



newsletter

Leverhulme Centre for Research on Globalisation and Economic Policy

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ETSG COMES TO NOTTINGHAM

The Sixth Annual Conference of the European Trade Study Group (ETSG) was held at the University of Nottingham from 9-11 September, hosted by GEP. This was the largest meeting yet, attended by more than 200 participants, consolidating ETSG's claim to be the largest annual international trade conference in the world.

A major goal of ETSG is the promotion of the research activities of young economists who work in the field of international trade. Every effort is made to accept all relevant papers that are submitted. This resulted in more than 180 papers being presented in Nottingham. Access is also promoted by there being no registration fee for conference participation. Consequently the (not insubstantial) costs of conference organisation had to be met elsewhere. ETSG is extremely grateful to GEP



Anne Krueger

for its financial support of the local operations for this year's event.

Most of the papers were presented in themed parallel sessions covering the entire breadth of international trade research. These were augmented by four plenary sessions that brought the entire conference group together. Papers in these sessions were given by Paola Conconi, Anne Krueger, Ray Riezman and Maurizio Zanardi. Anne Krueger's presentation was *The World Economy* Annual Lecture and Blackwell Publishers sponsored a buffet reception following the session. This joint session was a new departure for ETSG and provided a great opportunity for a European audience to hear one of the world's most influential trade theorists and practitioners speak about economic reform. The



Joe Francois, co-director of ETSG, and other participants

entire programme for the conference and virtually all of the papers presented can be accessed at www.etsg.org. This issue of the *GEP Newsletter* summarises a number of those papers.

The Board of ETSG would like to thank everyone involved in the organisation of the 2004 conference: local organisers Sue Berry, Rod Falvey and Udo Kreickemeier; the team of "green shirts" who kept everything running; as well as ETSG webmaster, Maurizio Zanardi.

Next year's conference will be held at University College Dublin, 8-10 September 2005.

By Ian Wooton, Co-Director of ETSG



The 'green shirts'

Distance in the ‘Global Village’

*A surprising result to emerge from the empirical literature on trade between countries is that the distance between them has become an increasingly important barrier over time. This is despite the improvements in transport and communications technology over time and the preponderance of research articles claiming the death of distance. In this article **Wilhelm Kohler** explores this puzzle. Wilhelm is a Professor of Economics Johannes Kepler University Linz and an External Fellow of GEP.*

Most people would agree that by the end of the 20th century markets for tradable have become truly global and that progress in transport and communications has played a pivotal role in making the world “smaller” and more integrated. Although there is plenty of empirical evidence supporting these views, some recent research has also revealed puzzles that question this notion of a “global village”. Thus, econometric evidence, based on the gravity approach to explain bilateral trade, suggests that geographical distance is a larger barrier to world trade today than four or five decades ago. Specifically, while it may be true that trade between any pair of countries is much larger now than, say, in the 1950s, it is also true that the estimated elasticity of bilateral trade with respect to distance has significantly risen over time. Against the backdrop of enormous improvements in transport and communication, this constitutes a puzzle, casting some doubt on the gravity approach which is otherwise perceived as performing very well in terms of explanatory power.

In this paper, we relate this puzzle to a second feature that has so far received much less attention. Even in the present era of economic globalization, merchandize trade covers a surprisingly small part of the globe. In 1997, of the possible number of bilateral trading relationships between independent countries, more than 40 percent did not report any trade at all. More generally, world trade evolves at two margins: at the intensive margin, established trading relationships change their trade volume; while, at the extensive margin, trading relationships between existing countries are newly established. And movements at the extensive margin are important enough to warrant special attention. Indeed, we argue in this paper that, at least partly, the distance puzzle is a reflection of specific movements of world trade along the extensive margin and the way it is treated in gravity estimations.

At the outset, we develop a vintage-accounting framework of world trade, in order to present systematic empirical evidence on the significance of the two margins in post-World-War-II evolution of merchandize world trade. We first look at the number of potential trading relationships which is governed by the varying geography of independ-

ent countries, and, more importantly, we trace out the share of active relationships of a certain vintage through time. The gap between potential and active trading relationship was quite large in 1950, close to 50 percent. As expected, the gap has narrowed through time but the emergence of new countries has had an opposite effect, so that even by the end of the 20th century the share is still below 60 percent. There has, thus, been much movement at the extensive margin of world trade but much ground still remains to be covered.

