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newsletter

Leverhulme Centre for Research on Globalisation and Economic Policy

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GEP
Leverhulme Centre
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Leverhulme Trustees Visit Leverhulme Centre for Globalisation

The Director of the Leverhulme Trust, Sir Richard Brook, together with the Chair of the Board of Trustees, Sir Michael Angus, recently made a return visit to the Leverhulme Centre for Research on Globalisation and Economic Policy for an update on the research being undertaken in the Centre. It was also a chance for them to meet Internal Fellows, PhD students and some External colleagues - Dr. Beata Smarzynska Javorcik (Policy Associate), Professor Steve Matusz (External Fellow) were also in attendance. Following an introduction by the Centre's Director professor David Greenaway, details on two areas of the research were presented.

Dr Holger Görg gave a short talk on some of the work under the theme of Globalisation Productivity and Technology (GPT). He focussed on the productivity impacts of multinational enterprises. This is highly policy relevant issue, as a recent DTI report contends that there is a significant productivity gap between the UK and its main competitors. Holger briefly outlined the theoretical reasons why multinationals may be expected to improve domestic productivity. He then presented two pieces of research, one looking at whether multinationals are more productive than domestic firms, and one investigating whether there are productivity spillovers from multinationals to domestic firms in the UK. Given Sir Michael's experience in multinational firms he showed much interest in this research and a lively discussion followed the presentation.

There is a large body of evidence documenting the shift in employment patterns away from unskilled

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Sir Richard Brook, Sir Michael Angus, Professor David Greenaway, Dr Peter Wright, Dr Holger Görg

Enlargement and the EU Periphery

The recent enlargement of the European Union is expected to have both significant wealth and labour market effects for the current member states and to lead to changes in the geographic dispersion of production. In this article **Marius Brülhart** *considers the regional consequences of these spatial changes. Marius is a Professor at the University of Lusanne and an External Fellow of GEP.*

Europe's economic centre of gravity is shifting east. No event marks this tendency more visibly than the 2004 EU enlargement, which has integrated ten Central and Eastern European countries (CEECs) fully into the EU's internal market. Improved access to and from the CEEC economies is likely to affect production structures not just in the affected new Member States but also in incumbent EU countries.

One can think of a myriad of economic mechanisms through which EU enlargement may affect the economies of Western Europe: increased specialisation according to comparative advantage (which includes the vertical fragmentation of production processes), enhanced scope for scale economies in a larger European market, changing

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and towards skilled workers in many OECD countries. Indeed it is argued that process of "skill upgrading" has been an important element in the increasing wage gap between skilled and unskilled workers. What is less known is the impact that these changing patterns of aggregate employment have had on other aspects of workers' employment experiences. In particular, how have they impacted on the employment prospects and on the occupational mobility patterns of individuals? Is the process of skill upgrading associated with greater rates of job loss and unemployment or with greater rates of movement up the occupational ladder? Dr Peter Wright presented results from ongoing research with Dr Richard Upward and Dr Spiros Bougheas which examined these questions for the United Kingdom and the United States. They have found evidence that, on average, a faster rate of skill upgrading offers workers a "ladder" with which to climb to higher points on the occupational scale rather than pushing them down a "snake" to a lower skill group or to non-employment. Further, this effect actually seems larger at the bottom of the skill distribution.

Commenting on his visit to Nottingham Sir Richard wrote "The opportunity to explore the research interests of the teams at Nottingham and to see more closely the excellent progress being made was greatly appreciated. The exchanges were purposeful and searching (in both directions!) and it is a pleasure to confirm how much they have been appreciated"

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factor supplies through movements of workers and capital, stiffer competition from CEEC competitor firms, to name but the most obvious. A number of previous studies have explored the aggregate income and welfare effects of enlargement, mainly via computable general equilibrium models. We focus on one particular and as yet underresearched aspect of this complex set of economic effects: the locational implications of a changing spatial configuration of market access at the level of sub-national EU regions. We abstract from endowment differences and market structure and ask how the changes in relative market access implied by enlargement are likely to affect peripheral regions of pre-enlargement member states, all else being equal.

We first explore this issue in a *three-region version of Krugman's core-periphery model*. Except for differences in trade costs, space is assumed to be homogenous, and sectoral location is determined endogenously through the interplay of agglomeration and dispersion forces. Two of the three regions are relatively integrated (the "EU"), and one of these two is the "interior" region, while the other one borders the outside region. We track how the economies of the two regions are affected by an opening towards the third region (the "CEECs"). External market opening affects several spatial forces. Forces related to better access to foreign export markets and cheaper imports enhance the locational attraction of the border region. Conversely, forces related to import competition from foreign firms enhance the locational attraction of the interior region.

The interplay of these forces in the nonlinear setup of the model can lead to a variety of equilibria. We find that, for most parameter configurations, external liberalisation favours the concentration of the mobile sector in the border region. However, this mechanism is not deterministic. For example, a sufficiently strong pre-liberalisation concentration of economic activity in the interior region can make this concentration globally stable, i.e. the locational forces triggered by the external opening are insufficient to offset the locational hysteresis of an established agglomeration. For some parameter values the model can even predict a locational pull towards the interior region (e.g. when the relative size of the mobile sector is small).

In our *empirical analysis*, we seek to capture the essential features of the theoretical framework without attempting full structural estimation of the model. Our main explanatory variable is the market potential of each region, measured by the economic mass of all European regions, each weighted by the inverse of its bilateral distance from the region whose market potential we are measuring. We apply an economically relevant measure of interregional distance by drawing on a set of bilateral estimates of average road freight travel time. For the economic mass variable we use alternatively regional purchasing-power parity GDPs and regional employment in particular sectors (which yields "sectoral market potentials").

The market potential measures are the main ingredients in the two stages of our empirical exercise. First, we estimate the relation between, on the one hand, regional per-capita GDP (regional manufacturing employment) and, on the other hand, computed regional market potentials for the full sample of up to 202 European regions. In the second stage, we take the estimated first-stage coefficients to simulate the effect of changes in regional market potentials. The scenario we simulate is stark. We compare a situation where the EU ends at its pre-2004 eastern border (i.e. where market potentials take account only of regions in incumbent Member Countries) with a situation where the EU has grown to encompass 25 and then 33 countries (i.e. where market potentials incorporate also the ten 2004 Accession Countries and eight potential future Members in South-Eastern Europe). These simulations thus provide upper-bound estimates of the pure market-potential effects of EU enlargement on incumbent regions.

