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SPECIAL ISSUE

Foreign Direct Investment, Trade and Development

FOREWORD

Jagdish Bhagwati

Transnational Corporations is to be congratulated on dedicating this special issue on Foreign Direct Investment to Professor V.N. Balasubramanyam. In the interest of transparency which we now require of multinationals and non-governmental organizations, I must confess that I had the honour to teach Professor Balasubramanyam.

Over 40 years of my teaching career, I have taught several gifted students at MIT (among them, Paul Krugman, Gene Grossman and Robert Feenstra) and Columbia University (among them, Doug Irwin and Donald Davis). Professor Balasubramanyam, dating back to my early years at Delhi University, ranks among the best of them.

He has established himself, not just as a fine developmental economist, but also as a world-class scholar in the area of multinationals. I come across him at countless meetings, whether at the WTO or in Washington D.C. and European think-tanks, always with penetrating insights and thoughtful policy suggestions on the question of direct foreign investment.

While he has written extensively on the subject, he has made significant scholarly impact through his influential work on whether export-promoting or outward-looking trade and investment strategy attracts more productive and sustained investment vis-à-vis import-substituting or inward-looking trade and investment strategy. He and his co-authors have provided significant support for the view that the former is a much the better strategy: it attracts investments catering to foreign rather than protected domestic markets, yielding higher returns in terms of gains to the host country, and also providing a more sustainable world market than the easily-saturated domestic markets.

In addition, he has been a thoughtful supporter of the proposition that the WTO should incorporate within itself a suitable compact on direct foreign investment at some suitable but early

moment, even if the Doha Round may not provide an immediate opportunity right now. He is correct that an institution that deals with market access must eventually embrace some core rules for investment, to ensure that open markets are exploited successfully by firms seeking to access foreign markets. He correctly sees that, while investment rules are integrally related to market access, the same cannot be said for issues like labour standards: the case for including investment rules in the WTO is sound, the case of labour standards to be included is not.

Besides, Professor Balasubramanyam has contributed greatly to our thinking on technology transfer via multinationals; and his forthcoming research on India's burgeoning IT industry, based on field research, is also an important addition to our stock of knowledge in an area of growing policy importance.

This Symposium, consisting of important papers by several of the leading scholars of multinationals today such as Professors John Dunning, Frances Ruane and Peter Buckley, on subjects as diverse as direct foreign investment in China and Vietnam and the determinants of direct foreign investment, is led by a warm tribute by Professor David Sapsford to Professor Balasubramanyam as "the economist and the man". His appreciation is no exaggeration. I can only attest to the sentiments expressed there.

SPECIAL ISSUE

Foreign direct investment, trade and development

INTRODUCTION AND OVERVIEW

This issue of Transnational Corporations is a collection of papers presented at the annual conference of the Academy of International Business (United Kingdom chapter) in Londonderry in April 2004 in honour of Professor V.N. Balasubramanyam of the University of Lancaster. V.N. Balasubramanyam – Baloo – has contributed, over many years, to our understanding of the relationship between trade and foreign direct investment.

In this volume, the authors, all of whom have worked with Baloo at some stage in his career, examine the various facets of his work. The first chapter by David Sapsford examines Baloo as an economist and takes an affectionate view of Baloo's career development. This chapter takes in the terms of trade debate, Baloo's views on foreign investment and growth, and relates this to Baloo's intellectual and personal history.

The chapter by Peter Buckley, Jeremy Clegg and Chengqi Wang examines the impact of foreign direct investment on host country productivity with special reference to the Chinese electronics industry. Bob Pearce moves from Baloo's background as an economist to a wider view of globalization and development based on an international business strategy approach. This paper is useful in helping us to see the wider context of the role of transnational corporations in development.

Frances Ruane and Ali Uğur examine the particular case of export platform foreign direct investment and its relationship to the potential dualistic development of the host economy. The theme of the relationship between foreign direct investment and the host economy is also taken up by Rhys Jenkins who examines the impact of foreign investment on employment in Viet Nam. Colin

Kirkpatrick, David Parker and Yin-Fang Zhang look at foreign direct investment in infrastructure in developing countries and pay particular attention to the role of regulation.

Finally, John Dunning presents an overview of trade, foreign direct investment and development, in a wide-ranging article that links development to the determinants of international business activity.