Looking at the amount of trade generated by movements at the extensive, relative to the intensive, margin we find, as perhaps expected, that movements at the intensive margin have been more important. But the extensive margin is far from negligible. From 1950 to 1997 world merchandize trade has risen by a factor of 18. Only about 60 percent of that increase can be attributed to larger trading volumes for trading relationships that have already been in existence in 1957. The rest is movement at the extensive margin. It seems surprising and odd, therefore, that the extensive margin has so far received almost no systematic treatment in gravity-based studies of bilateral trade.

We then turn to the “distance puzzle”, first demonstrating that it is remarkably robust to changes in the sample composition, the specification of the gravity equation, and the estimation method used. Thus, allowing for a non-parametric time-variation in a pooled robust OLS estimation, the elasticity of bilateral trade with respect to distance has risen, in absolute value, from about 0.8 in 1950 to almost 1.6 by 1997. Pretty much the same estimates emerge if the time-dependence of this elasticity is parameterized. A random-effects panel estimation that allows for unobserved country-heterogeneity yields a higher 1950 estimate (in absolute value) than pooled OLS, suggesting negative correlation between unobserved transport and communications infrastructure and distance. But the time-variation of the elasticity persists, leading to about the same end-point estimate for 1997. A wide variety of further sensitivity checks with respect to “right-hand-side” variables reinforce the view of a robust puzzle.

Why, then, should the aforementioned dual margin provide an explanation of the puzzle? The intuition is quite simple. If trade is the result of “mass attraction” and resistance from (among other things) geographical distance, and if attraction in many cases is not strong enough to generate positive trade, then ignoring all such cases, or treating them as zero-trade (since reported trade is never negative), implies that one over-estimates the force of attraction and/or underestimates the trade-inhibiting force of distance. If improvements in transport and communication cause the number of “zero-trade-cases” to fall, as suggested by our vintage-accounting of trade, then this type of bias is gradually reduced, thereby generating the erroneous impression of an ever-increasing role of distance. We discuss alternative potential deficiencies of the gravity model but argue that they are less convincing *a priori* than this dual-margin story.

Consistent incorporation of the dual margin in the gravity approach requires that we treat “zero-trade-cases” as a corner solution. We rely on censored regression theory to identify the extensive and the intensive margins of world trade as marginal coefficients of a Tobit-regression. These coefficients clearly reveal, theoretically, the estimation bias from conventional gravity estimations mentioned above. We then move on to a Tobit estimation of the gravity model, based on a comprehensive data set covering world trade from 1950 to 1997. The outcome is, indeed, that the “distance puzzle” disappears. At the intensive margin of 1950, given that an active trading relationship is already in existence, the expected volume of trade was increased by 1.4 percent if the geographical distance was reduced by 1 percent. At that same margin, the elasticity value has fallen down to 1.26 percent by 1997. These estimates do suggest that the conventional approach has underesti-

mated distance-barriers in earlier, relative to more recent periods. At the extensive margin of 1997, lowering distance by 1 percent increases the probability of a given trading relationship to be an active one by 0.32 percentage points, whereas in 1950 this elasticity was 0.28.

Our results thus support the widespread notion that the post-World-War-II era has witnessed a long-run decline in the trade-inhibiting force of geographic distance. As an aside, we may mention that they also suggest GATT- or WTO-membership to be more supportive of trade than was concluded from recent empirical investigations based on the gravity approach by Andrew Rose. But the “distance puzzle”, although resolved as such, should still serve as a “warning shot” against exaggerated views of a dramatically shrinking world geography. The world has not become a “global village” and it probably never will.

GEP ANNUAL CONFERENCE

‘Globalisation and Firm Level Adjustment’

24th - 25th June 2005

Speakers include:

Peter Egger, *University of Munich*

Jonathan Haskel, *Queen Mary, University of London*

Marc Melitz, *Harvard University*

Deborah Swenson, *University of California, Davis*

Patrik Gustavsson, *Stockholm School of Economics*

Thierry Mayer, *University of Paris*

Peter Neary, *University College Dublin*

Ian Wooton, *University of Strathclyde*

For further details see the Leverhulme Centre Website or contact sue.berry@nottingham.ac.uk



The Nottingham Lectures in International Economics

'The Firm in the World Economy'

Professor Jonathan Eaton
New York University

7th, 8th and 9th December 2004

For further details see the Leverhulme Centre Website or contact sue.berry@nottingham.ac.uk

Call for Papers

4th Annual Postgraduate Conference

11th April 2005, 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. The Conference is open to graduate students engaged in the preparation of a doctoral dissertation or approaching this stage. Speakers will be selected on the basis of submitted abstracts. Deadline for submissions is 31st January 2005.