Our estimates suggest that the effects on per capita *incomes*, while small, are larger in Objective 1 regions than in the rest of the EU. We computed an average gain from the 2004 enlargement of 0.93 percent, compared to 0.65 percent for the non-Objective 1 regions.

Large magnitudes, however, are found for effects on *manufacturing employment*, the most footloose of broad sectors. Manufacturing employment as a share of population is predicted by our estimates to expand by 33 percent in Objective 1 regions on average, and 23 percent for non-Objective 1 regions. These numbers are surely too high to be plausible, and thus highlight the limits of our methodology, but it is interesting that we find no region for which our estimates suggest a negative impact of enlargement on manufacturing employment. We also detect significant variance across Objective 1 regions: the enlargement-induced boost to manufacturing of the most affected region (Burgenland, Austria) is seven times larger than that of the least affected region (South Yorkshire, UK).

From a regional policy perspective, it will be of interest how the simulated regional income effects correlate with pre-enlargement relative incomes of Objective 1 regions. The simple correlation coefficient between 1998 real purchasing-power parity per capita GDP and our simulated 2004-enlargment effect is -0.07, which is statistically insignificant. The correlation with the simulated effects of a future Balkans enlargement that would bring the number of EU countries to 33 is -0.24, which is statistically significant at the 10 percent level. The average GDP effect in the EU-33 scenario is 60 percent larger for Objective 1 regions than for non-Objective 1 regions. Our simulations therefore suggest that the market-access effects of the 2004 enlargement will neither exacerbate nor reduce income inequalities among Objective 1 regions but that a future Balkans enlargement could reduce these inequalities, mainly by boosting income in Greece.

The Nottingham Lectures in International Economics

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Professor Jonathan Eaton

New York University

7th, 8th and 9th December 2004

University of Nottingham

GEP is delighted to have been invited by Princeton University Press to host a major new Lecture Series. This will involve a distinguished speaker visiting Nottingham to give three advanced lectures to postgraduate students and staff, on a particular theme. Princeton University Press will subsequently publish the Lectures as a short monograph.

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

The World Economy Annual Lecture

Professor Anne Krueger

First Deputy Managing Director, International Monetary Fund

'De Tocqueville's dangerous moment: the importance of getting reforms right'

PLEASE NOTE NEW DATE

Friday 10th September 2004 at 6:15 pm.

Lecture Theatre B63, Law & Social Science Building, University of Nottingham

European Trade Study Group

Annual Conference 9th-11th September 2004

will be hosted by the Leverhulme Centre for Research on Globalisation and Economic Policy

100th Anniversary of Antidumping Regulation: A Summary of the 2004 GEP Annual Conference

By Rod Falvey and Doug Nelson

In 1904 Canada passed the first formal antidumping (AD) legislation. On 25 and 26 June, the Leverhulme Centre for Research on Globalisation and Economic Policy at the University of Nottingham and the Murphy Institute at Tulane University held their third joint conference on the topic "The 100th Anniversary of Antidumping Regulation" at the University of Nottingham. Researchers from Australia, Europe and the US presented papers on legal, political and economic aspects of antidumping regulation.

Following Canada's adoption of an AD law, most of the major independent trading countries had similar laws by 1921. They were little used, however, since most of these countries maintained relatively high statutory tariffs that were adjusted on a regular basis through standard political processes. This began to change as tariff reductions began in the late-1930s under the US Reciprocal Trade Agreements Act of 1934 and continued in the post-War period under the General Agreement on Tariffs and Trade (GATT). By the 1980s, antidumping had become the main source of increased protection among the world's main trading countries, and began to attract increasing academic interest.

The conference opened with two overview papers. Doug Nelson (Tulane University and University of Nottingham) reviewed academic research on the political economy of antidumping. He noted that most of this research had adopted a micro political economy perspective, taking the AD mechanism as given and focusing on the incentives it created for firm behaviour. In this context AD can only be welfare reducing. Viewed from a macro political economy perspective, however, AD could form part of an overall trade liberalizing policy package. In the latter context, welfare evaluation becomes much more complex. In the second overview paper, Maurizio Zanardi (Tilburg University) examined the spread of AD laws, case filings, and outcomes over the GATT/WTO era (1948-2001). The close relationship between GATT membership and the adoption of an AD law is consistent with Nelson's argument that governments are unwilling to enter into sizable liberalization without providing some kind of release for domestic protectionist pressure. Zanardi also identified a disturbing trend of immediate application of AD law by new adopters (virtually all developing or transition countries), although they generally still have very high rates of statutory protection.. This is very different from the pattern observed in the traditional users and noted above.

These overviews were followed by two papers examining aspects of AD implementation in particular countries. Gunnar Niels' (OXERA Consulting) paper on Mexico was particularly relevant given Zanardi's identification of new users as a major source of growth in the use of antidumping. Niels reported very high rates of duty, especially when applied to countries that are not members of the WTO (in particular China, which was not a member during the period covered by Niels' analysis), and showed convincing evidence of sizable trade effects and of political economy factors in the determination of filing and outcomes. Michael Moore (George Washington University) examined the implementation of US commitments to reform in the Uruguay, namely to restrict the use of petitioner's information ("best information available") and to adopt a sunset clause intended to generally remove AD orders after five years. Moore's analysis suggested that neither of these commitments have produced dramatic changes in AD outcomes.

An important issue for the international trading system is whether and why AD actions in one market may trigger AD actions in others. Three papers considered aspects of this issue. Joseph Francois (Erasmus University) and Dean Spinanger (Kiel Institut für Weltwirtschaft) used gravity models to analyse the effects of the EU's AD enforcement and found evidence of substantial trade destruction across a range of commodities. Thomas Prusa (Rutgers University) and James Durling (Wilkie, Farr and Gallagher) focused on the epidemic of AD cases related to the hot rolled steel industry in 1998-2000. They found evidence of significant trade destruction (i.e. reduced imports into countries imposing AD duties) and of trade deflection (i.e. increased exports from countries facing AD duties to as yet unprotected markets), but little evidence of trade diversion (increased imports into protecting markets from unrestricted countries/firms). Chad Bown (Brandeis University) and Meredith Crowley (Federal Reserve Bank of Chicago) examined the effects of US AD actions against Japan on Japanese exports to the US and Europe. They found that trade to the US is reduced, Japanese exports are deflected to Europe resulting in increased quantities and reduced prices of Japanese goods in the European market; and increased Japanese exports to the US when competing imports are restricted by US antidumping (trade diversion). All of these results suggest that at least one way AD spreads is via relatively straightforward contagion effects. Distinguishing these from the often asserted retaliation ef-

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fects would seem to be an important topic for future research.