As Baloo's PhD supervisor Jagdish Bhagwati says in his generous introduction, Baloo has developed from being "a fine developmental economist" to "a world-class scholar in the area of multinationals". Baloo's contribution goes far beyond his written work to a wide-ranging encouragement of younger scholars in the field, particularly to the large number of doctoral students that he has painstakingly supervised. As one who has benefited from his excellent supervision, I trust that the present collection will be a fitting tribute to an extraordinary scholar and outstanding individual.

The contribution of Karl Sauvant in the preparation of this special issue is acknowledged.

Peter J. Buckley
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The economics of development with thresholds, catalysts and spillovers: Baloo the economist and Baloo the man

David Sapsford*

Over a long and distinguished career Professor V. N. Balasubramanyam (Baloo hereafter) has made numerous seminal contributions to our understanding of the processes of economic development and the operation of transnational corporations. These include the role of export processing zones and the determinants and consequences of foreign direct investment flows. The purpose of this article is to highlight the central analytical elements that characterize Baloo's approach to these, and other, areas of economic and business life and thereby to recognize the major contributions to our subject made by Baloo the man and Baloo the economist.

Key Words: economics of development; spillover effects; transnational corporations.

Introduction

This article begins with a brief section that sets its historical (and personal) contexts. The following section highlights a number of major analytical themes and perspectives that have punctuated Baloo's many contributions to the literature – contributions that both individually and in their totality – have greatly enhanced our understanding of the workings and consequences of a variety of international economic and business

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phenomena. Subsequent sections explore Baloo's contributions in two specific areas of research: the terms of trade and foreign direct investment (FDI). By its very nature, this article draws on the writer's personal experiences gained from almost a decade and a half of research collaboration with Baloo. It is hoped that, through these, this short article will provide a fitting tribute to Baloo and the major contributions that he has made to our understanding of the relationships that exist between international trade, FDI and development.

Context

I first met Baloo in 1989 at the Annual Conference of the International Economics Study Group held at the University of Sussex. As I recollect, my first impression was of a scholar not only with mastery of the tools of his profession but also with an overriding belief in the ability of economics, if properly applied, to make a real difference to the lives of real people. I also recollect drawing a short-straw at this particular meeting by finding myself acting as discussant at 8.30 on a Sunday morning, following the conference dinner the evening before. The article in question was, I recollect, a demanding piece of trade theory. As the hour duly arrived, I found Baloo eagerly sitting in the front row of the – admittedly – not large audience. Even before the speaker had completed his presentation, Baloo had stolen the proverbial "discussant's floor" from under my feet by a single, seemingly innocent, question that served to reduce the essence of the article to two propositions! I was impressed but did not envisage that we would, within 18 months, become colleagues and research collaborators when I left the University of East Anglia to take up the Chair at Lancaster University. Funny thing, fate!

Baloo the Economist

It is far from straightforward to summarize the central views and influences that underlie Baloo's numerous contributions to scholarship. However, based on the experience of having worked closely with him for some 15 years, I would

list the following elements as representing the analytical common denominators of his work:

- The commitment that economics is about improving the economic welfare of real, as distinct from hypothetical, people.
- The belief, following the early insight of Eugene Rostow, that the process of economic development as the path to enhanced welfare is fundamentally one of differing, but interconnected, *stages*.
- A clear appreciation of the intrinsic heterogeneity of the development experiences of particular economies, giving rise to the conviction that from the policy perspective of "one size can never fit all".
- The view that both econometrics and economic theory are the servants and most definitely *not* the masters of reality. In consequence, whenever theory and reality collide it is theory and not reality that must give way. Although this view may be unfashionable in certain current quarters of the profession, it is held by Baloo as being, to coin a phrase, self-evident.
- A healthy degree of realism (or is it scepticism?) regarding the value of econometrics as a device for genuinely advancing our understanding. When one works with a colleague over a number of years, one inevitably gets to recognize, if not anticipate, familiar forms of wording when these arise. One particular phrase that has, on many occasions, come from Baloo's pen and well summarizes his views on econometrics is that: "…….. econometrics with all of its attendant problems of data and methodology."[1]

[1] As the partner typically responsible in our joint publications for the statistical side of things I have always tried to restrict this phrase to first drafts; however, despite my best efforts it has nevertheless found its way on several occasions into the final published version. Baloo is well known for the skill, speed, efficiency and good humour with which he is able to deal with questions from the floor during seminar presentations. One example that I recollect which well illustrates this point arose at an IESG Study Group meeting when Baloo was answering questions relating to some cross-section econometric evidence reported in an article that he had jointly authored with a different collaborator (who had just discretely left the lecture room to attend a pressing appointment on the tennis court). When quizzed as to whether these particular results suffered from the problem of heteroscedasticity he retorted: "as I can not even spell the word I assume they must".

