

newsletter

Leverhulme Centre for Research on Globalisation and Economic Policy

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Leverhulme Centre
for Research on Globalisation and Economic Policy

China and the World Economy

by Chris Milner (Professor of International Economics, University of Nottingham and co-ordinator of the new GEP programme "China and the World Economy")

Following a visit by David Greenaway and Chris Milner to Fudan University in Shanghai earlier this year, GEP hosted two visiting Economists from Fudan's Department of International Economy and Institute of World Economy (IWE) in late June. Professor Hua Min (Chair of the Department) and Associate Professor Luo Han came to discuss the potential for collaborative research, as part of GEP's new research programme on 'China and the World Economy'.

As a result of these meetings, GEP and IWE signed a letter of understanding to

establish a research co-operation programme between the two institutions; the agreement running in the first instance for three years from 1st July 2005. The programme will involve joint investigations on the impact of globalisation on China's development and into the impact of China's development on patterns of international trade and specialisation and on the resulting adjustment processes in China's export markets. It is expected that as part of the collaborative research there will be joint bids for research funding, joint conferences and workshops and ex-

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Welcome to Daniel Bernhofen

We are delighted to announce that Daniel Bernhofen has joined the School of Economics as Professor of International Economics and GEP as co-ordinator of the newly established GEP Programme on "Theory and Methods".

Prior to moving to Nottingham he taught at Clark University in Massachusetts, where he is still holding a research professorship. He also taught at Brandeis University, Tufts University and the University of Ulm. Daniel's research specialty lies in international trade and industrial organization. His publications have appeared in *American Economic Review*, *Journal of Political Economy*, *Journal of*



Daniel Bernhofen

International Economics, *Canadian Journal of Economics* and *Review of International Economics*. His current research on the 'natural experiment of Japan' is funded by the US National Science Foundation.

changes of visiting staff and research students.

Planning is already underway for the running of a jointly organised conference in Shanghai in September 2006 on the theme of 'China-EU Trade and Investment', with invited contributors from the two institutions and from other research centres in China and elsewhere. Formal invitations should be issued before the end of the year and details will

be available shortly on the GEP web site.

This is an exciting development that will give impetus to the launch of GEP's 'China and the World Economy' programme. It is evidence that there is enormous potential for research in this area and GEP is confident that this cooperation agreement will be the start of a long and fruitful collaboration on China-related research.



Professors David Greenaway, Luo Han, Hua Min and Chris Milner

Welcome to... **Jim Tybout as External Fellow**

Jim Tybout is Professor of Economics at Pennsylvania State University. He works mostly on industrial sector problems in developing countries. His recent publications include "Plant- and Firm-level Evidence on the 'New' Trade Theories" (in E. Kwan Choi and James Harrigan, ed., *Handbook of International Trade*, Oxford: Basil-Blackwell, 2003), "Manufacturing Firms in Developing Countries: How Well do They do and Why?" (*Journal of Economic Literature*, March 2000), "Is Learning by Exporting Important? Micro-dynamic Evidence from Colombia, Mexico and Morocco" (co-authored with Sofronis Clerides and Saul Lach, *Quarterly Journal of Economics*, August 1998).

He is co-editor of the *Journal of International Economics*, an associate editor for the *Review of Economics and Statistics* and a member of the editorial board for the *Journal of Policy Reform*.

Conference Announcement



Leverhulme Centre
for Research on Globalisation and Economic Policy



Foreign Direct Investment and Taxation

3rd October, 2005

Speakers include

Ruud de Mooij (Erasmus University)

How Does Foreign Direct Investment Respond to Taxes: A Meta Analysis

Ben Ferrett (GEP, University of Nottingham)

Competing for a Duopoly: International Trade and Tax Competition (with Ian Wooton)

Mike Devereux (University of Warwick and IFS)

The Location of Firms and Capital: Two Roles for Taxation?