Details of the previous GEP Postgraduate Conferences and more information on the 2005 Conference can be found on the Leverhulme Centre Website or contact sara.maioli@nottingham.ac.uk

Outsourcing and Trade in a Spatial World

*Recent summaries of the production process emphasise its increasing fragmentation through outsourcing or offshoring. Yet the theoretical modelling of this process assumes that there are no costs to trade. Here **Hartmut Egger** and **Peter Egger** explore the interaction between country size, which helps determine the degree of fragmentation, and transport costs interact to determine the pattern of trade. Hartmut is a Senior Assistant at the University of Zurich and Peter a Professor of Economics at the University of Munich. Both have recently joined GEP as External Fellows.*

Modern industrial production follows the paradigm of a high degree of fragmentation of production between firms both within and across national borders. Consequently, the determinants but also the consequences of the ever smaller range of activities that are carried out within the boundaries of a single firm have reached the limelight of interest of economists in recent years (for instance, see Feenstra and Hanson, 1999, and Grossman and Helpman, 2002). As far as the international trade literature is considered, many of the available models on outsourcing of production stages either ignore trade costs altogether or they only account for international barriers to trade. Hence, spatial aspects of countries and the associated national transport costs are typically not considered. However, the importance of national barriers to trade for goods transactions was recently emphasized in a remarkable paper on trade costs by Anderson and van Wincoop (2004). Accordingly, the consideration of and even the distinction between national and international trade costs obviously represents an interesting feature of a model on both final and intermediate goods transactions and outsourcing decisions.

To provide a rigorous discussion on how country size and the magnitude of national transport costs interact in determining both the pattern of trade and the welfare effects of trade liberalization is the goal of this paper. For this, we set up a spatial model à la Hotelling, which allows us to account for the geographical dimension of countries, hence both national and international trade costs, in an adequate way.

In such a setting, country size has two effects. On the one hand, country size is positively related to an economy's sheer geographical space. A larger geographical dimension implies for a given number of final goods producers a larger distance between consumers and producers. Therefore, transport cost ex-

penditures will be higher. This leads to a transport-cost-related size disadvantage of a large economy. On the other hand, the geographical size of a country is positively correlated with its population size. Accordingly, the degree of specialization may also be higher in large economies. This argument is closely related to Adam Smith's idea of the division of labour. Consequently, larger economies should be characterized by a higher degree of fragmentation and national outsourcing under autarky. This gives rise to an outsourcing-induced production cost advantage of a large economy.

Based on this idea, we rigorously investigate the trade-off of being large: the transport-cost-related size disadvantage and the outsourcing-related production cost advantage. With regard to the trade pattern between two asymmetrically sized economies, our analysis reveals the main fundamentals, determining which country exports and which country imports final output. Based on these insights, the presented model allows us to discuss the role of national transport costs for the welfare effects of trade liberalization. This can be done for both the short run with given firm locations and the long run where firms can change the location of their production plant.

It turns out that the final goods exporting country always benefits from trade liberalization, while the welfare effects are less clear-cut for the final goods importing country. However, if there is outsourcing in the free trade equilibrium, both large and small countries can simultaneously gain from trade liberalization. This result points to the relevance of outsourcing opportunities in understanding the pace of global integration in recent years. Specifically, it provides an economic reasoning for the willingness of countries to lower their tariffs and to enter a free



OUTSOURCING CONTD...

trade agreement with partner countries that differ in size and economic capacity.

Our analysis also contributes to the discussion on market thickness effects of international openness. Similar to McLaren (2000), we can show that falling trade barriers have an impact on the structure of industrial production. Hence, they determine whether firms produce integrated or outsource manufacture of inputs. However, our results make clear that this may

lead to devastating effects of trade liberalization regarding the degree of vertical fragmentation in the production of final output. This is a novel insight which is in contrast to McLaren's "law" of increasing outsourcing. The potential negative effects of trade liberalization on the intensity of fragmentation and outsourcing may also be of particular interest for future empirical research on this issue.