Some specific contributions post-1989

As will be clear from the other contributions to this Special Edition, Baloo has made numerous significant contributions to scholarship and knowledge since he completed his undergraduate studies at the Delhi School of Economics in the early 1960s. I concentrate exclusively on two areas of his work: the behaviour of the terms of trade and the determinants and consequences of FDI flows. This restriction is not intended to deny the importance of his numerous other contributions – both before and since this year. On the contrary, it is hoped by focusing on these two areas in which I have been privileged to work with Baloo, that I will be able to provide some first-hand evidence relating not only to Baloo the economist, but also to Baloo the man.

Baloo's work in these two areas provides clear illustrations of the pivotal roles exercised by trade theory and the notions of thresholds, catalysts and spillovers as central analytical underpinnings in his thinking. Furthermore, they demonstrate the point made in the preceding section that, to Baloo, economics is, in the final analysis, ultimately about improving economic welfare.

Terms of trade debate: from Prebisch-Singer to software

Prebisch-Singer and beyond

In a series of publications Baloo and collaborators added greatly to the terms of trade debate. Like most contributors in this field, Baloo begins with the well-known Prebisch-Singer hypothesis. However, in a paper published in 1994 (Balasubramanyam and Sapsford, 1994). Baloo resists the temptation that he saw as all too readily accepted by many recent authors to wade into the statistical/econometric debate as to whether or not the data relating to the net barter terms of trade for internationally traded primary commodities *vis à vis* manufactured goods actually exhibit the significant downward trend observed by both Prebisch and Singer almost half a century

earlier. Seeing this path as inevitably leading to an intellectual *cul-de-sac*, Baloo instead chose to follow what he saw as an altogether more fruitful route by recognizing the distinction between trend and cycle, and by observing that what appears to be a non-declining trend during any particular time period might in reality be the resultant of a significant downward trend and a significant cyclical upswing.

In short, even if one is able to sort out all of the problems of data and methodology attendant upon econometric analysis in this field, the over-emphasis in much of the recent terms of trade literature on matters statistical at best does understanding a disservice and at worse constitutes a smoke screen hiding the fundamental issue of how the seriously poor economies of the world (who are without exception heavily dependent on primary commodities as their sole available source of export revenues and foreign currency – UNCTAD, 2002) can maintain if not enhance economic welfare when confronted with down-trending and increasingly volatile terms of trade. Like others before him, Baloo's solution to this problem is a strategy of export diversification. However, his solution differs in at least four crucial respects from those preceding it. Firstly, it recognized that such diversification need not – indeed should not typically – be into manufacturing. Under appropriate conditions, diversification into processing was seen as being a superior approach to import substitution, with all of its now widely recognized potential difficulties, adopted by several countries. Secondly, it put at centre-stage the prerequisites that must be in place if a diversification strategy is to succeed in practice. Included amongst these are an efficiently functioning non-distorted set of factor and product markets, a labour force in possession of appropriate skills and a sufficiently high level of productivity, and a sufficient stock of marketing know-how. Thirdly, it recognized, almost a decade before the Cancun debacle, the need for the developed economies of the world to open their borders to the primary commodity exports of the developing countries. Last, and perhaps most innovative, was Baloo's insight that TNCs are not necessarily the villains of the piece. On the contrary, he saw TNCs as having the potential to

serve an important role as transmitters or routers of know-how. In short, he recognized the potential for the situation, with the assistance of appropriate policy instruments, to become a positive as opposed to a zero-sum game.