As noted earlier, the implications of AD for the behavior of firms continues to attract theoretical and empirical research. Bruce Blonigen (University of Oregon) raised the issue of firm learning and found strong evidence that at least some firms become more effective at "working the system". Experience with the AD mechanism leads to increased future propensity to file, increased probability of success, but lower future dumping margins. In his view this indicated that firm learning leads to lower costs of filing and therefore a willingness to file cases with lower expected payoffs. Jozef Konings and Hylke Vandenbussche (Catholic University of Leuven) considered whether domestic firms use the protection offered by (supposedly temporary) AD actions to improve their productivity. Using a difference-in-differences approach on a panel of 1,793 European firms between 1993 and 2000, they find significant evidence of positive productivity effects, with the largest effects being realized by firms far from the technological frontier.

Finally, four theoretical papers considered the firm-level effects of antidumping. Two of these papers focused on the Byrd Amendment (an addition to the US AD Law granting petitioning firms a share of the tariff revenues from a successful case). Simon Evenett (Oxford University) develops his analysis in the context of a Bertrand duopoly, while David Collie (Cardiff Business School) and Hylke Vandenbussche (Catholic University of Leuven) work with a Cournot duopoly model. Evenett is interested in the effect of AD on profits under a variety of institutional arrangements (including the Byrd amendment), while Collie and Vandenbussche are interested in the possibility that the Byrd amendment could result in lower duties and higher welfare in the dumped market.

Rod Falvey and Sarut Wittayarungruangsri (both University of Nottingham) were interested in the effects of AD laws on the strategic interactions between two national firms selling in each others (segmented) markets. Where prices differ in free trade, the firm located in the higher price market can be accused of dumping in the other. The firms can then manipulate their sales in both markets so as to affect the dumping margin. The outcome can be a reduced or increased dumping margin relative to free trade. Martin Richardson (Australian National University) developed an analysis of "third party antidumping", where a firm from a third market (i.e. neither the home country of the dumping firm or the market into which dumping is alleged to occur) filing an AD case. While relatively uncommon, Richardson identified several specific cases of this phenomenon in New Zealand and developed a simple Cournot oligopoly model of competition between two foreign firms in a third market to explain it and evaluate its welfare consequences.

Those interested in learning more can consult the draft papers on the GEP website. Final versions are to be published in a special issue of *The European Journal of Political Economy* early in 2006.

The Trade Effects of an Antidumping Epidemic

Perhaps the best known example of antidumping protection in recent years is that which relates to the US steel industry in the late 1990's. This was in fact part of a wider 'epidemic' of antidumping actions involving some 31 countries. Here **Thomas Prusa** *considers the trade impact on the steel industry of this round of anti-dumping protection. Thomas is a Professor at Rutgers University and this paper is taken from his presentation at the recent GEP conference on antidumping. The papers from the conference are available on the GEP website.*

The steel industry has dominated the antidumping landscape like no other industry. Over the last century no industry has pursued antidumping (AD) protection as aggressively as has the steel industry – on a global basis over the past 100 years the steel industry has filed more AD complaints than any other industry. The world's first AD dispute involved steel – Canada's attempt to restrict the imports of US steel rails. And, in a fitting capstone the first century of AD measures ended with an unprecedented burst of worldwide steel disputes. Over the last half of the 1990s the steel industry accounted for about one out of three AD disputes worldwide.

The flurry of AD activity involved nearly every conceivable type of steel product, from pipe and tube to stainless plate and sheet, from steel bar to structural beams, from wire to tinplate. However, one particular steel product – hot-rolled steel – was the undisputed champ: about one-quarter of all steel disputes involved hot-rolled steel.

Even by steel's standards, the AD disputes involving hot-rolled go well beyond the "ordinary" level of trade tensions and can be classified as an AD epidemic. In the late-1990s thirteen different countries filed a total of 84 hot-rolled cases against 31 different countries. Six of the 13 filing countries (Argentina, Canada, EU, Peru, USA,

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and Venezuela) initiated hot-rolled cases in different years. Half of the subject countries were named in more than one case. Interestingly, the countries filing the most cases (Argentina, Brazil, EU, India and USA) were also all accused of dumping hot-rolled steel. The trade consequences of this trade epidemic are noteworthy. In terms of trade volume, the countries filing AD disputes accounted for about one-half of worldwide hot-rolled imports; the countries subject to the investigations accounted for almost 90% of all hot-rolled exports. Looking at the volume of trade restricted, the cases involved about one-quarter of all hot-rolled trade during this period of time.

There are a variety of reasons why hot-rolled steel was the subject of so many disputes. To begin with hot-rolled steel producers have historically been particularly dependent on trade protection as a means to maintain market share. In addition, unlike other varieties of flat-rolled steel, hot-rolled steel is one of the few that can be produced by nearly all steel firms. Moreover, because it has so many commercial applications the volume of trade in hot-rolled steel is larger than other steel products. Finally, hot-rolled steel is a particularly homogenous type of steel. There are certainly specialized hot-rolled steel products but the vast majority of traded hot-rolled steel is standardized and largely interchangeable. Taken together, these attributes mean that hot-rolled steel not only is an easily and widely traded steel product but also is especially valuable for import-competing firms to restrict.

"even by steel's standards the AD disputes involving hot rolling go well beyond the ordinary"

These characteristics also make hot-rolled steel an ideal case study for quantifying AD-induced trade effects. Using Bown and Crowley's (2004) terminology we refer to the primary effect of AD protection as trade destruction – when a country imposes an antidumping duty on another country (say, country J), then imports from J should fall.

The hot-rolled steel AD epidemic also allows us to identify two other possible effects of AD actions – trade diversion and trade deflection. By "trade diversion" we mean that the imposition of an AD duty on country J might induce other countries to fill the void and increase their exports. By "trade deflection" we mean that the AD duty on country J leads it to increases its exports to other markets.