GEP/MURPHY INSTITUTE CONFERENCE

'Political Economy of Fairness and Globalisation'

1st and 2nd April 2005

at the University of Tulane, New Orleans

Jointly sponsored by GEP and the Murphy Institute, University of Tulane

Speakers include:

Susan Aaronson, *University of North Carolina*

J. Michael Finger, *Trinity University*

Arye Hillman, *Bar-Ilan University*

Per Lundborg, *FIEF*

Devashish Mitra *Syracuse University*

Amrita Narlikar *University of Cambridge*

Gerry Rodgers *International Labour Organization*

Carl Davidson, *Michigan State University*

Simon Gaechter, *University of Nottingham*

Udo Kreickemeier, *University of Nottingham*

Steve Matusz, *Michigan State University*

Oliver Morrissey *University of Nottingham*

Ray Riezman *University of Iowa*

Welfare Effects of Domestic Cost Efficiency in Presence of Foreign Competition

Firms can choose to serve foreign markets either by exporting their products or establishing production facilities abroad (FDI). The question over which the firm chooses and what conditions lead to this choice has generated a large literature. This summary of a research article by Arijit Mukherjee re-examines this choice when domestic firm experience a reduction in their costs. Arijit is a Lecturer in Economics at the University of Nottingham and an Internal Fellow of GEP.

What is the effect of domestic cost efficiency on domestic welfare? We address this question in a recent paper and show that the answer is ambiguous. We find that domestic welfare may be reduced following a cost reduction in the domestic firm when the foreign firm can strategically choose its production strategy.

It follows from the previous literature on international trade that welfare of a country increases following a cost reduction in its firms. Cost reductions by domestic firms make them more competitive compared to the foreign firms and increases both consumer surplus and domestic profits. However, this conclusion is based under the assumption that the foreign firms sell their products through exports.

Empirical evidences shows that multinational activities are becoming more important in today's world. The multinational firms often face the important choice of export vs. foreign direct investment (FDI), which has generated an enormous volume of empirical and theoretical works looking at this issue. So, in this era of globalization, it is important to consider the effect of domestic cost efficiency on the production decision of the multinational firms, which, in turn, may have important implications on domestic welfare.

In our paper we consider a simple model of Cournot duopoly where a foreign firm decides between export and FDI and a domestic firm competes with the foreign firm. These firms sell their products in the domestic country. While FDI provides the benefits of a lower marginal cost of production, it requires fixed investment cost. So, *ceteris paribus*, if the marginal

cost of the domestic firm is greater than a critical value (which depends on the fixed cost of FDI, the market size and the marginal costs of the foreign firm under FDI and export), the foreign firm chooses FDI over exporting. So, the foreign firm does FDI if the domestic firm is sufficiently cost inefficient. As the marginal cost of the domestic firm reduces, it reduces profit of the foreign firm under both exports and FDI. However, the foreign firm's profit loss is higher under FDI. Hence, lower costs to the domestic firm increases the foreign firm's incentive to export instead. So, there are situations where cost reduction in the domestic firm induces the foreign firm to shift its mode of operation from FDI to export.

Hence, the implication of domestic cost reduction on domestic welfare is ambiguous when it shifts the foreign firm's production strategy from FDI to exports. Given the foreign firm's production strategy, cost reduction in the domestic firm increases domestic welfare. However, if cost reduction in the domestic firm induces the foreign firm to shift its production from FDI to export, it creates production inefficiency in the foreign firm, which affects the industry output and domestic welfare. If the effect of production inefficiency in the foreign firm dominates the effect of production efficiency in the domestic firm, a relatively cost efficient domestic industry

reduces domestic welfare. In our paper we find the conditions under which domestic cost reduction reduces domestic welfare and show that the market size and the costs of the domestic and the foreign firms are important for this result.

Hence, our paper suggests that a competent competition policy is also required, while also encouraging the domestic firms to innovate.

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Competition and Cross-industry Differences in Mark-Ups

*We usually measure the performance of a sector in the economy through its profitability or price-cost markup (the difference between the price the firm charges and the marginal cost of production). In turn this mark-up depends in part on the degree of competition within the sector (high levels of competition lead to low mark-ups). In this article **Sara Maioli** compares the results from two alternative methodologies that aim to measure industry mark-ups. Sara is a Research Fellow in GEP.*

Facing the choice of allocating resources across different sectors, how can we compare the profitability of investing those resources? The answer is usually by calculating the markup of product price over marginal costs. The markup concept goes along with that of market power, because the ability to raise prices over costs depends strictly on the capacity to exert oligopoly power over competitors. Therefore it is important to take fully into consideration also the degree of concentration in a sector in order to calculate the markup.