Terms of trade: back to the future

The second strand of Baloo's work on the terms of trade concerns the implications of Hans Singer's (1950) seminal argument for the recent development of India's booming software industry. Few would have made this association, but in characteristic Baloo fashion he went back to the analytical framework contained in Singer's original article that was, as is perhaps too often forgotten, constructed in terms of the division of the gains from FDI between home and host countries. In a article published jointly with his wife Ahalya (Balasubramanyam and Balasubramanyam, 1997) the Baloos develop Singer's original model and argue convincingly that, in order to properly understand the phenomenon that is India's software boom, one needs to look beyond the "Gandhi with satellites" hypothesis and recognize the pivotal role played by the reverse brain-drain as a mechanism by which India enhanced its stock of human capital of the entrepreneurship variety to the level necessary to incubate and subsequently nurture the emerging industry.

Foreign direct investment

In a series of influential articles, Baloo and his collaborators studied both the determinants of FDI flows and the influence that FDI exerts upon economic growth performance.

Determinants of FDI flows

In a pivotal article in the literature (Balasubramanyam and Salisu, 1991) Baloo argued convincingly that much of the earlier work that purported to show the significance of political factors in determining FDI flows was misleading because the particular political variables cited were no more than crude proxies for various underlying economic factors. Given the supremacy of

economic over political factors, Baloo demonstrated the crucial role exerted by the complexion of the host country's trade policy, drawing attention to the intrinsic differences that exist between FDI of the "tariff jumping" sort and the FDI flows that are attracted to countries pursuing an export promoting set of trade policies. Baloo's analysis also highlights the crucial importance of the appropriateness of the potential host country's human capital and skills infrastructure as a determinant of FDI flows, where appropriateness refers to the extent to which the skill base matches supply side characteristics in the labour market with those on the demand side. Both the Indian software boom discussed above and the emergence of Ireland's Liffey Corridor as Europe's "silicon valley" are clear testaments to this point. In essence, what Baloo's research on the determinants of FDI flows has demonstrated is the fact that, in order to attract FDI flows, potential host countries need to engineer the correct set of domestic market characteristics. There is a major role here for domestic policy makers who are serious about attracting enhanced inflows of foreign capital in terms of both the design and implementation of an appropriate set of policy instruments.

At the time of writing, Baloo's ongoing work is focussing on the role of Diaspora effects in explaining FDI flows into China, as well as on the importance of wage costs relative to labour productivity in the investment decisions of TNCs.

FDI and growth

The title of this article includes the three keywords *thresholds*, *catalysts* and *spillovers*. Although passing mention has already been made to the position of each of these phenomena in Baloo's work, it was, in an important sense, perhaps only once he came to work on the formidable analytical problems involved in untangling the inter-relationship between FDI flows and economic growth performance that, given the very nature of the phenomena involved, these three analytical insights jelled together. As has already been noted, a "bottom line" in Baloo's thinking is that economics is, in the final analysis, about increasing the economic welfare and well being of real people. It was quite natural, therefore, for him to turn

his attention to the roles of international trade, TNCs and international capital flows in the growth process, seeing improved economic growth performance as being a necessary (but not necessarily sufficient) condition for improved welfare.

In a series of articles (see, in particular, Balasubramanyam, Salisu and Sapsford, 1996, 1999; Silvestriadou and Balasubramanyam, 2000), Baloo and collaborators developed an endogenous growth theoretic model that explicitly included the potential growth enhancing effects of foreign capital inputs. In essence this work recognized, like some of its predecessors, the potential of FDI to promote host country output growth via spillovers of technology and know-how. However, most importantly, Baloo demonstrated that such externalities do *not* occur like "manna from heaven", as was typically assumed in previous studies; instead they have to be induced and nurtured by an appropriate set of domestic policies in the fields of trade, domestic competition and research and development (R&D). The empirical evidence reported in these articles suggests that the growth enhancing potential of FDI is most effectively unlocked in an economic environment that is export promoting (as distinct from import substituting) in character, especially so when there is a high degree of competition with locally owned firms via both production and R&D.

However, not content with these contributions to our understanding of the FDI-growth relationship, Baloo went analytically further and arrived at what is, in the opinion of the current writer, the truly major insight that FDI itself is not an *engine* of growth (as effectively argued by most previous writers) but instead it is a *catalyst*. According to the *Oxford Compact English Dictionary* a catalyst is

> "…..a substance that, without itself undergoing any permanent change, increases the rate of reaction."