These latter two effects are potential important reasons why hot-rolled steel was not a typical trade spat but rather an AD outbreak of historic proportion. Specifically, trade diversion and trade deflection might explain why there seemed to be a complete breakdown in the hot-rolled market. Trade diversion would explain why several countries felt it necessary to file multiple AD cases over the period. Trade deflection would explain why more and more countries filed hot-rolled AD complaints over the period (as exporters shifted their sales from one market to the next). While neither effect justifies the use of AD measures, finding concrete evidence of these effects would at least help researchers better understand the dynamics of what happened.

To identify these three separate trade effects we created a detailed database of bilateral trade at the six-digit HS level of hot-rolled steel during the 1996-2001 period. The short time horizon of our panel is due to the fact that the HS classification system was revised in 1996, which means that our hot-rolled statistics cover only years since 1996. The shortness of the time series is compensated for by the richness of the trade relationships that we can exploit; we are able to compute bilateral trade patterns for hot-rolled steel involving 142 exporters and 112 importers.

Our empirical model captures the impact of AD actions on bilateral trade patterns. The exogenous variables include a series of dummy variables to measure each of the three types of trade effects. Following Arellano and Bond (1991) we difference the estimating equation and then estimate using the General Method of Moments (GMM) estimator using lagged levels of the dependent variable and the differences of the exogenous variables.

Our formal estimates indicate that trade destruction, deflection and diversion are all present, with the strong support for a significant amount of trade destruction and the fairly weak support for a significant amount of trade diversion.

With respect to trade depression, our estimates imply that subject country trade falls by about 75% (relative to what it otherwise would be) in the year the case was filed. We find in the first full year following the investigation trade is reduced by almost 85% (relative to what it otherwise would be). In the second year following the investigation trade is reduced by about 65%. These are extraordinarily large impacts. By comparison, using similar methodology but a large sample of US cases, Prusa (2001) estimates that trade falls by 40-66% during the first three years.

We believe there are several reasons why the parameter estimates based on our hot-rolled steel data are larger than the earlier results. First, AD margins have increased over time. Blonigen (2003) documents that in recent years the average US dumping margin has been around 65%. Other AD users

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often impose even larger margins. Given duties of these sizes, one should expect AD to reduce trade dramatically. Second, in contrast with many other products under AD investigation, hot-rolled steel is a fairly homogenous product making the response of subject hot-rolled imports more elastic than for other products that have been subject to AD investigations.

We also find evidence of a trade deflection effect. That is, an AD action in one market causes the subject suppliers to increase their shipments to other markets by about 25-30% in the years following the investigation. This is qualitatively similar to the finding in Bown and Crowley.

Interestingly, we find little evidence of an increase in hot-rolled supply by non-subject countries, at least not on the global level. We believe part of the explanation lies in the fact that in a number of cases a number of the non-subject suppliers were already under AD orders. Many non-subject suppliers could not increase their shipments because they already are subject to AD orders. We also think the result captures a previous ignored aspect of AD – fear factor. Namely, aggressive use of AD measures such as those the world experienced during the late 1990s intimidates even non-named suppliers. Even if a foreign supplier could increase its shipments, it may choose not to avoid being the next country to be put under the anti-dumping microscope.

GEP CONFERENCE

International Mergers and Acquisitions

4th October 2004

To be held at Lenton and Wortley Hall, University Park, University of Nottingham

Speakers include:

Simon Evenett, *University of Oxford*
Ben Ferrett, *GEP, University of Nottingham*
Holger Görg, *GEP, University of Nottingham*
Klaus Gugler, *University of Vienna*
Alexander Hijzen, *GEP, University of Nottingham*
Miriam Manchin, *CEC, Belgium*
Lars Persson, *IUI Stockholm*
Peter L. Rousseau, *Vanderbilt University*

For further details, see the Leverhulme Centre Website or contact holger.gorg@nottingham.ac.uk or alexander.hijzen@nottingham.ac.uk

Firm Level Effects of Antidumping

The issue of antidumping has spawned both an empirical and theoretical literature to analyse its various impacts. This article by **Rod Falvey** *and* **Sarut Wittayarungruangrsi** *builds on this theoretical literature to consider the effect of antidumping regulation on the behaviour of firms. Rod is a Professor on International Economics at the University of Nottingham and Sarut is a PhD student in GEP. This paper was presented at the recent GEP conference on antidumping.*

When thinking about the most important trade restricting device nowadays, most economists as well as policy makers would agree that it is antidumping (AD) policy. The second half of the last century witnessed a large number of countries, both developed and developing, adopting their AD law and pursuing AD actions. This phenomenon brings about a fast growing body of literature regarding several aspects of antidumping. Since the early 1990s, a fair amount of theoretical work has attempted to study the incentives that AD law provides for strategic behaviour of firms involved: this is also our interest here. In addition, we concern ourselves with the comparison between two types of protection, AD duty and price undertaking. Though common in the EU, price undertaking seems to be relatively overlooked in the literature compared to AD measures.

Although firms' strategies in the presence of AD regulation have been studied for over a decade, what is still absent in theory is the effect of antidumping law in the world in which bilateral trade takes place. The papers dealing with this issue have one common feature in that only the dumping firm exports. New trade theory, by contrast, explains why two countries trade the same good to each other. We therefore fill this gap by building a theoretical model upon the assumption of two-way trade and investigate how the presence of AD law alters firm behaviour. We impose the following assumptions. There are two countries (home and foreign) with one firm being located in each. The firms produce a homogeneous good and sell in both countries where markets are segmented. The countries differ only in terms of market sizes and the two firms are identical in term of efficiency.

To capture the dynamic nature of antidumping process, a two-period framework is employed here. Period 1 is that when dumping takes place and period 2 is that in which the dumping firm pay a duty equal to the dumping margin found in the first period. This feature of the model gives some interesting findings. As the degree of protection is determined by the dumping margin in period 1, AD law changes both firms' behaviour in both periods. Also, rather than reducing dumping, AD law may encourage dumping even further and this is due to the firms' strategic actions.

In our model, it turns out that the factor which drives dumping in the first place is the difference in market size and the firm located in a country with a larger market dumps onto the other. Where dumping occurs, the firm in the dumped market would file an AD petition against its rival and AD measure will be levied in the following period. It is clear that the filing firm will benefit from the duty imposed on the other in the second period but what is more interesting happens in the first period where both firms adjust their sales in both countries so as to manipulate the dumping margin.