In the 1980s, Robert Hall developed an approach to estimate markups which superseded the previous accounting methods based on average costs and the related measurement errors. This method was based on the so-called *Solow residual* (the difference between the rate of growth of output and the weighted rates of growth of the inputs). Since then an extensive literature has been devoted to the empirical identification of market power.

Roeger proposed an alternative method for computing markups founded on both the Solow residual and the dual Solow residual. One limit to this strand of the literature, however, is that the empirical measurement of the Lerner index, and consequently markup, was carried out using indirect measures in order to overcome the problem that marginal costs are not directly observable, unless a more structured framework is imposed by specifying a production function. Another problem, econometric in nature this time, is the endogeneity in the estimation of the Solow residual, to which partial solution was given by using IV estimation, a solution nevertheless considered unsatisfactory by some economists given the difficulty in finding good instruments to do the job.

But even more importantly, the estimation of markups in all the mentioned studies was carried out under the assumptions of constant returns to scale (CRTS) and, constant markups over time: two assumptions that appear too strict. Firstly because the markup estimate will be biased upwards in the presence of decreasing returns to scale and it will be biased downwards in case of increasing returns to scale. Secondly because to assume a constant markup over a period of 20 or 30 years when dramatic changes in market structures and demand were experienced seems questionable.

More recently, a new wave of industrial organisation papers took a different approach with the aim of identifying the market structure and measuring the degree of competitiveness in a market. The New Empirical Industrial Organisation (NEIO) approach allows to include in the model being estimated some strategic observable variable – typically the degree of concentration in the sector – which is relevant to policy makers (antitrust authorities strictly monitor concentration in order to inform their decisions on M&A clearing). In more detail, the NEIO literature introduces a micro-foundation in the behaviour of an industry by aggregating the optimality condition for profit maximization over all firms using the Herfindahl index and the conjectural variation framework to capture the type of conduct in the market. One of such NEIO models was developed by Appelbaum, who used econometric production theory techniques to test for the type of oligopolistic structure of different US industries. This model was extended by Azzam's oligopsony model by explicitly including industrial concentration in the determination of the degree of monopoly power. Lopez and co-authors proposed the oligopoly analogue of Azzam's oligopsony model and jointly estimate markups and returns to scale, allowing both markups and the index of returns to scale to vary over time.

In the light of these developments, it seems interesting to compare these two main methodologies and highlight the eventual flaws of the Solow Residual approach (SRA) by relaxing its assumptions using the NEIO approach. In the forthcoming GEP paper “**The Importance of Jointly Estimating Markups and Returns to Scale: A Comparison of Two Methodologies**” we compare the markup estimates obtained under the SRA and NEIO approaches with an application to 30 French industries (23 manufacturing, 6 services and the building sector) over the period 1977-1997. We find that by relaxing the stringent assumptions of CRTS and constant markup over time we can substantially improve the estimates approximating better the reality.

The SRA approach used follows a modified version of a standard methodology within the literature. The markups estimates obtained are in fact in line with earlier works

using this approach.

The NEIO model used is again a slight variant of an existing model, where the difference is in the specification of the output demand for the manufacturing industries, since foreign competition is taken into account in order to better gauge the measure of domestic market power. This is done by allowing the price of imports to affect domestic demand as an exogenous shock.

The NEIO approach is operationalised by estimating, for each industry, a system of 5 non-linear equations using 3 stages non-linear least squares. The 5 equations account for output demand, output supply and 3 inputs demands (labour, capital and intermediate inputs), derived from a non-homothetic Generalised Leontief production function and where the Herfindahl index of industry concentration is introduced into the output supply and input demands. From the econometric point of view, the advantage of imposing such a complex structure for estimating markups is that we can solve the endogeneity problem.

Table 1 compares the main results obtained under the two methodologies (notice that markup under SRA is constant,

whilst under NEIO approach changes over time, therefore estimates at mean values are reported for comparison). Comparison of the two sets of empirical evidence is based on the ratio between the degree of returns to scale and markup calculated for each industry. Since this ratio theoretically should correspond to the sum of the input factor shares out of total revenue, actual data on the input factor shares out of total revenue are used as a benchmark to evaluate which approach provides the best estimate of the returns-to-scale-markup ratio.