The implication of this insight is that the engine approach is at best misleading and at worst wrong in that it implies that causation runs from FDI, via spillovers, to growth. However, according to Baloo's catalyst approach, the role of FDI is that of a catalyst in the sense that its addition to the appropriate

"solution" (i.e. combination of domestic conditions) speeds up the rate of economic growth seen as the "reaction". Stated differently, Baloo's view of FDI as a catalyst implies that, without FDI, a given package of domestic (including policy) conditions will not enhance economic growth performance to the same extent as it will with FDI. It is in this sense that FDI actually unlocks the growth potential of a host economy.

Taking the chemical analogy slightly further, Baloo argued that, in the same way that it is no use adding the catalyst to a test-tube containing a solution that is either of the wrong sort or of the right sort but of too weak a solution, FDI can not fully exert its beneficial influence on host country growth if the initial conditions are inappropriate. But what are the appropriate initial conditions? According to Baloo's analysis these can be seen under the following three headings:

- First, the achievement of a *threshold* level of *appropriate* human capital.
- Second, the achievement of a *threshold* level of physical infrastructure and/or development.
- Third, there needs to exist an appropriate policy environment.

It is important to recognize that both of the thresholds referred to above constitute necessary rather than sufficient conditions for unleashing the growth-enhancing potential of FDI. Hence, there is a major role to be played by domestic and indeed international policy makers here in converting the potential growth-enhancing effects of FDI into reality. According to Baloo's analysis, such policies should include initiatives designed to enhance, via training and education, the accumulation of appropriate human capital skills, plus initiatives designed to develop the physical infrastructure up to the required threshold level. Although this policy prescription is addressed to host countries, it might also be prescribed for the countries of the developed world as a sensible policy package to be implemented (via various sorts of aid programmes perhaps) if they are serious about helping the poorer counties of the world to improve the welfare and living standards of their citizens via sharing in the potential fruits generated by the investment activities of TNCs.

Concluding remarks

In such a short article as this, it is not possible to do full justice to the numerous contributions that Baloo has made throughout his long and distinguished career to enhancing our understanding of the inter-relationships that exist between international trade, economic growth and the investment activities of TNCs. However, by concentrating on a number of the contributions that he made since 1989, it is hoped that this article has met its objective of summarizing some of the characteristics that define Baloo as an economist and a person.

A tale of two cities

Baloo has often joked with me about my hometown of Liverpool (scheduled to become Europe's Capital of Culture in 2008) and Delhi being, by their intertwined history and common intellectual strands, spiritual twins. It would not be appropriate to finish this article without drawing the reader's attention to some of the many other areas in which Baloo has made major intellectual contributions since he began his first post as a newly minted graduate of the University of Delhi working as a Research Assistant in the Indian Planning Commission in 1962. These areas include the economy of India, the economics of export processing zones, technology transfer[2] and trade in services, to

[2] It is one of those strange ironies of life that, as someone who has contributed so much to our understanding of the nature and consequences of technology transfer and the information technology industry, Baloo is one of those individuals who seems to be unable to co-exist with information technology. Put simply, Baloo and information technology do just not work when put together. One example will suffice to illustrate this point. One day in the mid-1990s, on his daughter Maya's suggestion, Baloo set about changing the colours on his personal computer display away from the rather user unfriendly combination of green foreground on a purple background. Following the step-by-step written instructions provided by Maya, Baloo decided to select the combination of white foreground on a white background! Much intellectual capital was expended by the best information technology brains at Lancaster University in rectifying this situation. The quill pen and inkwell that Baloo used to write the manuscript of his highly regarded book on the economy of India still hold pride of place on his desk at Lancaster.

name but a few. Unbeknown to Baloo working at the Planning Commission in Delhi in 1962, one of the clearest illustrations of the working of Ricardo's principle of comparative advantage and trade in services had appeared in Delhi's twin city of Liverpool, with the emergence of the Beatles, destined to become a truly global TNC.

It is therefore perhaps appropriate to conclude this article with some quotations from two of the founders of this truly transnational corporation which summarize the essence of Baloo the economist and Baloo the man:

- "Imagine all the people sharing all the world…." (John Lennon, *Imagine*, 1971).