John Mutti (Grinnell College)

The Changing Nature of US Direct Investment Abroad in Manufacturing

Saileshsingh Gunessee (GEP, University of Nottingham)

How Robust is the Strategic Tax Competition Model? An Experimental Study

Markus Leibrecht (University of Vienna) and Christian Bellak (University of Vienna)

Effective Tax Rates as a Determinant of Foreign Direct Investment in Central and East European Countries: A Panel Analysis

For further information and to download the papers, see the GEP website for details
(www.gep.org.uk) or contact sue.berry@nottingham.ac.uk

Globalisation and Firm Level Adjustment

*In June 2005 GEP hosted its annual residential conference on 'Globalisation and Firm Level Adjustment' bringing together researchers from Universities in the US, Canada, the UK and Europe. In this conference report **Richard Kneller** outlines what were the main themes and findings of the papers presented. Richard is an Internal Research Fellow of GEP at the University of Nottingham. Richard is an Internal Research Fellow of GEP at the University of Nottingham.*

Interest in a range of aspects of firm level adjustment to falling trade costs has exploded in recent years. This has been stimulated by two complementary developments. First, major theoretical breakthroughs have resulted in new ways of thinking about firm heterogeneity and participation in international markets. Second the growing availability of micro level datasets has facilitated detailed analysis of aspects of firm level adjustments to globalisation. Attending the conference were many of the researchers who have contributed to making this a vibrant research field.

A number of themes emerged from the conference. Included amongst these was the theoretical framework through which the export and FDI decisions of firms might be framed. Dominant within the empirical approach of many of the papers presented was the heterogeneous firm model of Melitz, where the exogenous productivity level of firms results in self-selection into foreign markets. Direct empirical application of the model could be found in the papers by Marc Melitz (*Trading partners and trading volumes*) and Steven Yeaple (*Firm heterogeneity and the structure of US multinational activity: An empirical analysis*). A theoretical model of this type was also extended by Steve Redding (*Comparative advantage and heterogeneous firms*), where the approach of the paper was to combine heterogeneous firms with Helpman and Krugman assumptions of imperfect competition and scale economies, and Heckscher-Ohlin differences in factor endowments. In so doing the paper finds that the standard trade theory predictions are amplified by the existence of heterogeneous firms.

The issue of exogenous firm heterogeneity (as modelled above) versus endogenous heterogeneity is a dominant theme within the literature, and so too at the conference. Carl Davidson (*Globalisation and firm level adjustment with imperfect labour markets*) presented a theoretical paper of the endogenous type; in which firms' export

participation decision is determined by their choice about the employment mix of workers. Empirical tests between these models were then presented by Joze Damijan (*Does exporting increase productivity? Firm level evidence from Slovenia*) and Peter Egger (*Multinationals have higher domestic investments than national firms*), albeit where the former considered the export decision of firms and the latter the investment decision of multinationals. Both papers made attempts to control for self-selection effects. Like much of the literature, they reach contrasting conclusions.

Another theme of the conference was the economic effect of the decision of multinational firms on productivity and wages and the impacts of multinational firms on other firms. The effect of multinationals on the wages paid to their employees was considered in a paper by Patrik Gustavasson (*Does foreign ownership increase wage dispersion?*), the productivity effects of outsourcing by Holger Görg (*International outsourcing, foreign ownership, exporting and productivity: An empirical investigation with plant level data*) and the productivity effect of ICT investment and organisational change by Jonathan Haskel (*IT, organisational change and productivity growth: Evidence from UK companies*). Again there was a contrast in the results found. In Patrik's study he found no effect when workers are compared to 'similar' workers in similar firms, whereas Holger found significant effects on firm performance. Finally, Jonathan found that US firms operating in the UK are more likely to introduce organisational change relative to other firms.

A unifying theme of the impact of multinational firms on other firms was that of export spillovers. Does the presence of multinational firms encourage domestic firms to export. This issue was considered for China by Deborah Swenson (*Multinationals and the creation of*

Conference report contd...

Chinese trade linkages) and by Mauro Pisu (*Industrial linkages and export spillovers from FDI*). Interestingly, despite obvious differences in the country of interest, multinationals were found to have both positive and negative impacts, and there was evidence of both spillovers and congestion effects from foreign multinationals on domestic firms.

