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Real and Monetary Issues of International Economic Integration

Edited by

Gerhard Rübel

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GERHARD RÜBEL (ed.)

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Preface

From April 15th-17th 1999, the 1st Passau Workshop on "International Economics" was held under the auspices of the Economics Department of the University of Passau. Two reasons induced my associates and me to set up this meeting. On the one hand, increasing globalization is bringing issues associated with international economics to the fore in academia, too. On the other hand, in contrast to this observation contributions on international topics given at economics conferences have decreased over the last few years.

In late summer of 1998 we issued the first call for papers. Invitations went out to all of our relevant colleagues in the German-speaking countries, but also explicitly to young economists, i.e. tenure-track post docs, Ph.D. students and members of research institutes. The response was extraordinarily positive, so that on three days more than thirty presentations were held and discussed. In view of this success, the Passau Workshop "International Economics" will be continued.

This edited book contains 10 contributions chosen from those given at the workshop, dealing with real and monetary aspects of international integration.

How falling transportation costs can lead to "The Emergence of Multinational Enterprises" is shown by *Jörn Kleinert*. In his paper a general equilibrium model of bi-directional intra-industry FDI between industrialized countries is used to show that decreasing transport costs first lead to increased FDI activities and only later to decreased FDI. Additionally, his analyses reveals that FDI is more likely in industries with differentiated products, with higher scale economies on company relative to plant level, with smaller inputs of intermediate goods and with more differentiated intermediate goods.

Michael Koop tries to combine the different aspects of international economic activity into one general equilibrium model and to derive a comprehensive theory of globalization. His model explains various types of trade, FDI, and MNEs. Simulation techniques are applied to assess the influence of country asymmetries and transportation costs on production patterns, trade, and investment flows.

If MNEs transfer capital from industrialized countries to developing countries and relocate intermediate production processes, does this development lower demand for labor in the capital exporting country? *Carsten Eckel* explores the impact of international production strategies of MNEs on labor de-

mand in the home country and finds that under certain conditions demand for labor in the capital exporting country can even increase.

Harald Proff analyses the intra- and inter-regional similarities and differences between developing countries in the main integration areas AFTA, SADC and MERCOSUR to evaluate the question of whether regional integration will lead to marked inequality in these regions. His results give rich insights into how heterogeneous some of these groups are with respect to various economic and social parameters.

The impact of a devaluation on a large open economy with imperfect competition in the home and the foreign market is analyzed by *Thomas Büttner*. He shows that the impact is weaker than that on a small economy, that an exchange rate shock has real long run effects, and that incomplete exchange rate pass-through persists after wage adjustments. Therefore, his model offers an explanation for pricing to market in the long run.

Christof Fischer sets out to explore the determinants of the long run natural real exchange rate in a medium-sized economy dependent on raw material imports. He finds that these are eventually the same determinants as for such a country's capital stock and net foreign debt. Shocks of fundamentals are introduced to examine their impact on the medium and long run equilibrium values.

In a joint paper, *Gregor Kolck* and *Dirk Rübesamen* address the issue of a "Tobin Tax and Exchange Rate Volatility". They introduce a Tobin tax into a Dornbusch-overshooting model and investigate whether the positive correlation between volatility and trading volumes allow a conclusion on the stabilizing effects of a Tobin tax.

Michael Carlberg addresses the issues of how to treat the European Monetary Union in macroeconomic analyses. He models the monetary union as an open economy with perfect capital mobility that consists of two identical countries, say Germany and France, and analyzes both fiscal and monetary policies. His results show that in such a setting only policy mix can boost income effectively.

In her paper "Coordinating Monetary Policy between Ins and Outs" *Sylvia Staudinger* investigates two possible target regimes to coordinate the policy between the European Monetary Union and non-participating countries. Under which conditions should both central banks target inflation or should only the ECB target inflation and the outside central bank should target the nominal exchange rate? This question is analyzed in a Mundell-Flemming framework by determining the outcomes of the main macroeconomic variables.

Christiane Nickel looks at the future of the EMU and examines how fit EU candidates are for the monetary union. Her study is based on the theory of optimum currency areas and by empirically assessing an OCA index she finds that "first wave" candidates for the EU appear to be as ready for the EMU as some non-EMU EU members.

Gerhard Rübel

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I. Introduction

Multinational enterprises (MNE) stand at the centre of the new wave of globalisation. They are a dominant part in each of the different aspects of globalisation. First, the turnover of foreign affiliates in 1995 was at US$ 7 trillion, exceeding world trade in that year (The Economist, 1998). Second, 40% of world trade takes place within MNEs (Panic, 1997). Third, a high percentage of world wide R&D activities is carried out by MNEs. The global payments of fees and royalties for technology quadrupled from 1983 to 1995. In 1995, 80% of these payments flew between parent companies and their foreign affiliates (UNCTAD, 1997). Forth, world wide foreign direct investment (FDI) set a new record in 1996. It increased to US$ 347 billion (UNCTAD, 1997).