Having worked with Baloo for a decade and a half, I can vouch for the fact that this captures only part of Baloo. Accordingly, I take the not-unusual academic liberty of changing this quotation to read as follows:

- "Imagine all the people sharing all the *increase in* world *output resulting from specialization according to the pattern of comparative advantage*." ■

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Inward FDI and host country productivity: evidence from China's electronics industry

Peter J. Buckley, Jeremy Clegg and Chengqi Wang*

Industry cross-sectional studies of spillover effects from inward foreign direct investment (FDI) have reported many conflicting findings. This study focuses on a single sub-sector to investigate whether more robust findings can be discerned, and whether spillovers decline over time. Data for China's electronics industry for 41 sub-sectors for the years 1996, 1998, 2000 and 2001 are employed. The key finding is evidence that spillover benefits to China's domestic industry decline over the period. This suggests that host productivity gains via learning from FDI have a life cycle. However, our findings for a positive effect for State-owned enterprises in the regressions suggest that joint ventures with foreign affiliates may be an effective long term route to embed these local firms in the learning network of transnational corporations. This study also finds that transnational corporations are attracted to higher productivity sub-sectors, implying that, without appropriate steps (as taken in this study), a bias exists towards findings of positive spillover effects.

Keywords: foreign direct investment, China, electronics industry, productivity.

Introduction

There has been a great deal of research examining whether foreign affiliates exhibit higher levels of productivity than local firms (see, for example, Aitken and Harrison, 1999). The premise

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for this is that the firm-specific assets of transnational corporations (TNCs) increase productivity in FDI-receiving firms (Egger and Pfaffermayr, 2001). If this is the case, one would expect FDI to enhance overall industry performance as measured, for example, by labour productivity through this direct effect on foreign affiliate performance. Empirical research supports the view that firms with foreign equity participation outperform firms that are entirely locally-owned (see, for example, Blomström and Sjöholm, 1999).

A second source of impact from FDI on the performance of host country industry is that the presence of TNCs generates spillovers to other firms (Caves, 1974). Recently, research has focused on the question of the existence of such spillover effects from foreign to locally-owned firms in the form of increased productivity. These are known as productivity or technological spillovers (Kokko, 1996; Aitken and Harrison, 1999; Buckley *et al*., 2002). Studies in this vein investigate the extent to which the presence of technologically-advanced foreign affiliates stimulates growth in the performance of local firms. To date, most studies find that spillovers benefit the productivity of local firms. However, little attention has been given to the investigation of the conditions under which spillovers might be large, non-existent or indeed negative.

In this article we pursue the idea that the overall productivity effects of FDI may neither be as uniform, nor as high, as many studies suggest. In examining the productivity impacts of foreign ownership in China's electronics industry, we address two questions. First, do the productivity spillover effects tend to diminish over time, following the establishment of foreign affiliates? Second, does FDI affect all market segments within an industry, or only certain segments? The article is therefore an advance on those existing studies that use China's data for a number of industries taken as a whole (see for example, Liu, *et al*., 2000; Buckley, *et al*., 2002). Such studies simply search for the presence of spillover effects at the industry level at a snapshot in time. Such an approach may mask the true relationship between inward FDI and host country productivity

growth. A further distinctive feature of this article is that it examines the impact of inward FDI on overall productivity, that is to say the combined productivity of local and foreign-owned firms, whilst explicitly controlling for industry specific effects. The previous literature typically focuses on either the impact of FDI on GDP growth or on domestic firms alone.

China's electronics industry produces a wide range of household appliances, from refrigerators, air conditioning, cleaning, ventilating and heating appliances to kitchen, cosmetic and health care equipment, and a variety of accessories. China's open door policy (since 1978) has prioritized the securing of inward FDI as a means for upgrading domestic manufacturing capabilities. Judged simply in terms of the volume of inward FDI, the industry under study represents a success. Today, AT&T, Hewlett Packard, Hitachi, IBM, NEC, Olivetti, Philips, Samsung, Siemens, Toshiba, amongst others, have made substantial investments in China. At the same time, China's electronics industry has experienced dramatic growth. Our data show that, from 1996 to 2001, FDI in this industry has increased by a factor of 2.53, to come to account for more than 30% of the industry's total capital. Both sales revenue and industrial exports have grown over three fold. Exports of electronics goods reached $70 billion in 2001, accounting for 24.3% of China's total exports in 2001, compared with 14.2% in 1996. In view of this profile, China's electronics industry offers an ideal opportunity to conduct a micro-level investigation of the FDI-productivity relationship and its development.

This article proceeds as follows: section II briefly reviews the literature on FDI and productivity. Section III presents the methodology and data. The empirical results are presented in section IV and are discussed in section V. The last section offers conclusions.