A final theoretical strand of the conference was to take into account the strategic interactions between firms. Ian Wooton (*Market structure in services and market access in goods*), Ben Ferrett (*Intra- and inter-firm technology transfer in an international oligopoly*) and Peter Neary (*Multi-product firms and flexible manufacturing in the global economy*) presented papers within this theme. Ian presented a paper that examined the interaction between trade in goods and market power in domestic trade and distribution sectors and Ben the two-way causal interaction

between the productivity distribution and the entry choice of multinational firms. Finally, Peter's paper considered how firms add and drop products from their production line in the face of changes in competition. This element of the decision of firms was similar to that presented by Wulong Gu (*The impact of trade on plant scale, production-run length and diversification*), albeit where this paper considered this in the context of Canadian-US trade liberalisation.

From the conference much was learnt about how firms respond to an increasingly globalised world. Perhaps the overreaching message of the conference was that firms are likely to respond in many different ways, but that much was understood about why these responses were different.

The papers presented at the conference, and other details, can be found on the GEP website.

Leverhulme Globalisation Lectures

John Martin

Director of Employment, Labour and Social Affairs, OECD

28th November 2005

Martin Wolf

Associate Editor and Chief Economics Commentator, The Financial Times

23rd February 2006

For further details see the GEP website www.gep.org.uk

The Nottingham Lectures in International Economics

Professor Alan Deardorff
University of Michigan

on

**“The Heckscher-Ohlin Model:
Flaws, Fixes and Future”**

17th October 2005

“What’s Not to Like about the H-O Model”

18th October 2005

**“Attempts to Make the H-O Model More
Believable”**

18th October 2005

“Future Fixes of Flaws in the H-O Model”

The Effect of Outsourcing on Firms' Productivity

*International outsourcing is an increasing and controversial phenomenon. In the popular press of developed countries it is often indicated as the main or sole cause of job losses in manufacturing bringing about no benefits whatsoever. In this article, **Holger Görg**, based on a new joint research with Aoife Hanley and Eric Strobl, looks at the other side of the coin to see whether or not international outsourcing can result in higher efficiency levels. Holger is an Internal Research Fellow of GEP at the University of Nottingham.*

The increasing international outsourcing of parts of the production chain by firms in developed countries has sparked a heated debate about the economic costs and benefits of this activity. One highly visible cost of course is the possible displacement of workers. As to the benefits, research in progress by Holger Görg, Aoife Hanley and Eric Strobl, presented at the GEP Annual June Conference on "Globalisation and Firm Level Adjustment" argues that international outsourcing through overseas procurement can have significant positive effects on firms' total factor productivity.

Interestingly though, it is only firms in the export sector, be they domestic-owned or part of a foreign multinational, that manifest this productivity improvement. It suggests that firms that are embedded in international networks due to their exporting status are the ones that stand to gain the best value for money when outsourcing international inputs.

It is widely recognised that a major challenge facing companies in the ever more globalising world economy is whether or not to keep pace with the international drive to outsource intermediate production (materials and services inputs) to overseas suppliers. The jury is still out as to whether this activity is beneficial for the firm. But up to now only a small num-

ber of rigorous empirical studies have looked at the effect of such international outsourcing on company performance. Most of our understanding of the implications for firms of outsourcing production abroad is pretty anecdotal and not at all clear cut. For example, 56 percent of respondents to a survey undertaken by the *Software Development Magazine*, published in their January 2004 issue, claimed that outsourced IT work was worse than that produced in-house. More worryingly, perhaps, is that 11 percent reported that the outsourced work induced a setback in the firm's production. This at least casts some doubt over whether international outsourcing is in all cases a value enhancing strategy.

The study by Görg, Hanley and Strobl empirically examines whether by increasing the use of international outsourcing a firm can expect to improve its productivity. International outsourcing activity is measured using data on firms' expenditure on imported materials and services inputs.

The productivity effects are ascertained by estimating production functions for firms incorporating the measures of international outsourcing.