We first examine the case where only the dumping firm can behave strategically. The outcome depends on the relative market size. However, the key result is that the dumping firm sells more in its local country and sells less in the other in order to reduce dumping margin which will be the size of duty it faces in period 2. If the difference between the two markets are rather close, the firm will be able to squeeze the margin down to zero. This means there is no dumping in the first period and no duty will be collected in the final. As the relative market size gets larger, dumping margin is positive but it is still less than the natural level (in the absence of AD law). When the market sizes differ greatly, the margin, which reflects the duty size, is so large that the dumping firm would stop exporting completely in the final period since it is no more profitable to do so. In short, the firm attempts to reduce the dumping margin and it is able to do so as long as the two countries do not differ too much in market size.

Letting the filing firm behave strategically as well leads to a peculiar result in that the dumping margin could be wider than in free trade. This sharply contrasts the intuition but the reason is that while the dumping firm tries to lower the margin, the other performs the opposite strategy. It supplies its own country more and supplies the other less in order to widen the dumping margin. The relative market size plays another role here: it determines which firm's strategy is more influential. Where the market size difference is small, the dumping firm has stronger incentive to adjust its sales and its action is also more powerful. On the contrary, when the market sizes differ more, the filing firm has stronger incentive and it is successful in increasing dumping margin.

Another intriguing result found in our model is that the presence of AD law does not necessarily protect the domestic producer. Instead it might even make the filing firm worse off than in free trade. Of course, at the time when AD duty is collected, the filing firm benefits from it. However, the firms' outputs are distorted from free trade equilibrium in the first period as both firms try to affect the degree of protection in the second. Accordingly, they both tend to be worse off in period 1. This implies that the filing firm would gain higher total profits only if AD duty is large enough to compensate the reduction in period-1 profits, and this is not always the case. The duty will be sufficiently large if the relative market size is also large.

This type of result raises one interesting question. Given that AD action may cause this perverse effect, is it sensible to file a petition? The answer is that it is always sensible to file. This is due to the timing of filing. A firm would file after dumping has already taken place and, once AD action is in place, the firm gains from it. Linking this to our work, it is in the interest of the domestic producer to file a case at the end of period 1 because, whatever happens in that period, it will always gain more in the sec-

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ond as long as the duty is positive. Therefore, the existence of antidumping law always leads to AD measure even if it could undermine the dumping firm's profits.

A better option than AD duty is price undertaking. Within our framework, the presence of this policy does not result in the real action but it gives the possibility of free trade equilibrium even though AD law does exist. We bring into our consideration this unique EU antidumping practice and compare it with duty which is common worldwide. It is found that where price undertaking is available, the firm in the dumped country may not initiate the case and free trade could be the outcome.

Price undertaking in this study works as follows. The foreign dumping firm may not pay a duty if it agrees with the domestic government to sell in the domestic country at the same price as in its local market. As this is not private settlement, we assume that only the dumping firm has its role in determining what the outcome would be. It appears that the outcome is uncertain and depends on the market size difference. The dumping firm tends to prefer duty if the dumping margin is small (small difference in market size) but it will opt for price undertaking if the dumping margin is large.

As for the filing firm, it is certain that it prefers duty to price undertaking. Moreover, price undertaking generates less profits than in free trade in period 2 as well as in the two periods combined. Thus if it conjectures that the dumping firm will choose to accept price undertaking, it is reasonable not to make a petition. Where this is the case, the result is free trade in the second period. Then there is no reason to manipulate the sales in the first period as no duty will be collected. Hence period 1 also has free trade equilibrium. This suggests that even though the possibility of price undertaking is present, it will never be performed as the firm in the country being dumped would ignore its competitor's behaviour and both will continue selling as in the absence of AD regulation.

To sum up, when AD duty is to be imposed on the dumped product, both firms adjust its sales to manipulate the size of duty. The dumping firm tries to reduce the dumping margin whereas the filing firm does the opposite. The margin could then be either greater or lower than in free trade and this implies that AD law could encourage dumping further still. Where price undertaking is also available, it is possible to see free trade equilibrium. The outcome depends on market sizes. As the difference in market size is small, AD measure is levied. When it gets large, no AD action is undertaken.

THE BENEFIT OF US ANTIDUMPING

Why should citizens of the European Union pay attention when the United States uses an import tariff against non-EU exporters? In particular, are firms and consumers in the EU affected by the US imposition of antidumping (AD) duties against Japanese exporters? Are they impacted in a way that would cause EU policymakers to take notice? In a recent paper presented at the GEP's June 2004 Conference on the 100th Anniversary of Anti-Dumping Regulation, **Chad P. Bown** and **Meridith Crowley** *argues yes, that US trade policy actions – even when not targeted against imports deriving from EU firms – have historically imposed "externalities" that affect EU market conditions through surges in trade flows and changes in import prices. The authors then discuss the implications of such evidence of "trade deflection" for other recent developments in the world trading system, including China's 2001 accession to the WTO. Chad is an assistant professor in the Department of Economics and International Business School at Brandeis University, and Meredith A. Crowley is an economist in the Research Department at the Federal Reserve Bank of Chicago*[*]*. This paper was presented at the recent GEP conference on antidumping.*

The US and the EU are among the dozens of countries around the world that utilize GATT/WTO-sanctioned antidumping laws. Import-competing industries have claimed that the laws are necessary to shield them from "unfairly traded" imports, i.e., imports that are sold at a price that is "less than fair value." Economists have long argued against the basis for and application of antidumping laws for many reasons, including a lack of sound economic grounding in the actual laws, the concern for regulatory capture by protectionist interests, and the welfare costs imposed on the domestic economy. Nevertheless, the US and EU are historically two of its most frequent users, antidumping continues to proliferate worldwide across developed and developing countries alike, and its spread threatens to erode the market access gains achieved under multilateral GATT/WTO trade liberalization negotiations.

In a paper presented at a June 2004 GEP conference, Bown and Crowley draw from their research program examining the *international* implications of US antidumping use by undertaking an empirical investigation designed to trace the impact that US antidumping duties have on Japanese exports to both the US and the EU over the 1992-2001 period. The central results from their study indicate that 1) 25-30% of the value of Japanese exports to the US market that are thought to be destroyed by US antidumping are actually "deflected" to the EU market in terms of a contemporaneous increase in EU imports of those same products from Japan, and 2) this "trade deflection" also results in a substantial reduction in the price of Japanese exports to the EU. In the jargon of economists, a US trade policy action on Japan is associated with a "terms-of-trade improvement" for the EU in the form of lower prices for imported

* The opinions expressed in this paper are those of the authors and do not necessarily reflect those of the Federal Reserve Bank of Chicago or the Federal Reserve System.

