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Revenue-neutral tariff reform and growth in a small open economy

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Abstract

Formulating a two-final-good, two-input, small open endogenous growth model, we analyze the growth effect of revenue-neutral tariff reform. We find that the growth effect of tariff reform depends on the pattern of trade and the elasticities of substitution between inputs and between consumption of final goods. When the economy specializes in the capital good, the revenue-neutral substitution of a tariff on the imported final good for a tariff on the foreign intermediate good always raises the growth rate. However, when the economy specializes in the consumption good, the revenue-neutral tariff reform may raise or lower the growth rate.

JEL classification: F43; H20

Keywords: Revenue-neutral tariff reform; Small open endogenous growth model; Elasticity of substitution

1. Introduction

To finance a targeted amount of expenditure, the government must collect revenue from various sources. In developing economies, tariffs on imports of final and intermediate goods contribute to a non-negligible part of government revenue. The World Bank (2001) reports that taxes on international trade accounted for about 17% of total current revenue on average in low- and middle-income economies in 1990. On the other hand, the two types of tariffs have different effects on resource allocation. In fact, the two types of tariffs are differentiated. According to the latest cross-country data provided by the World Bank

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(2001), the absolute value of the difference between the mean tariff rate on manufactured products (roughly representing final goods) and that on primary products (roughly representing intermediate goods) is about 3.8% on average[1], whereas the mean tariff rate on all products is about 13.4%.

We examine how a tariff structure designed to achieve a fixed amount of revenue affects the growth of a small open economy. Osang and Pereira (1996) constructed a small open endogenous growth model with physical and human capital and a foreign consumption good, a foreign investment good and a foreign intermediate good (which they called "the technology good") to assist human capital accumulation. Using a numerical method, they showed that the revenue-neutral substitution of a tariff on the investment good for a tariff on the intermediate good *always* raises the growth rate.[2] This result contrasts with the following intuition: revenue-neutral substitution of one tariff for another in total may have an ambiguous effect on the growth rate since both the investment good and the intermediate good are essential for economic growth.[3] To explore such a possibility in as simple a setup as we can, this paper presents an analytically tractable model with general functional forms.

We develop a two-final-good, two-input, small open endogenous growth model. Each of the two final goods, a capital good (e.g. machine) and a consumption good (e.g. food), is produced from domestic capital (e.g. machine installed for production) and a foreign intermediate good (e.g. raw material). Since the price of the foreign intermediate good is given, the economy completely specializes in the sector that offers the higher rental rate of capital. Our model can be seen as a hybrid of Lee (1993, Section 3) and Kaneko (2000). In Lee (1993), a single final good is produced from capital and a foreign intermediate good. In Kaneko (2000), capital and consumption goods are produced from domestic physical and human capital.[4]

Our main results are summarized as follows. First, when the economy specializes in the capital good, the revenue-neutral substitution of a tariff on the imported final good for a tariff on the foreign intermediate good always raises the growth rate. Second, however, when the economy specializes in the consumption good, the revenue-neutral tariff reform may raise or lower the growth rate depending on the elasticities of substitution between inputs and between consumption of final goods. Noting that the rate of return to capital is

[1] This might be an imperfect measure of the difference between the two types of tariffs. Manufactured products include some kinds of intermediate goods, while some types of final goods are categorized as primary products. This measure should be seen as an approximation.

[2] In a model with endogenous labor supply, capital externalities, and international borrowing and lending, Osang and Turnovsky (2000) numerically demonstrated that the revenue-neutral substitution of a tariff on consumption good for a tariff on an investment good always raises the growth rate.

[3] The actual data also reveal that there is no tendency for the direction of tariff substitution: the World Bank (2001) provides data on mean tariff rates in the latest two available periods in 71 countries or regions. Three countries or regions substitute tariffs on manufactured products for tariffs on primary products, whereas eight countries or regions do the opposite.

[4] Our model differs from Kaneko (2000) in two respects. First, in Kaneko (2000), the reason for complete specialization is that the relative price of the services of physical and human capital is determined by the no-arbitrage condition between them. Second, the engine of sustained growth in Kaneko (2000) is the reproducibility of human capital, while in this paper and in Lee (1993) it is the unlimited availability of the foreign intermediate good.