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Journal of International Economics 68 (2006) 92–114

Journal of
INTERNATIONAL
ECONOMICS

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Terms of trade risk with partial labor mobility

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Received 19 May 2004; received in revised form 17 May 2005; accepted 28 June 2005

Abstract

We examine the welfare consequences of terms-of-trade risk in a small open economy in which it is costly for workers to move between sectors. Relocation costs lead to partial labor mobility, sectoral wage gaps and income risk exceeding that of an economy in which relocation is costless. Using observed wage differentials and standard values for volatility and preferences, we find that the welfare cost of partial labor mobility alone is unlikely to be very large, even in the absence of self-insurance arrangements. In addition, modest consumption substitution elasticities significantly reduce these welfare costs.

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Keywords: Open economy macroeconomics; Terms-of-trade volatility; Resource reallocation; Partial labor mobility; Welfare costs

JEL classification: F41; D61

1. Introduction

Small open economies face large and unpredictable swings in their terms of trade. The ubiquity of these shocks and their implications for business cycles were first discussed by [Mendoza \(1995\)](#) who analyzed data on the G-7 industrial nations and 23 developing

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countries. In his sample, the standard deviation of terms-of-trade shocks was 4.7% for the G-7, and about 12% for the developing countries. More recently, using a sample of 66 developing countries, [Bidarkota and Crucini \(2000\)](#) find that among the top quartile of countries exhibiting the highest terms-of-trade volatility, the standard deviation of the country terms of trade was an extraordinary 25% per year. For the next three quartiles, the standard deviations were 16%, 12.5%, and 8.5%, respectively. The substantial income risk induced by terms-of-trade shocks is therefore of considerable concern for a wide range of economies. In part, the burden of these shocks can be cushioned by reallocating expenditures across sectors, so as to minimize consumption volatility. Moreover, on the production side, when agents respond to reallocation incentives instantaneously and costlessly, it is only the aggregate consequences of terms-of-trade shocks that matter given that marginal factor products are always instantly equalized across sectors.

However, the assumption of dynamic and reversible short-run resource reallocation may significantly understate the welfare effects of terms-of-trade volatility. Short-run adjustment decisions involve a balance of the costs and benefits of relocating, which may lead agents to approach resource reallocation in a seemingly “sluggish” manner. In recognition of these costs, the theory of international trade has traditionally incorporated a “fixity” of factors of production, particularly in specific factor models. When agents respond sluggishly to changes in incentives, sectoral marginal products will not be equalized and some sectors of the economy will be disproportionately affected by a given external shock. This raises the possibility of additional domestic and sector-specific risks, which may compound the welfare costs of external shocks.

How important are the economic and welfare consequences of costly resource reallocation in an economy exposed to substantial terms-of-trade volatility? To address this issue, we analyze consumption risk within a two-sector dynamic general-equilibrium framework where workers must incur a fixed cost before relocating to another sector, thereby introducing endogenous partial labor mobility. As forcefully argued by [Dixit and Pindyck \(1996\)](#), among others, any attempt to model the cost of frictions must take into account the recurrent nature of relative price changes and the consequent general equilibrium effects on the distribution of resources in the economy, as these elements can lead to sharply different conclusions about welfare. We therefore include both of these elements in our framework. Because workers in the traded and non-traded goods sectors face different wage prospects, we are simultaneously able to assess the welfare costs of overall labor immobility as well as potentially uninsurable sector-specific labor-income risk.

Using empirically available sectoral wage differentials and parameter values for terms-of-trade volatility and preferences taken from the literature, our results suggest that the welfare cost of partial labor mobility alone is unlikely to be very large, even in the absence of self-insurance arrangements. Specifically, we find that the welfare cost of partial labor mobility is typically less than 2% of lifetime consumption, and about two-thirds to half of this cost is attributable to sector-specific labor-income risk that can be diversified away by domestic risk-sharing arrangements.¹ However, the relative welfare significance of partial

¹ Our primary focus in this paper is on the link between the terms of trade and resource reallocation. To the extent that fluctuations in the terms of trade affect the growth rate of income, there would be further welfare implications; [Mendoza \(1997\)](#).

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