It is well known that a dynamic two-sector open economy is likely to specialize completely in one good in the steady state, whether the growth mechanism is neoclassical (e.g. Baxter, 1992) or endogenous (e.g. Kaneko, 2000).

⁵ In spite of its status as the core of static trade theory, the Stolper–Samuelson effect rarely appears in determination of the long-run tariff–growth relationship in the endogenous growth literature. An exception is Grossman and Helpman (1991, chapter 6), in which each final good sector uses differentiated intermediate goods and a sector-specific factor. Our model has a simpler and more direct structure that exhibits the tariff–growth linkage via the Stolper–Samuelson theorem.

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