In a nutshell, the main result of the paper is that as firms source more of their intermediate inputs abroad productivity in the average firm rises. However, the

"...the main result of the paper is that as firms source more of their intermediate inputs abroad productivity in the average firm rises."

Outsourcing and productivity contd...

magnitude of the rise in productivity depends on the type of production a firm buys in from foreign suppliers as well as the type of firm that does the buying in. Overall, the data show that increasing the rate of international procurement by 1 percent generates average productivity gains of 1.2 percent.

One interesting feature of the analysis is the idea that affiliates of foreign-owned multinationals may be in a good position to engage in overseas procurement. Based on recent theoretical modelling, Görg, Hanley

and Strobl suggest that foreign-owned firms are comparatively better placed to undertake procurement abroad. This is due to their having lower 'search costs' when searching for overseas suppliers, as well as their ability to exploit existing international intra-firm networks. The same reasoning,

albeit to perhaps a lesser degree, also applies to exporters, be they foreign or domestic owned. In addition, procurement from overseas may be more competitively priced than locally bought-in components, due to heightened competition among suppliers.

The research uses very detailed plant level data for the Republic of Ireland, an interesting case study for at least two reasons. First, Ireland is a small open economy and recent research has suggested that such economies are most likely to rely heavily on fragmentation of its production process. Second, Ireland has over the last few decades been an important host for affiliates of multinational companies, and many plants, both foreign and domestic owned, engage in exporting.

The analysis allows for the fact that plants that are part of a foreign-owned multinational may make use of

different production technologies to domestic firms and accordingly it involves separate analyses for both ownership types.

While the research finds that increasing the use of imported intermediate inputs has a significantly positive effect on an outsourcing plant's total factor productivity level, it is only firms in the export sector, both foreign as well as domestic-owned, that manifest this productivity improvement.

"...while the international outsourcing of services inputs does not translate into significantly higher productivity gains, the procurement abroad of materials inputs raises productivity within the firm."

A further important result of the study is that while the international outsourcing of services inputs does not translate into significantly higher productivity gains, the procurement abroad of materials inputs raises productivity within the firm. Furthermore, foreign-owned firms have a slight edge over their local counterparts in terms of benefiting from over-

seas procurement.

On the basis of these findings, and interpreting them in the context of recent predictions as to the importance of knowledge in procuring competitively priced inputs, the research suggests that firms that are embedded in international linkages due to their exporting status are the ones that stand to gain the best value for money when outsourcing international inputs.

Another reason for the productivity windfalls enjoyed by exporting firms when procuring international inputs is possibly the comparative ease with which they can negotiate competitively priced inputs with suppliers (non-pecuniary scale economies). In addition, 'thicker markets', where suppliers vie with one another to secure a sale, are more conducive to aggressively priced inputs.

Multinationals and Domestic Investment

The rising of multinationals in the most recent decades has raised concerns not only about off-shoring jobs, but also about the level of domestic investment necessary to ensure acceptable rates of economic growth. Here, Peter Egger summarizes the findings of a joint paper with his co-author Michael Pfaffermayr, which analyses how multinationals and non-multinationals differ about their domestic investment strategies. Peter is Professor of Economics at the University of Munich and a External Research Fellow of GEP

Are multinational firms more productive than national ones? How do multinationals affect labour markets? To which extent do they export jobs to foreign (low-wage) countries? These are questions that are not only at the heart of politics but also of frontier research in international economics. What these questions have in common are two things: first, they highlight economic issues associated with labour as a production factor and, second, at the empirical level they almost naturally evocate the use of micro-level data at the firm- if not the plant-level. Here, it is only fair to say that these questions are successfully addressed in depth by the vivid group of researchers based at the University of Nottingham. Economic issues involving labour as a primary production factor are certainly important. However, it is clear that there are not only other primary production factors too, but the cross-border flow and, more generally, the use of capital (in a broad sense) in production rightfully enjoys a lot of interest. Whereas the old literature on foreign direct investment stresses more the importance of physical capital, more recent research on multinationals tends to focus on knowledge-capital (see Bergstrand and Egger, 2005, for a model that combines “old” physical-capital-related and “new” knowledge-capital-related aspects in a model of multinationals and trade). Hence, it seems only natural to ask in what respect investment demand and, specifi-

cally, *domestic* investment demand of multinational firms differs from national ones. As compared to the large bulk of research on multinational labour demand and productivity effects, the role of multinationals for domestic investment seems starkly under-researched. This observation is the starting point of the paper with my co-author.