THE BENEFIT OF US ANTIDUMPING CONTD...

goods and, thus, substantial gains for EU consumers. While these results are only a first step in investigating the international implications of AD use, they point to the need for future inquiry and scrutiny of the effects on antidumping on both importing (AD-user) and exporting countries.

What are the policy implications of the Bown and Crowley results that US policies induce trade deflection and lower the EU's import prices? While these phenomenon likely benefit EU consumers and generate net welfare gains to the EU as a whole, if the trade deflection occurs in politically sensitive and/or politically important sectors of the EU economy, the prospect of even temporary lost profits to EU firms or lost jobs to workers in the local industry may place pressure on EU policymakers to respond with trade restrictions of their own. Furthermore, anecdotal evidence from recent events suggests that these policy linkages may not be limited to antidumping actions, but indeed can be applied to any trade policy instrument over which domestic authorities have sufficient discretion. A particularly poignant example occurred in March 2002, immediately after the United States announced a "safeguard" policy designed to shield its domestic steel industry from competition against imports. The EU almost instantaneously responded to the massive US policy of tariffs and quotas on foreign-produced steel by announcing a "steel safeguard" of its own, justifying it at least partially with the following press release,

> *"Whilst US imports of steel have fallen by 33% since 1998, EU imports have risen by 18%. Given that worldwide there are 2 major steel markets (EU with 26.6m tonnes of imports in 2001 and US with 27.6m tonnes), this additional protection of the US steel market will inevitably result in gravitation of steel from the rest of the world to the EU. This diversion ["deflection"] is estimated to be as much as 15m tonnes per year (56% of current import levels)." (EU, 2002)*

Given the ex post evidence of the similarities between the trade impact on US imports of the 2002 US steel safeguard when compared to the impact of earlier acts of US antidumping protection for the steel industry, Bown and Crowley's historical evidence on "trade deflection" suggests that the EU's concern in this case was not unfounded – it would have likely experienced a substantial surge in imports of steel attributable to the 2002 US safeguard policy.

More broadly, the trade deflection induced by US use of antidumping or safeguard policies also does not appear isolated to the case of Japanese exporters, as follow-up work by the authors finds similar evidence for trade deflection associated with US AD measures on Chinese exporters. This result is particularly important when combined with the insights of a recent paper by Patrick A. Messerlin. First, Messerlin identifies a number of instances in which the US and the EU sequentially responded with antidumping measures over the same sets of Chinese exported products, through what he calls "echoing" cases. These cases provide anecdotal evidence consistent with a theory that some of the proliferation of antidumping use worldwide may be due to antidumping policy actions by one country leading to trade deflection-induced antidumping actions in another country over the same product, i.e., a contagion-like effect.

A second important concern for the particular case of China's trade deflection stems from the conditions of China's WTO accession in 2001, which gives WTO Members an additional trade policy instrument with which to restrict imports deriving from that country alone, i.e., a transitional "China safeguard." Attached to any WTO member's use of the China safeguard is a new "trade deflection" clause, which allows any other importing country to subsequently impose trade restrictions on Chinese exports of the same product to its market, without any additional investigations, under the presumption that a trade surge will occur. That is,

> *"[a]s soon as one WTO member implements a transitional product-specific safeguard measure against Chinese exports, all other members can enforce a similar measure at almost no procedural cost (no investigation, no prior notification, no input from Chinese parties). The trade-diversion ["deflection"] clause thus means that countries do not have to provide proof substantiating the allegation that Chinese exports will be diverted from the first closed market to the rest of the world." (Messerlin, 2004, p. 127)*

Clearly the potential policy action of one sizable trading partner (e.g., the US or the EU) can thus have a severe chilling effect on China's global exports through the trade deflection triggered by US, EU or another country's use of the special safeguard mechanism. The deflection clause associated with the new "China safeguard" thus has the potential to implicitly extend the influence of any sizable WTO member to China's exports in *world* markets.

The "trade deflection" associated with US use of antidumping duties that Bown and Crowley empirically document for the case of the impact on Japanese exports to the EU is likely just one of many examples of this phenomenon in the international trading system. Nevertheless, it may be necessary to reiterate that US trade restrictions on non-EU exporters can lead to both an increased volume of EU imports and a lower EU price for imported goods, both of which are likely to yield substantial *benefits* to EU consumers. If EU policymakers then choose to respond to a surge of deflected imports with their own import restraints – whether it be through antidumping measures or other trade policy instruments – the cost of this policy will fall heavily on European consumers. An important question for future research is, how do EU policymakers *respond* to the trade deflection generated by another country's government?

Leverhulme Globalisation Lectures 2004

David Smith

Economics Editor, *The Sunday Times*

'Offshoring- Political Myths and Economic Reality'

12th October 2004

Robert Anderton

Senior Economist, European Central Bank

Special Professor, School of Economics, University of Nottingham

'The External Dimension of the Euro Area'

15th November 2004

To be held at the University of Nottingham. For further details, see the Leverhulme Centre Website or contact sue.berry@nottingham.ac.uk

Leverhulme Globalisation Lecture

Earlier this year Martin Wolf, Associate Editor and Chief Economics Commentator, *Financial Times*, gave his third Leverhulme Globalisation Lecture on the theme of China's role in Globalisation. Within his talk Martin stressed how important the rapid integration of China into the World Economy has become. This rapid growth is changing patterns of economic behaviour, driving down the price of manufactured goods and raising the price of many commodities. This is providing fresh challenges to both developed and developing countries.

The Leverhulme Globalisation Lectures began in 2002 with the aim of providing insights into the process of globalisation to a general audience. Previous speakers have included: Lord Peston, Adrian Wood, Paul Collier and Tod Sandler. Further details on both previous and forthcoming lectures can be found on the GEP Website.

Martin Wolf with Sir Colin Campbell

Welcome to……

Ken Warwick who has recently joined GEP as a Policy Associate

Ken Warwick - Ken Warwick is Deputy Chief Economic Adviser and Director of Economics for DTI. He leads the work of the economic analysis teams in the DTI Strategy Unit, acts as Head of Profession for DTI economists, and coordinates the work of the DTI economics teams.