Literature Review

Firm-specific intangible assets, such as technological know-how, marketing and management skills, favourable relationships with suppliers and customers, and reputation, have

played a dominant role in the conventional theory of FDI. John H. Dunning's eclectic paradigm (Dunning, 1981, 1988) combines ownership, internalization and location advantages to explain the existence and growth of TNCs. The paradigm posits that all three conditions must be satisfied for potential investing firms to find FDI worthwhile.

The same argument can be put in another way. For FDI to occur, all that is required is for TNCs to be more efficient than their indigenous counterparts when operating in the same location. It follows that the ownership advantages of foreign affiliates should lead to relatively higher performance than their indigenous counterparts (Wang *et al*. 2002). The notion of this productivity differential, in effect, underlies the specialized literature on the industrial "catch up" that occurs as a result of FDI (Perez, 1997). This provides the basis for the general hypothesis that FDI generates host country productivity growth (Driffield, 2001).

The above argument concerns the direct effects of FDI, i.e. the productivity growth contributed by foreign affiliates themselves. A further body of studies has arisen that focuses on the productivity spillover benefits associated with the presence of such affiliates. Positive spillovers arise when the productivity of locally-owned firms is enhanced through access to the leading-edge technologies employed by foreign affiliates (Feinberg and Majumdar, 2001). This access is not associated with a transaction (either in an external or internal market), and therefore the resulting locally-owned firms' productivity growth is an external or spillover benefit.

More recently, a number of theoretical reasons for negative spillover effects have been put forward. The key argument is that at greater levels of foreign presence, negative effects start to become apparent, and may begin to counteract the positive effects on local firms' productivity. Foreign affiliates may be able to draw demand away from their local counterparts through the introduction of new differentiated products and through process innovation leading to price reductions. As a result, the

productivity of local firms might fall owing to a "market stealing" effect (Aitken and Harrison, 1999).

The identification of negative effects also opens up the possibility that net positive spillover effects may diminish over the duration of foreign affiliates' operations. The dynamics of this process might be as follows. In the initial period when foreign affiliates are rare and just beginning operations, spillovers would be of small absolute magnitude. Locally-owned firms growing within a closed economy typically have weak technological capabilities. Local firms' capabilities are insufficient to enable them to appreciate the value of externally-generated knowledge, and restrict their ability to absorb the potential spillovers created by foreign affiliates. In these circumstances it is possible that that limited positive spillovers might occur through "demonstration effects" and "contagion effects", but not through pro-competitive effects. This is because locally-owned firms are concentrated in the standardized segments of industries that foreign affiliates avoid.

With the passage of time, foreign affiliates become more fully integrated into host countries' business networks, as their localisation rates rise and they establish links with local suppliers. Foreign affiliates' superior technological, marketing and management skills become more familiar to locally-owned firms and, as a result, those local firms with rising technological capacity have greater opportunities to absorb spillovers. At some point, however, the amount that local firms can learn from foreign affiliates will decrease. This occurs as the steady state of technological flow from parent firms to their foreign affiliates takes over from the initial transfer of technological stock. Accordingly, the scope for positive spillover effects from assimilating foreign technology diminishes. However, competitive effects may become more important. The incentives to locally-owned firms to become more efficient rises through competition, as they move into the same market segments as foreign affiliates. Eventually, it can be foreseen that spillover effects become exhausted, and any positive impact of foreign presence on host country productivity becomes indiscernible.

This last point may be one explanation for the prevalence of studies that report negligible or inconclusive effects of foreign presence (e.g. Aitken and Harrison, 1999; Haddad and Harrison, 1991). If so, we might take this prevalence as an indication that spillovers vary over time, and that it is quite reasonable to expect the magnitude of spillovers to change with the length of time that foreign affiliates have been operating in a host country. Further, inconclusive results could be generated by the concurrence of such a decline in positive spillovers and the appearance of spillovers with opposite effect.

A further and little researched dimension to spillover effects is the speed with which foreign presence is built up. T. Perez (1997) points out a theoretically inverse link between the magnitude of spillover benefits and the speed of foreign penetration. When locally-owned firms, even those with a relatively small technological gap behind foreign affiliates, face rapidly increasing foreign penetration, they may be driven out of the market.

