



Transfer problem dynamics: Macroeconomics of the Franco-Prussian war indemnity[☆]

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Abstract

We study the classic transfer problem using the largest historical example, the Franco-Prussian War indemnity of 1871–1873 which saw France transfer to Germany 25% of a year's GDP. A dynamic, two-country model allows for debt finance, supply-side effects, and controls for wartime spending. The model can fit the historical paths of French net exports and the terms of trade. But explaining French output and consumption requires additional shocks. These results illustrate the usefulness of the DSGE approach to the transfer problem and provide striking evidence of the importance of international capital markets in the 19th century.

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1. Introduction

What are the economic effects of a unilateral transfer of resources between countries? In textbooks on international economics, this question is referred to as the ‘transfer problem’. Transfers were an endemic feature of economic history (at least until the 1930s); they typically followed wars, and were imposed by the victors on the defeated party. Although the debate on the transfer problem goes back to the 19th century, the best known reference is the Keynes–Ohlin controversy in the 1929 *Economic Journal* concerning the impact of German reparation payments after the 1914–1918 War.

Despite the empirical prevalence of transfers, most of the literature on the transfer problem has been theoretical, and set in the context of static models of international trade. Many studies focus on quite narrow questions regarding the impact of the transfer on welfare of the donor or the recipient. Since the traditional models tend to ignore many critical channels through which transfers may operate, such as endogenous output, capital accumulation, and international capital markets, they do not easily allow for a quantitative investigation of transfers.

This paper studies the transfer problem using a multi-country growth model. Within this framework, transfers can have a rich series of effects, depending on the sectoral structure of the economy, the assumptions about labor supply and investment technology, and the degree of access to international capital markets. Our principal focus is on the quantitative impact of a transfer. Transfers represent large shifts in wealth between countries within a short time period. They thus represent experiments that can be used to test models of international economics. In this study, we focus on the largest transfer in history; the Franco-Prussian War indemnity payment of 1871–1873.

There are a number of reasons why the study of large transfers is of interest. First, understanding the response to a transfer can shed light on the way to build models in open-economy macroeconomics. For example, the response of the current account to the transfer may help us assess the intertemporal approach to the current account or the related question of how to model market incompleteness or limits on international risk-sharing. Similarly, the response of prices to the transfer should be informative about general equilibrium models of the terms of trade.¹

Second, as we have noted, transfers play an important role in economic history. The Franco-Prussian War indemnity was blamed by popular historians for everything from the German stock market crash of 1873 to slow population growth in France. Since transfers generally followed wars, identifying the economic effects of the transfer or reparations requires that we control for other shocks, such as those to government spending during wartime.

Although much has been written about the transfer problem in general, and the Franco-Prussian war indemnity payment in particular, to the best of our knowledge, there have been no quantitative, historical studies of the macroeconomic effects of transfers that use a DSGE method. Our quantitative investigation of the effects of the transfer employs a conventional, two sector, dynamic, general equilibrium model of open economies, in which we look at a transfer in combination with other shocks. Using data from France during the 1860s and 1870s, we describe the historical evolution of the key macroeconomic

¹A standard reference on the intertemporal approach to the current account is Obstfeld and Rogoff (1995). See Backus et al. (1994a,b) for modelling terms of trade movements.

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