The markups estimated with the NEIO approach are in general lower than those calculated under the SRA. However, it is immediately apparent that by jointly estimating returns to scale and markups we can improve substantially on the estimates of the latter when these are obtained under the CRTS assumption, like in the classical Solow Residual approach. In the last-but-one column of the table, in fact, it is shown that for all sectors the NEIO approach systematically provides estimates of the RTS-markup ratio closer to reality than the SRA and the improvements are often substantial (in more than two thirds of the industries the difference is less than 5%).

**Table 1 – Comparison of markups and returns to scale for 30 French industries (1977-1997):
Solow Residual approach vs. NEIO approach**

Industry	Markups-Solow	Markups-NEIO	λ RTS NEIO	$1/\mu$ Solow (1)	λ/μ NEIO (2)	Actual λ/μ (3)	(3)-(1)	(3)-(2)	Hypoth.. test $\lambda = 1$
Meat & milk	1.092*** (0.018)	1.096*** (0.018)	1.014*** (0.011)	0.916	0.925	0.971	0.056	0.046	0.206
Other food	1.322*** (0.038)	1.209*** (0.016)	1.065*** (0.010)	0.756	0.881	0.874	0.118	-0.007	0.000
Solid mineral fuels, and coke?	0.817*** (0.002)	0.945*** (0.041)	1.391*** (0.056)	1.224	1.472	1.520	0.296	0.049	0.000
Oil and natural gas	1.554*** (0.172)	1.435*** (0.032)	1.138*** (0.019)	0.643	0.793	0.740	0.097	-0.053	0.000
Electricity, gas and water	1.624*** (0.101)	1.420*** (0.089)	1.355*** (0.080)	0.616	0.954	0.963	0.347	0.009	0.000
Ferrous ores & metals	1.200*** (0.044)	1.092*** (0.021)	1.038*** (0.010)	0.833	0.950	1.048	0.215	0.098	0.000
Non ferrous ores and metals	1.267*** (0.087)	1.094*** (0.028)	1.140*** (0.023)	0.789	1.042	1.011	0.222	-0.031	0.000
Sundry minerals, Building materials	1.306*** (0.031)	1.107*** (0.030)	1.076*** (0.027)	0.766	0.972	0.929	0.163	-0.043	0.005
Glass	1.241*** (0.044)	1.171*** (0.042)	1.067*** (0.040)	0.806	0.911	0.919	0.113	-0.007	0.619
Chemical, synthetic fibres	1.283*** (0.058)	1.086*** (0.028)	1.037*** (0.011)	0.780	0.954	0.957	0.178	0.003	0.001
Parachemicals, pharmaceuticals	1.202*** (0.047)	1.111*** (0.049)	0.992*** (0.192)	0.832	0.893	0.919	0.087	0.026	0.681
Foundries and metalworking	1.190*** (0.014)	1.145*** (0.028)	1.072*** (0.019)	0.840	0.936	0.935	0.095	-0.001	0.000
Mechanical engineering	1.149*** (0.019)	1.081*** (0.030)	1.070*** (0.018)	0.870	0.990	0.947	0.077	-0.043	0.000
Electric and electronic equip.	1.180*** (0.037)	1.071*** (0.026)	1.005*** (0.016)	0.847	0.939	0.9180	0.070	-0.021	0.000

Levels of statistical significance are represented by * (10%), ** (5%) and *** (1%). The standard errors are indicated in brackets and they were calculated using the delta method. The last column reports the *p*-value for the hypothesis test of CRTS.

? This sector is highly subsidised, therefore the markup less than 1 should not surprise.

The empirical evidence found points also to the conclusion that constant returns to scale is not a good working hypothesis, given that only in one third of the industries analysed it was not possible to reject the CRTS hypothesis at the 5% confidence level. The remaining industries show increasing returns to scale in 17 cases and decreasing returns to scale only in 3 cases (these all being service sectors: trade, motor car trade, telecommunication and post).

The paper provides also estimates for the type of conduct behaviour in each industry. Evidence shows that 13 out of 30 sectors do not reject the hypothesis of Cournot behaviour at 5% significance level, 9 sectors show an even more competitive behaviour and 8 sectors show a certain degree of collusive behaviour.

Another objective of the paper was to draw some policy-relevant conclusions about the existence of market power, by separating out the oligopoly-power from the cost-efficiency effects of changes in industrial concentration on output prices.