When asking the question about how different multinationals are from exporters with respect to their domestic investment, it seems fruitful to start with a theoretical model. The reason is that the issue is not only under-researched empirically but also there is no textbook view that would suggest starting with the application upfront. For the same reasons as raised in research on the labour market or productivity effects of multinationals, the decision to set up foreign plants should be thought of as being endogenous to the firm. Whereas there is a good range of techniques to handle this problem empirically, it is impossible to learn about the underlying exogenous determinants other than from economic theory.

In the literature on horizontal (Markusen, 1984, Markusen and Venables, 2000) and vertical multinational enterprise organisations (Helpman, 1984) firms are often characterised by only local production for consumers or the complete unbundling of headquarters’ services in high-wage countries and production in low-

“...the average treatment effect of going multinational is significantly positive for both [domestic] investments in tangibles (physical capital) and in intangibles (R&D).”

Multinationals and domestic investment contd...

wage economies. We take into account that firm integration patterns are typically more complex, involving intermediate goods trade and final goods trade in spite of local production.

There are many reasons for why such a pattern might occur empirically. However, we model it as being driven by quadratic trade costs. Since we focus on firm decisions, we use a partial equilibrium model of two countries where symmetric firms compete in quantities (Cournot) at the two segmented markets. There are two types of investments: expenditures for *intangible* knowledge-capital in the form of research and development (R&D) are undertaken by the headquarters in the parent country only; *tangible* physical capital is used as a primary factor in the production of two types of intermediate goods, one tradable and one non-tradable. By assumption, the tradable intermediate is an upstream good and tied to the headquarters (similar to R&D). In essence, it can be shown that multinationals invest more in R&D than national firms and, since they are larger than national enterprises, they exhibit a higher demand for intermediate goods. Although the set-up of foreign affiliates is associated with a reduction in capital demand through the foreign local supply of the non-tradable intermediate, the increase in capital demand through the tradable intermediate more than compensates this effect. Overall, there are two hypotheses to test. First, the demand for both physical capital and R&D in the parent country is higher for a firm if it acts as a multinational rather than as a national firm. Second, the positive effect on R&D is always bigger than on domestic physical capital demand.

This is investigated empirically, using a cross-section of Austrian firms that comprises both national and multinational enterprises. We pay particular attention to modelling the decision to go multinational as an endogenous one. The problem is basically one of self-selection. Hence, the firms that select themselves into multinational activity exhibit specific characteristics. If this is true, we need to model the selection

mechanism appropriately. Otherwise, we can not hope to obtain consistent parameter estimates of the (treatment) effect of going multinational on domestic investment in tangible and intangible investments. Three types of methodologies are applied: Heckman-type estimators, Wooldridge-type instrumental variable procedures, and Rosenbaum and Rubin-type matching estimators. In our case, the results are very robust across the board and do not strongly depend on the applied technique.

For the sake of brevity, I focus on a summary of the results with regard to the average treatment effect. This is the impact of going multinational on domestic investment that accrues to a firm that is randomly drawn from the sample. Note that there are firms in the sample that are actually national ones and others that are multinationals. The average treatment effect is the weighted average of two effects: the average treatment effect of the treated and that one of the untreated. The former accrues to all multinational firms, and it is the average of the actual domestic investment of a multinational minus the hypothetical investment if it operated as a national firm. The latter accrues to national firms and it is the average of the hypothetical domestic investment if the firm operated as a multinational minus its actual investment. The hypothetical, or counterfactual, investments of multinational and national firms can be estimated by matching methods.