Before taking up his current post in June 2003, Ken headed a team of analysts in the DTI Strategy Unit responsible for macroeconomic assessments, economic analysis of competitiveness and productivity, and advice to DTI Ministers on business tax issues. His team produced the DTI's Productivity and Competitiveness Indicators publication. Prior to joining the DTI in 1996, Ken spent four years as a senior economist in the FCO, where he was responsible for economic analysis and advice on international finance and development issues and countries in the Former Soviet Union, Middle East, Latin America and Asia. Ken studied economics at Cambridge and Yale Universities and has spent most of his career as an economist in UK Government. in DTI, FCO and MAFF. In the early 1990s, he was seconded for three years to the International Monetary Fund in Washington, first as a member of the team writing the World Economic Outlook and later as a member of IMF missions to the countries of the former Soviet Union.

Participation in Export Markets and Productivity in UK Manufacturing

This article is a summary of the research conducted for UK Trade and Invest by **David Greenaway** *and* **Richard Kneller**. *UK Trade and Investment is the joint DTI and FCO body responsible for trade development and inward investment in the UK. The organisation has a key role in helping UK firms compete at an international level. This study considers the behaviour of export firms in the UK. This is the second such study for UK Trade and Investment. Further details and copies of this Report can be found on the GEP website.*

It is widely acknowledged that we are living through a period of globalisation. Dramatic falls in the costs of doing business internationally have triggered more international trade, more cross border investment, more international financial flows. These have combined to stimulate a substantial increase in the degree of international economic integration across economies in general and industrialised economies in particular. Firms have to adjust to changing opportunities and challenges in global markets. Adjustment may take the form of increasing production to enter export markets, producing overseas or withdrawing from export markets. A better understanding of the dynamics of entry and exit is an important basis for better informed policy, be this industrial policy, regional policy or policies targeted at small and medium sized enterprises.

Export promotion policies of one form or another are pervasive across industrialised, developing and transition economies. Until recently these were underpinned by evidence that relied primarily upon macroeconomic analysis linking aggregate export growth to aggregate real income growth. The growing availability of large firm level data sets has provided the opportunity for researchers, analysts and policy makers to focus on microeconomic evidence, in particular at the level of the individual firm.

In our first study for UK Trade and Investment we found that many of the results for UK firms chime with the broader literature: UK manufacturing exporters were reported as typically being larger than non-exporters and more productive before they actually entered export markets. There was also very strong persistence: once a firm was actually exporting there was a very strong likelihood that it would continue doing so. However, two findings contrasted somewhat with earlier work. First, there seemed to be evidence of a second order effect. In other words, exporters experienced a further productivity gain from staying in export markets. Second, exit seemed to have more to do with a loss of market share than with a productivity loss.

The second report followed up on those issues, investigating further whether there is robust evidence of second order effects on a larger sample over a longer time period and looking again at the drivers of exit. In addition, we investigate for the first time the possibility that there may be an impact from regional and/or industry agglomeration and we also incorporate factors that allow for variations in the competitiveness of markets.

Economic theory suggests several channels through which being in export markets might result in firms becoming more productive. Exposure to greater competitive pressures could result in the more efficient use of existing resources, or interacting with other firms using best practice technology could result in the adoption of new processes or management practices. To try to identify whether such effects are at work, we use a technique called matching analysis. What this does is to identify the characteristics of firms that subsequently become exporters, before they are actually exporting, and then find firms with similar characteristics that did not go on to export. This gives us the best chance of being confident that any post-export market entry effects are due to being in the export market. Our analysis points to a significant initial productivity effect on entry. Specifically, productivity growth is between 2 per cent and 4 per cent faster in the year of entry than in the period before entry.

"The Leverhulme Centre's latest research will help UK Trade & Investment provide the support and services UK firms need to start exporting and to operate internationally"

Mike O'Brien

Minister of State for International Trade and Development

Agglomeration forces are known to be important to many economic processes, including start-ups and technology spillovers. In the context of the present analysis, firms could find it easier to enter export markets if there are already exporters in their sector and/or if they are co-located with other exporters in a given locality or region. Proximity could facilitate information and intelligence gathering about foreign markets, for example. Our results offer strong evidence to support the proposition that if a non-exporting firm is co-located in the same region with exporters from the same industry, it is much more likely to export. This is clearly potentially important from a policy standpoint.

Finally on exit: although there is a high degree of persistence in the data, exit does occur in each year of our sample period. From a policy standpoint, it is clearly important to understand what the proximate drivers of exit are, with obvious candidates being loss of market share, loss of competitiveness or possibly even industry or region specific shocks.

Again, we use matching analysis and control for firm level characteristics such as employment level, total factor productivity, human capital and export share. We find that exit is more likely to occur in smaller firms and in firms with limited export sales. By contrast, it seems that the probability of exit is not greatly affected by the level of total factor productivity. Thus, vulnerability to exit is fashioned more by size and export exposure than by productivity.

Unexpected shocks of one form or another have the potential to drive firms from export markets. To check this we explored both shocks to market share and shocks to productivity. Our results suggest that the former is more important than the latter. Moreover, this effect is also robust to the degree of competition the firm faces in the domestic market.

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Corruption and Economic Development

Such is the strength of the relationship between corruption and development that both national governments and multilateral agencies have become concerned with reducing corruption levels in developing countries: for example the Extractive Industries Transparency Initiative set by the UK Government; or the recent addition (June 2004) of a 10th principal of corporate behaviour to cover corruption by the UN. In this article **M. Emranul Haque** *investigates their relationship. Emran is a Research Fellow in GEP.*

Most of the research on causes and consequences of bureaucratic corruption, both in economics and political science, have been partial equilibrium in nature, focusing on the microeconomic aspects of incentives, information and enforcement in motivating or deterring corrupt practices which influence efficiency in resource allocation and welfare. Much less research has been directed towards analysing the joint determination of corruption activities and economic outcomes within the context of fully specified dynamic general equilibrium models. This is particularly notable given that the macroeconomic consequences of corruption have become an increasing concern to both economists and policy makers who have shared a deepening belief that a fundamental requirement for economic development is high quality governance. The aim of our current research is to present an analysis of corruption and growth that lends general support to this presumption.