FDI is increasingly intra-OECD investment. According to de la Mothe (1996), in 1991 70% of world wide FDI stock is cross industrial country investment, compared to 51% in 1967. A high and increasing share of these FDI is intra industry cross investment (Cantwell and Sanna Randaccio, 1992). Factor price arbitrage does not seem to be the crucial reason behind this development. A large share of FDI is probably better explained by proximity-concentration theories. That is supported by the more than 90% of the output of US affiliates in Europe and Japan which are sold within the region (de la Mothe, 1996).

Despite their importance, MNE are still not well understood in theory. The OLI (Ownership, Location, Internalisation) paradigm (Dunning 1977, 1988) is dominant in the management literature on MNE. It has proved to be a useful way of organising almost all known factors which cause FDI, but it lacks rigorous theoretical formulation. Literature on the theory of MNE is rather new. It started with Markusen (1984) and Helpman (1984). More recent studies include Brainard (1993), Markusen and Venables (1995) and Koop (1997). Markusen and Venables (1995) and Koop (1997) analyse trade, investment and MNE in a general equilibrium framework using simulation techniques. "The key idea is that in each of the two countries a homogenous

good which is produced with economies of scale at the plant and at the firm level can be produced by exporters and/or multinational firms" (Koop, 1997: 5)

This paper keeps to the tradition of Brainard (1993) in that, a homogenous and a differentiated goods sector are modelled. That makes the results directly comparable to the findings of new trade theory. The differentiated goods sector is made up of companies producing final goods and companies producing intermediate goods. These companies engage in monopolistic competition within their groups. Since intermediate goods are often very specific to a production process or final goods, it is assumed that final product firms exclusively use intermediate goods from their home country. The final good producer produces in a multi-stage process that includes fixed inputs at the corporate level (R&D, marketing) and at the plant level. The variable costs incurred in production include the costs for the input of intermediate goods and factor costs of skilled and unskilled labour. Final goods producing companies choose between exports and production abroad to serve the foreign market. Export saves on additional fixed costs at the plant level, while production abroad saves on transport costs.

Only economies with identical relative factor endowments are examined to exclude effects which result from factor price differentials, since these are not the driving force behind developed countries' cross FDI. The paper goes beyond Brainard (1993) in (i) that it allows for differences in absolute factor endowments of both countries, which make numerical simulations necessary but gives richer insight in the complexity of the investment decision; (ii) the introduction of an intermediate goods sector; (iii) that conditions of competition are changed by letting transport costs decrease throughout the simulations.

It is the central aim of this paper to present a model of bi-directional intra industry FDI which is able to reproduce these basic stylised facts of FDI development in past decades.

In models of FDI so far, FDI increases if transport costs increase. But this theoretical prediction is at odd with the facts. In the last decades transport and communication costs fell and FDI increased. Moreover, existing models are hardly able to explain the time pattern of FDI with investment first by US companies, later by companies from other industrial countries and recently also from industrialising countries. In addition to political factors, globalisation is driven by falling transport and communication costs. The simulations in this paper mimic reality by letting transport costs decrease. Transport costs affect the profitability of a company's FDI. Through variation of different model parameters simulations identify determinants of a company's investment decision.

The major results can be summarised as follows: At moderate transport cost levels production abroad is more profitable than exports, at high and low levels exports are more profitable. If economies differ in size, the companies in the larger country invest abroad first. For companies in the smaller country investment only becomes profitable, if transport costs are falling further. It may also be the case that it is never profitable for those firms although they produce with the same technology as the companies in the larger country.

The profitability of FDI differs between industries. It is more profitable to invest abroad for a highly differentiated industry than for industries producing less differentiated goods. Further, the emergence of MNE is accelerated by a higher share of fixed costs at the company level relative to the plant level and slowed down by an increasing amount of intermediate goods used in production.

II. The Model

Consider two countries, G and K, each with two sectors of production. One sector, agriculture, produces a homogenous product Q_A with constant returns to scale under perfect competition. The other sector, manufacturing, produces a variety of final goods and a variety of intermediate goods under imperfect competition. The aggregate amount of output of the final goods in the manufacturing sector is Q_M. Each firm produces only a single variety i; output is denoted q_i. The final goods producer, which can serve the foreign market through exports or production abroad, uses intermediate goods, which are also produced in the manufacturing sector. The aggregate amount of output of the intermediate goods Z is used as input exclusively by the final goods producer headquartered in the same country. An individual intermediate firm's output is denoted z_i . The structure of the production side of the economy is shown in Figure 1.

It is assumed that every individual is either endowed with one unit of unskilled labour L or one unit of skilled labour H. Labour is perfectly mobile within national economies. However, there is no cross-border mobility of labour. The labour market equilibria give wage levels for unskilled and skilled labour w_j, v_j in country j. Full employment is assumed.