For our data, we find that the average treatment effect of going multinational is significantly positive for both investments in tangibles (physical capital) and in intangibles (R&D). Moreover, the latter effect is about four times as large as the former. Hence, there is good support for both of the major hypotheses from the data. However, this research is only a first step in that direction and there are certainly issues that warrant further analysis in the future both from a theoretical and an empirical point of view.

Further readings:

Bergstrand, Jeffrey H. and Peter Egger (2005), A Knowledge-and-Physical-Capital Model of International Trade, Foreign Direct Investment, and Outsourcing: Part I, Developed Countries, *unpublished manuscript, University of Notre Dame*.

Helpman, Elhanan E. (1984), A Simple Theory of International Trade with Multinational Corporations, *Journal of Political Economy*, 92, 451-471.

Markusen, James R. (1984), Multinationals, Multi-Plant Economies, and the Gains from Trade, *Journal of International Economics*, 16, 206-226.

Markusen, James R. and Anthony J. Venables (2000), The Theory of Endowment, Intra-Industry, and Multinational Trade, *Journal of International Economics*, 52, 209-234.



Call for Papers

5th Annual Postgraduate Conference

21st April 2006, University of Nottingham

The Conference is intended to provide a forum for the dissemination of student research relating to issues of Globalisation and Economic Policy from both theoretical and empirical perspectives. These areas include Foreign Direct Investment, Trade, Productivity, Migration and Labour Market Adjustment.

The objective of the Conference is to bring together a number of Ph.D. students to discuss their own research ideas with established researchers in a relaxed and open atmosphere.. Speakers will be selected on the basis of submitted abstracts.

Deadline for submissions is 15th February 2006. Submissions to be sent to sara.maioli@nottingham.ac.uk

Information on the 2005 Conference can be found on the Leverhulme Centre Website (<http://www.gep.org.uk/conferences/>) or contact sue.berry@nottingham.ac.uk



The World Economy Annual Lecture 2005

Professor Hans-Werner Sinn
*Professor of Economics and Public Finance,
University of Munich*

“Bazaar Economy”

Germany is the laggard of Europe, yet the country is world champion in merchandise exports. The paper tries to solve this theoretical and empirical puzzle by its theories of a “pathological export boom” and a “Bazaar effect”. Excessively high wages defended by unions and the welfare state against the forces of low-wage competition from the ex-communist countries destroy too big a fraction of the labour intensive sectors and drive too much capital and labour into the capital intensive export sectors, causing both unemployment and too much value added generated by exports. Moreover, excessive wages induce too much outsourcing of upstream production activities which implies that import quantities grow excessively in relation to export quantities.

Thursday 27th October 2005

At 6.30pm

A48, Sir Clive Granger Building,

University of Nottingham

For further details contact sue.berry@nottingham.ac.uk

Globalisation, Firms and Imperfect Labour Markets

Labour market imperfections, although widely widespread in reality, have been mostly ignored in trade theory. In this article, Carl Davidson presents his joint research with Steve J. Matusz and Andrei Shevchenko, where they uncover new ways in which globalisation may interact with imperfect labour markets, and where, as a result, underemployment may arise. Carl is Professor of Economics at Michigan State University and External Research Fellow of GEP.

Recent analyses of firm and plant-level data focusing on the export behaviour of firms in a wide variety of industries have produced dramatic findings that have led to a re-evaluation of some important aspects of trade theory. Trade economists previously viewed the industry as the most important unit of analysis, with countries expected to export goods that require relatively heavy use of its abundant resource in production. We now know that things are not quite so simple. Even within narrowly defined industries, the export behaviour of firms varies considerably. For example, in export industries, only a fraction of the active firms export any of their output and of those that do, most only export a small fraction of what they produce.

A number of stylized facts are now firmly established. First, we now know that there are significant differences between firms that export and those that do not. Exporting firms are typically larger, more capital intensive, more productive and pay higher wages than their counterparts. Several studies also indicate that there is “imperfect persistence” in the decision to export in that firms often change their export position from one period to the next. Finally, the degree of openness in an economy has been shown to have a significant impact on productivity, sometimes at the firm level and other times at the industry level. In export markets, there is unambiguous evidence that

openness enhances industry-wide productivity, while the impact on within-firm productivity levels is still being debated. And, for import-competing industries, several studies have presented evidence that openness leads to an increase in productivity at the firm level.