Since the early 1980s, the publication of various cross-country data sets on corruption has given rise to a flurry of empirical investigations into the relationship between corruption, investment, growth and other variables. From these investigations, there appears to be not only a significant negative correlation between the level of corruption and economic growth but also this relationship is two-way causal . In addition, there is another notable feature of the data that has received much less publicity: namely, the diversity in corruption levels among countries within the same income group, which is especially pronounced among middle-income countries (see Table 1).

In contrast with the compelling empirical evidence, surprisingly the previous macro theoretical research explains only why bureaucratic corruption is likely to be detrimental to economic development without delving too deeply into the question of what gives rise to corruption to begin with and what causes corruption to either persist or decline over time. In view of the recent empirical evidence, however, there is clearly a need to understand both the mechanism by which corruption affects the endogenous forces of development of an economy and the mechanism by which these forces, in turn, affect the incidence of corruption. This is the motivation of our analysis. In particular, we seek to provide an account of the corruption-development feedback nexus with the view to explaining why the incidence of corruption is not only higher in poor countries than rich countries but is also more variable among countries at intermediate stages of development.

Our analysis is based on a simple neo-classical growth model in which public agents (bureaucrats) are responsible for collecting taxes from private households on behalf of government. Bureaucrats have the opportunity to engage in corrupt practices, which are difficult to monitor by the government. Specifically, bureaucrats may exploit their powers of public office to collude with households in bribery and tax evasion: a bribe to a bureaucrat holds the promise that the income of a household will be reported falsely and exempt from any tax. The incentive for a bureaucrat to engage in corruption depends on economy-wide outcomes, which in turn depend on the behaviour of all other bureaucrats. Thus our model incorporates the essential features that government intervention requires public officials to gather information and administer policies and that at least some of these officials are corruptible in the sense of being willing to misrepresent information at the right price.

A key implication of our analysis is that the incentive for a bureaucrat to engage in corruption depends on economy-wide outcomes (such as tax rate, rate of return to capital), which in turn depend on the behaviour of all other bureaucrats. As a consequence, bureaucratic decision-making entails strategic interactions that are capable of producing multiple, frequency-dependent equlibria associated with different (high or low) incidences of corruption. In general, such non-uniqueness is explained by appealing to the notion that, for one reason or another, individuals are more likely to be corrupt when others are corrupt and vice-versa. For example, the more corrupt people there are, the less might be the probability that each one of them will be caught, the less might be the penalty that each of them may incur and the less might be the moral costs, or stigma, that each one of them feels. Our account of the phenomena centres around the surplus that accrues to households and bureaucrats as a result of their illegal profiteering. Ceteris paribus, the greater is the level of corruption the higher are the taxes that households must pay if the government is to balance its budget. In order to evade these higher taxes, households are willing to cede more in bribes, which reinforces the rent-seeking incentives of bureaucrats. The upshot is that a bureaucrat's expected gain from being corrupt depends positively on the number of other bureaucrats who are corrupt; hence the possibility of frequency-dependent behaviour and, with this, multiple equilibria. We emphasize that this is only a possibility since there are circumstances in our model where such behaviour does not arise and there exists a unique equilibrium. Significantly, these circumstances relate to the level of economic development, as determined by the process of capital accumulation. This is another distinguishing feature of our analysis. Up to now, the question of how an economy may move from one equilibrium to another has been addressed largely on the basis of comparative static exercises (i.e. studying the effects of exogenous changes in parameter values). In our case the selection of an equilibrium is partly endogenous, being linked to an economy's position along its development path.

The precise effect of corruption in our model is to reduce the amount of resources available for productive investments as bureaucrats seek other (less conspicuous but costly) ways of disposing of their illegal income. In this way, our analysis allows for

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the joint, endogenous determination of corruption and development in a relationship that is fundamentally two-way causal: on the one hand, the selection of an equilibrium with a particular incidence of corruption is governed, in part, by aggregate economic activity; on the other hand, growth in economic activity through capital accumulation is determined by the equilibrium level of corruption.

According to our results, an economy may find itself in either of three distinct types of development regime: the first, a low development regime, is characterised by a unique equilibrium associated with a high incidence of corruption where the potential gain of being corrupt is higher than the punishment attached to it no matter whether all other bureaucrats are corrupt or not; the second, a high development regime, is also characterised by a unique equilibrium but one that entails a low incidence of corruption where the potential gain of being corrupt is lower than the punishment; the third, an intermediate development regime, is characterised by multiple equilibria with varying incidences of corruption where incentive to be corrupt depends on other bureaucrats' behaviour. Consequently, and in accordance with the empirical evidence, our analysis is able to explain not only why there is more corruption in poor countries than in rich countries, but also why there is more diversity in corruption among middle-income countries. It is also able to account for persistence in both corruption and income inequalities across countries: transition from a low development (high corruption) regime to a high development (low corruption) regime is not inevitable in our model and it is possible for an economy to remain trapped in the former unless fundamental changes take place.

Table 1: Corruption across countries

		BI Index	ICRG Index	TI Index
Year		1980-83	1991-97	2001
Data Range		1-10	1-6	0-10
No. of countries	Total	63	117	90
Average Score	Low Income	5	33	19
	Middle Income	41	59	48
	High Income	17	25	23
Range	Low Income	1.00-4.00	1.44-4.00	0.40-3.50
	Middle Income	1.50-10.00	1.03-5.00	2.00-7.50
	High Income	7.50-10.00	3.86-6.00	6.60-9.90
Variance	Low Income	2	0.55	0.57
	Middle Income	4.40	0.79	1.45
	High Income	0.33	0.45	0.89

Notes: BI: Business International

ICRG: International Country Risk Guide

TI: Transparency International

The predictions that follow from our analysis accord well with the empirical observations of a high incidence of corruption among low-income countries, a low incidence of corruption among high-income countries and a diverse incidence of corruption among middle-income countries. The results are also consistent with the idea of persistence in corruption Of course, there are many other factors – besides economic considerations – that may help to explain why corruption levels differ across countries. The recent empirical literature suggests a number of intriguing possibilities. Yet even after controlling for these factors, economic development remains highly significant and is undoubtedly a major determinant.

The relationship between corruption and development is an issue on which much less has been written but about which there is still much to learn. To a large extent, measurement remains ahead of theory, though there are signs that the gap is being closed. Our intention in this paper has been to take a further step in this direction.

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