The Incidence of Sales Tax Reform with Taxation of Intermediate Goods

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Abstract
In this paper we study the general equilibrium incidence of the most commonly recommended reform to the U.S. state sales tax system: the inclusion in the tax base of services and other commonly exempted consumption goods coupled with the elimination of taxation of business purchases of intermediate goods. We analyze the incidence of such a reform within the context of a small open economy analytical general equilibrium framework with two consumption goods, one of which is also used as an input in production. JEL Codes: H22, H70

Overview
An ideal sales tax would be levied on all final sales of goods and services to consumers, and would exempt from tax all sales of intermediate goods. However, in practice, retail sales taxes in the U.S. frequently fall on business purchases while exempting services, and, often by design, sales of various consumption goods (Mikesell, 2014). Each of these deviations from an ideal sales tax generates distortionary costs. The famous production efficiency theorem of Diamond and Mirrlees (1971) shows that, under the appropriate circumstances, taxes on intermediate goods are inferior to taxes on the consumption of final goods. Atkinson and Stiglitz (1976) and Kaplow (2006) prove that, with homogenous preferences that are weakly separable in consumption and leisure, differential commodity taxation is inferior to uniform commodity taxation in combination with a non-linear income tax. Further, differential taxation of consumption commodities is notoriously difficult from an administrative standpoint. As a
consequence, economists have often called for the elimination of taxes on business purchases and the inclusion of consumer services and other final consumption goods in the retail sales tax base (e.g., Due and Mikesell, 1994; Zodrow, 1999; McLure, 2000; Viard, 2010, 2011a,b). The incidence of commodity taxes has been extensively studied by Kul Bhatia in a closed economy setting, exploring the incidence of both differential excise taxes (Bhatia, 1982a) and intermediate good taxes (Bhatia, 1982b). Since sales taxes are levied in the United States by state and local governments that face strong interstate competition, we extend this analysis to consider comprehensive state sales tax reform within the context of a general equilibrium model that allows for mobile capital.\(^1\)

Our model includes two final consumption goods, one of which is also used in production, and is thus both an intermediate good and a final consumption good. This enables us to analyze the elimination of the taxation of intermediate goods coupled with the elimination of consumption tax differentials within an analytically tractable general equilibrium model that captures all reform-induced changes in capital investment, wages, and final consumer prices.

\(^1\) Another recent paper by Barbe and Zodrow (2015) also works in an open economy framework, analyzing sales tax reforms using a highly complex many-sector, many-individual computable general equilibrium model. Our analysis is complementary in that it is designed to provide insights into the general equilibrium effects of sales tax reforms using a relatively simple and tractable analytical model. Bhatia (1997) also considers an open economy in an analytical setting, but focuses on incorporating traded goods, not mobile factors, and does not study the incidence of intermediate goods taxation.
References