It has been hard to provide a theoretical explanation for some of these findings, particularly those related to imperfect persistence and the link between openness and firm-level productivity. This is troubling, since predicting the manner in which globalisation will affect modern economies requires a clear understanding of how firms are likely to alter their hiring and production processes as trade barriers continue to fall. In-

“Our theory therefore predicts that globalisation alters firm-level productivity by changing the skill-mix of workers that firms in different industries are able to attract.”

formed by these facts, we recently developed a simple theory aimed at providing a better understanding of industry dynamics in an open economy. Our theory is based on three facts in particular. First, even within narrowly defined industries, firms that produce similar products often use technologies with different levels of sophistication, employ different occupational mixes of workers and pay different wages. If one looks for patterns across firms, then recent findings suggest that firms adopting more modern technologies tend to employ more highly-skilled workers and pay higher wages than their counterparts. The second fact is that most labour markets are imperfect in that unemployed workers and firms with vacancies must spend time and effort to find each other. For example, in the United

Globalisation and imperfect labour markets contd...

States it takes, on average, about 13 weeks for an unemployed worker to find a new job; whereas it typically takes much longer in most European countries. As a result, some workers wind up “underemployed,” accepting a lesser job because they happen to find it before they can find another one for which they are better suited. Finally, the third fact that we focus on is that there are fixed costs associated with the exporting process. These costs include, *inter alia*, establishment of distribution networks, learning about a foreign regulatory environment and modifying products accordingly, advertising, and so on.

Our theory can best be understood by focusing on the key decisions that firms and workers must make in a complex economy. For example, when labour markets are imperfect, workers with different skill levels must search across firms for employment and decide which jobs they are willing to accept. As for the firms, they must decide which type of technology to adopt in order to produce their product. Some firms will choose to adopt a basic technology, employ relatively low-skilled workers and pay low wages, whereas others will choose to adopt a more advanced technology, employ high-skilled workers and pay high wages. As a result, if the revenues generated by the different types of firms are sufficiently close, underemployment may emerge as a characteristic of the labour market. This occurs when high-skill workers, who are better suited for employment at high-tech firms, accept low-tech jobs because they happen to match with them first.

According to our theory, when firms are given the opportunity to export their output, it is the largest, most productive, most capital-intensive firms (that also pay the highest wages) that face the strongest incentives to do so. The reason is simple – since these firms employ the most highly productive workers, they gain the most from exporting their output. In addition, since these firms are the most productive, they are the ones that find it easiest to cover the fixed costs associated with exporting. We are not the first with this insight, but our theory goes a bit further and predicts that the weakest firms in the industry may change their export position when the skill mix of its

employee base changes. Thus, imperfect persistence is tied to the exporting behaviour of low-tech firms. This occurs because low-tech firms may only be productive enough to cover the fixed costs of exporting when they are fortunate enough to be able to attract and hire high-skill workers. The existence of underemployment, while typically bad for the workers because they wind up accepting inferior jobs, may therefore benefit low-tech firms by making them productive enough to profitably export.

Our theory also helps to explain how globalisation affects productivity both at the industry and firm levels, with qualitatively different effects occurring in export and import-competing markets. In export markets, since it is the most productive firms that face the strongest incentive to export, liberalisation results in a reallocation of market shares in favour of the most productive firms. This increases productivity when measured at the industry-level, even if within-firm productivity does not change. In addition, as the most productive firms start to export, the spread between the revenues earned by the most productive and the least productive firms is increased. This implies that globalisation makes it more difficult for low-tech firms to attract and retain highly-skilled workers, resulting in a *reduction* in average productivity for such firms. In contrast, since globalisation leads to lower prices for all firms in import-competing markets, it decreases the spread between the revenues earned by low-tech and high-tech firms in import-competing markets. This makes it *easier* for the least productive firms to attract and retain highly-skilled workers, resulting in an *increase* in average productivity at such firms. Our theory therefore predicts that globalisation alters firm-level productivity by changing the skill-mix of workers that firms in different industries are able to attract.

