

-Embodied services in trade in goods

This factor, along with measurement problems, is one of the most important factors contributing to the relatively small size of international trade in services. François and Reinert (1997) examined the importance of commercial services as intermediates in embodied manufacturing exports. They found that services are a major aspect of production, including for exportables. For high and middle-income countries, including Canada, the significance of the service sector for overall exports and imports is much greater than the direct trade balance suggests.⁷⁷

For Canada, Grubel (1986) examined the role of direct and embodied services in trade. He found that during the study period, 1973 to 1983, services in embodied goods had grown more rapidly than merchandise trade. The combined final and embodied service trade grew at just about the same rate as merchandise trade. As will be shown later in the paper, trade in services has recently grown faster than merchandise trade. Furthermore, the value added of intermediate services is becoming a larger proportion of the value of goods produced and traded for domestic markets. Grubel concluded that this process is likely to continue as long as there is further accumulation of human and knowledge capital per worker and a growth in specialization.⁷⁸

Estimates from an input-output model by Harris and Cox (1989) showed that one dollar of Canadian exports in 1981 contained an average of about 25 cents worth of services. The embodied services in a marginal dollar's increase in export, however, were 40 cents. Embodied services are also important in our bilateral trade with the US. The same authors found that 30% of the Canada-US bilateral trade were embodied services and that represented 9.3% of Canadian GDP in 1981.⁷⁹ For goods producing industries to become competitive worldwide, their development is directly linked to the performance of its service inputs.

-Role of new technologies

As with the service sector output in general, technology plays an important role in trade in services. For example, certain services (e.g., medical services) that have traditionally been considered non-tradable because they required the simultaneous presence of the provider and consumer, can now be exchanged electronically. In that regard, it has been observed that where personal contact between buyer and seller is required, the cost of mobility limits tradability.⁸⁰ Changes in technologies can also lead to a "substitution effect" as a good may become a service when provided electronically (e.g., a book published on the Internet). Rada (1987) has provided a useful list showing the main impact of information technology on internationally traded services. These are: an

⁷⁷ François and Reinert (1997), p.12-13

⁷⁸ Grubel (1986)

⁷⁹ Grubel and Walker (1989)

⁸⁰ Bhagwati (1984)