The separation between the two effects is of public policy

concern because what antitrust authorities are interested in is the trade-off between efficiency and market power. In other words, concentration will be deemed in the public interest only if the cost-efficiency gains through concentration offset the welfare losses from greater market power. The empirical evidence indicates that the output price effect is positive and significant in 11 sectors out of 30 (although in one sector the confidence level is 10%), positive and insignificant in 8 sectors, negative and significant (although 1 sector at the 10%) in 7 industries and negative and insignificant in the remaining 4. So, overall, the market power effect predominates over the cost efficiency effect in nearly two thirds of the industries. But although in the majority of the industries analysed there is a positive relationship between the change in concentration and the change in price, this is not as pervasive as common wisdom might suggest. In fact, more than one third of the industries exhibit a negative relationship between change in concentration and change in price, supporting the idea that in a number of industries, following output redistribution from smaller towards bigger firms, cost efficiency effects predominate over oligopoly power effects and cause a reduction in the product price.

Table 1: Contd...

Industry	Markups-Solow	Markups-NEIO	λ RTS NEIO	$1/\mu$ Solow (1)	λ/μ NEIO (2)	Actual λ/μ (3)	(3)-(1)	(3)-(2)	Hypoth.. test $\lambda = 1$
Consumer durable goods	1.221*** (0.051)	1.116*** (0.023)	1.056*** (0.019)	0.819	0.948	0.979	0.160	0.031	0.003
Ground transport equipment	1.181*** (0.038)	1.039*** (0.015)	1.000*** (0.009)	0.847	0.963	0.982	0.135	0.019	0.958
Shipbuilding, aeron., armament	1.135*** (0.049)	1.037*** (0.037)	1.028*** (0.028)	0.881	0.991	1.030	0.149	0.039	0.322
Textiles and clothing	1.141*** (0.023)	1.074*** (0.050)	1.020*** (0.047)	0.877	0.950	0.955	0.078	0.005	0.666
Leather and footwear	1.118*** (0.023)	1.026*** (0.025)	1.014*** (0.020)	0.894	0.988	0.931	0.036	-0.057	0.487
Wood, furniture, miscella.. industries	1.205*** (0.013)	1.202*** (0.018)	1.089*** (0.014)	0.830	0.906	0.906	0.076	0.000	0.000
Paper and board	1.125*** (0.013)	1.043*** (0.035)	0.982*** (0.030)	0.889	0.942	0.950	0.062	0.008	0.558
Press and edition	1.195*** (0.019)	1.019*** (0.027)	1.006*** (0.014)	0.837	0.987	0.929	0.092	-0.058	0.666
Rubber and plastics	1.185*** (0.028)	1.059*** (0.023)	1.050*** (0.017)	0.844	0.991	0.958	0.114	-0.033	0.003
Building	1.235*** (0.020)	1.174*** (0.020)	1.149*** (0.015)	0.809	0.979	0.915	0.106	-0.064	0.000
Trade	1.644*** (0.065)	1.359*** (0.035)	0.956*** (0.006)	0.608	0.704	0.722	0.114	0.018	0.000
Motor car trade and repairs	1.450*** (0.055)	1.174*** (0.024)	0.926*** (0.015)	0.690	0.788	0.776	0.086	-0.012	0.000
Transports	1.256*** (0.028)	1.072*** (0.016)	1.031*** (0.012)	0.796	0.962	1.064	0.268	0.102	0.193
Telecommunicat. and post	1.674*** (0.046)	1.146*** (0.032)	0.872*** (0.019)	0.597	0.761	0.873	0.276	0.112	0.000
Market services to households	1.947*** (0.060)	1.570*** (0.071)	1.082*** (0.013)	0.514	0.689	0.630	0.116	-0.059	0.000
Financial institutions	1.084*** (0.062)	1.220*** (0.051)	1.045*** (0.033)	0.922	0.856	0.787	-0.135	-0.069	0.042

Levels of statistical significance are represented by * (10%), ** (5%) and *** (1%). The standard errors are indicated in brackets and they were calculated using the delta method. The last column reports the *p*-value for the hypothesis test of CRTS.

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Leverhulme Globalisation Lectures 2005

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17th February 2005

Evan Davis

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18th April 2005

Welcome to.....

Peter Egger and Hartmut Egger who have recently joined GEP as External Fellows

Dr Hartmut Egger

Hartmut is a Senior Assistant at the University of Zurich. His research interests trade union theory, the macroeconomic implications of outsourcing and the reorganisation of firms.