In summary, our research has focused on providing a theoretical foundation for a set of stylized facts that have been developed in recent years. Our work has begun to uncover previously unexplored ways in which globalisation interacts with local labour markets, thereby setting the stage for policy analysis based on a richer description of open-economy dynamics.



GEP Seminar Series *Autumn 2005*

Speakers include:

10 October

Holger Breinlich, *London School of Economics*

24 October

Jie Ma, *University of Southampton*

31 October

Chris Jackson, *The World Bank*

7 November

Linda Yueh, *London School of Economics*

14 November

Joe Tharakan, *National University of Ireland, Maynooth*

21 November

Huw Edwards, *Loughborough University*

5 December

Bruce Lyons, *University of East Anglia*

12 December

Fabrice Defever, *Université Paris 1*

For further details see www.gep.org.uk/seminars

Industrial Linkages and Export Spillovers from FDI

The impact of FDI on host economies has been the subject of a large empirical literature. One aspect that has been under-researched is that of export spillovers. Here Mauro Pisu reports the findings of his research (joint with Richard Kneller) about the presence of export externalities in the UK. Mauro is Internal Research Fellow of GEP at the University of Nottingham.

Governments the world over try to attract FDI inflows offering a vast array of financial incentives. The rationale for this is that FDI is believed to bring many benefits to host economies, in terms of productivity, employment, R&D expenditure and so on. Productivity spillovers from FDI have been the subject of a growing empirical literature. Studies have investigated both inter-industry (i.e. horizontal) and inter-industry (i.e. vertical) spillovers. However, evidence has been mixed so far (Görg and Greenaway 2004).

One other dimension upon which FDI inflows may have an effect is exports. This topic has not yet sufficiently been investigated in the empirical literature. There are a number of reasons why we can expect export spillovers to take place. First and foremost, it is information about foreign markets. In theoretical and empirical works exporting decisions are usually modelled assuming perfect information, so that firms can predict exactly the returns and risks involved in exporting. Therefore, companies with a sufficiently high productivity will surely export. However, this is unlikely to be the case since exporting may require a many information about foreign tastes, competition and regulations which are not readily available to all firms..

Foreign affiliates of multinationals, being part of an international network of production, are in a better position than non-multinational domestic enterprises to have such information. If the latter are able to obtain some of this knowledge, through such channels as worker mobility and business-to-business relationships, this may help them to start shipping goods overseas or increase their export share.

In this research project, we test this proposition. More specifically, we analyse the effect of regional and industry concentration of foreign firms on the export behaviour of domestic enterprises using a data set of UK manufacturing firms for the period 1992--1999. The UK is an important case in point to investigate since it is one he largest host of FDI.

Empirically, we model the two decisions whether to export or not and how much to export separately. A novel aspect in our analysis is that, akin to the productivity literature, not only do we consider horizontal (i.e. intra-industry) spillovers, but also vertical (i.e. inter-industry) ones. Furthermore, we take into account the regional/geographic concentration of foreign firms, in addition to their industry concentration, and their export orientation. These are important factors to analyse, since export spillovers are likely to be affected positively by the geographic proximity between domestic and foreign firms and because exporting foreign companies are probably sources of stronger export externalities.

The results suggest that foreign firms contribute positively to the export activities of indigenous companies. Externalities can be both vertical (more specifically backward) and horizontal. In addition, we find that geographic proximity is important. The closer domestic firms are to foreign affiliates the more robust export externalities. There is also evidence that spillovers are stronger the higher the share of output foreign affiliates. In summary, this research project provides fresh evidence on the impact that FDI may have on host economies. The rise in the export propensity of domestic companies seem to be an important channel through which foreign affiliates may benefit local economies

Further readings:

Görg, H. and D. Greenaway (2004), Much Ado about Nothing? Do Domestic Firms Really Benefit from Foreign Direct Investment?, *World Bank Research Observer*, 19(2), pp. 171—197.

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