

# Trade Diversion and Production Sharing

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**Abstract.** This paper examines the repercussions of cross-border production sharing for the welfare effects of preferential trade liberalization. In a general-equilibrium context, a free trade agreement (FTA), which incorporates production sharing, raises the likelihood of welfare improvement. Thus, two members of a free trade area, who each have comparative disadvantage in the production of a final product relative to a non-member, may nevertheless enjoy net trade creation if they jointly possess comparative advantage in key components of that product. At a minimum, cross-border production sharing reduces the trade-diverting elements of an FTA. It follows, that rules of origin, viewed as constraints on cross-border fragmentation, augment the negative, trade-diverting elements of free trade areas.

**JEL Classification:** F11, F13, F15

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## 1. Introduction

As globalization spreads, markets are becoming more integrated across countries and economic activities more linked and intertwined. Continuing progress in trade and investment liberalization, as well as declining communication and transportation costs, play an important role in this process. As economies become more open and market access is improved, trade grows and production spreads across borders. As a result, end products entering into international trade contain parts and components from many countries.

The focus of this paper is on factors that inhibit and factors that encourage cross-border sourcing and their implications for the welfare effects of preferential trade liberalization. This is an important issue, because the welfare effects of cross-border production fragmentation are not independent of the trade policy regime. Under conditions of free trade in a standard trade model, for example, cross-border sourcing of components is welfare-enhancing. Its effects are analogous to those of technical progress. In the context of a most-favored-nation tariff regime (MFN), on the other hand, it may be welfare-reducing.<sup>2</sup>

The simplest models of preferential trade liberalization deal with trade in products that are produced entirely within national boundaries. Comparative advantage considerations then provide ready efficiency assessments and welfare calculations. In this framework, trade creation arises when imports of a finished or intermediate product from a partner country replace domestic production. Trade

diversion, on the other hand, is associated with the shift of imports from low-cost outsiders to higher-cost FTA partners. In this context, the welfare effects of preferential trade liberalization are ambiguous.

Our interest, however, is in a deeper form of preferential trade liberalization, one that facilitates production sharing across borders. Here, the comparison of interest is not between the cost of producing an entire product in the countries involved, but comparison between fully home-based production in the non-member country and cross-border production sharing by the FTA members.

The intuition is that a country may be the world's low-cost producer of a product, without necessarily being the low-cost producer of every one of its components. When production of the product shifts from a nationally integrated set-up in the non-member country to a regionally fragmented production framework inside the preference area, the trade creating and trade diverting elements are rearranged in important ways.

The remainder of the paper proceeds as follows. Section 2 provides a brief review of the welfare effects of cross-border component sourcing under a variety of trade policy regimes. Section 3 employs a two-country general-equilibrium trade model to examine the effects of rules of origin, when these are interpreted as interventions designed to prevent optimal component sourcing. Section 4 examines the effects of cross-border component sourcing on domestic production and welfare in a simple partial-equilibrium framework. Section 5 employs a three-country, partial-equilibrium model to assess the extent of trade diversion in discriminatory trade liberalization with and without component specialization. Section 6 concludes.

## **2. Production Sharing, the Trade Regime, and Welfare**

The welfare effects of cross-border fragmentation and production sharing have received considerable attention in the recent literature.<sup>3</sup> Under conditions of free trade, cross-border production sharing in either the import or the export sector of a small country unambiguously raises national welfare as it extends specialization from the level of products to that of parts, components and assembly. When it takes place in a large country, it generates terms-of-trade effects, which may augment or undermine the welfare effects of production sharing per se. Since it tends to increase domestic output in the sector in which it occurs, it turns the terms of trade in favor of the country when it takes place in the import sector and against it when it occurs in the export sector.<sup>4</sup> These tendencies are reinforced by complementary adjustments in the trading partner, when that country is also large. Then, output of the good subject to production sharing increases there as well, so that the price-depressing effects are enhanced.<sup>5</sup>

In a small country, cross-border fragmentation is also welfare-creating when it is part of a preferential trade agreement, and may thus turn an otherwise trade-diverting PTA into a trade-creating one. For large countries, the effects of production sharing on the terms of trade need to be taken into account along the lines discussed above.

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