Professor Peter Egger

Peter is a Professor of Economics at the University of Munich. His research interests include international economics, panel data econometrics, gravity models and models of multinational firms and trade.

A Fair Wage

A simple characterisation of the European versus UK/US labour market is one where the former has high unemployment but low wage inequality, whereas the latter has low unemployment but high wage inequality. Several attempts have been made to explain this difference. Here Udo Kreickemeier considers one based on fair wages and Europe's (more) egalitarian society. Udo is a lecturer at the University of Nottingham and an Internal Fellow of GEP.

There is by now plenty of evidence in support of the notion that involuntary unemployment can be explained at least in part by the fact that firms voluntarily pay non-market clearing wages in order to keep workers' morale high. Much of the evidence in support of this stems from surveys where business managers were asked about their firms' compensation policy, and the results suggest that the morale argument is relevant in both America and Europe. This firm behaviour is compatible with profit maximisation if one allows for work morale to have an influence on workers' effort, and hence on labour productivity. The same question has also been examined in the laboratory, with striking results. In an experiment conducted by Ernst Fehr and Armin Falk that was published in the *Journal of Political Economy*, the authors found that where effort was a choice variable of the workers and not contractible, firms' wage offers were higher on average than workers' wage offers. Furthermore, in most cases where underbidding by workers occurred, firms refused to accept the lower offers.

A theoretical framework compatible with these results is the fair wage model of George Akerlof and Janet Yellen. In the present research, we show how a variant of this model can be used to shed new light on the analysis of the effects that "Globalisation shocks" had on wages and unemployment in industrialised countries. In this strand of the literature, authors have emphasised the importance of labour market institutions to explain the divergent experience of the United States and the United Kingdom on the one hand and continental Europe on the other. The stylised asymmetry typically considered is one where labour markets in the United States and the United Kingdom are perfectly flexible while continental Europe institutional factors prevented downward adjustment of wages. Hence, whenever a negative globalisation shock hits the market for unskilled workers, this is translated into an increase in involuntary unemployment in Europe, while workers in the UK and the US remain fully employed in equilibrium. When combining this set-up with a standard Heckscher-Ohlin model of international trade, wages across countries are equalised, so the globalisation shock cannot lead to divergent wage paths between countries.

Rather than focusing on differences in labour market institutions, we model the difference between continental Europe and the UK/US as one of different fair wage constraints. In Europe, widely recognised as a more egalitarian society, workers are assumed to be more averse to wage inequality than their colleagues in the UK and the US. In addition, we

allow for a decision of unskilled workers to acquire skill. In this set-up, Europe is characterised by higher unemployment rates for unskilled workers and lower skill premia in equilibrium. Modelling the dichotomy between labour markets differently allows us to extend the previous literature, which uses the assumption of an exogenously given minimum wage, in two ways. First, modelling workers' fair wage considerations explicitly gives a micro-foundation to equilibrium unemployment. Second, the model allows for different but strictly positive unemployment rates in both countries. In contrast, combining the minimum wage approach with the standard Heckscher-Ohlin model is straightforward only if one is willing to assume the extreme dichotomy set out above. This assumption is clearly at odds with the fact that involuntary unemployment, while lower than in continental Europe, is a key issue in UK and US policy debates when it comes to globalisation.

The globalisation shock is modelled in a way common in the literature: initially, Europe and UK/US trade freely with each other but are closed towards the rest of the world. While clearly not strictly true, this assumption captures the fact that most of the trade occurs between (developed) OECD countries. This integrated trading block then opens up towards trade with a third (developing) country that is a net exporter of goods that are unskilled-labour intensive. The real-world equivalence of this would be the entry of China into world trade at a significant scale.

The consequences of this globalisation shock on the two previously integrated regions depend on their education sectors. The imports of unskilled-labour intensive goods from the developing world threaten the position of unskilled workers in the developed countries. If remaining passive, they experience a decrease in their wages as well as an increase in unemployment, as the developed countries shift production towards high-skill sectors. However, this negative shock gives an additional incentive for unskilled workers to become skilled. It is shown that in equilibrium the unemployment rate of unskilled workers in both countries may increase or decrease, depending on how well the education sector can cope with the additional demand for education. It is clear, however, that the number of skilled workers will increase in both countries. In addition, even when the education sectors in the two countries are technologically identical, the globalisation shock can lead to divergent wage paths between the Europe and UK/US. It can, however, never reverse the ordering of unemployment rates and skill premia between Europe and UK/US.

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