More complex distributional effects may also exist. It can be argued that positive spillovers favour certain groups of local firms. Foreign entry into a host market increases the intensity of competition and forces domestic firms to become more efficient (Kokko, 1996). But the scope for such spillover benefits will vary. M. Blomström and F. Sjöholm (1999) argue that there are more significant spillover benefits to non-exporting than exporting firms, on the grounds that export oriented firms already face competition from the international market. The ability of local firms to absorb foreign know-how is also critical to spillover benefits. This capacity depends on firms' technological competence (Liu et al., 2000). Local firms with high competence are expected to benefit more from spillovers. Furthermore, competence is associated with the type of ownership of local firms. Empirical work suggests that industries dominated by state ownership are less able to benefit from the presence of foreign affiliates, and therefore reap fewer spillover benefits compared to industries in which private ownership is more pronounced.

If we look at the literature, the evidence for positive spillovers from FDI predominates (Caves, 1974; Globerman, 1979; Liu et al., 2000; Zhu and Tan, 2000). It has also been found that positive spillovers are highest in those industries in which the technology gap is small, thus allowing local firms to benefit from their technologically advanced foreign counterparts (Kokko, 1996).

A number of recent studies, however, have identified negligible spillovers (Haddad and Harrison, 1991) or negative spillovers (Singh, 1992; Aitken and Harrison, 1999). More recent research on Chinese data shows that State-owned enterprises can experience negative spillover effects, while collectively owned enterprises benefit from foreign presence (Buckley et al., 2002). This wide variation in findings suggests that positive spillover effects are by no means guaranteed, and that their presence depends on extraneous economic and technological factors (Sjöholm, 1999).

This article seeks to explore whether the strength of host country productivity benefits reported for China's manufacturing industry as a whole can be supported by data at the sub-sector level for one industry - electronics - using a panel of data covering four years. This study fills a gap in knowledge concerning the existence of sub-sector-specific effects and the possibility that productivity benefits from FDI decline over time. Both are notably under-researched questions.

Methodology and data

A simple model is employed to investigate the impact of FDI on the productivity of China's electronics industry, both locally and foreign-owned, along with appropriate controls. The model is as follows:

$$LP_{ij} = C + \beta_1 KL_{ij} + \beta_2 INT_{ij} + \beta_3 LQ_{ij} + \beta_4 FS_{ij} + \beta_5 FP_{ij} + \varepsilon_{ij} \quad (1)$$

Following the practice of existing studies, we assume that value-added per worker (*LP)* in a sub-sector of China's electronics

industry, is a function of foreign presence (*FP*), represented by the foreign equity share in each sub-sector. We expect that FP exerts a positive and significant impact on LP.

Our multivariate analysis includes a set of control variables that may influence labour productivity: the capital labour ratio (*KL*), which is constructed to control for capital intensity; intangible assets per employee (*INT*) serves as a proxy for the stock of knowledge accumulated by firms from past R&D investment in the form of technological competence; labour quality (*LQ*) measures by the share of engineers and managers in total employment; and fixed assets per worker (*FS*) captures firm scale economies. These variables increase our confidence in the robustness of the findings through controlling for influences other than foreign presence. All variables are in logarithmic form, and ordinary least squares (*OLS*) is employed throughout.

Previous studies have typically estimated some variant of equation (1) using a cross section of industries. These studies are unable to control for differences in productivity between industries that might be correlated with, but not caused by, foreign presence. If foreign affiliates locate in more productive industries, then a positive association between the foreign capital share and productivity will be found even if no spillovers take place (Aitken and Harrison, 1999). If so, it is likely that the results will tend to overstate the true positive impact of foreign capital participation. To avoid this problem, we estimate equation (1) using a panel data set within a single industry. The panel nature of our data allows us to track the same industry over time. Hence we are able to allow for other time-invariant industry specific effects, such as infrastructure and technological opportunity. Data are not available with which to investigate these effects econometrically; nevertheless these factors may affect the level of productivity. Investigating at the sub-sectoral level enables us to control for the potential endogeneity of foreign ownership and overall productivity within the industry (Aitken and Harrison, 1999).

Panel data estimation, however, does not allow us to observe whether and to what extent the magnitude of spillover effects changes over time. To do so is an important objective of this article, and therefore cross-sectional estimations are also conducted to investigate this. We examine the effect of FDI on the level of domestic labour productivity for every year and also on the growth of productivity over the period of study. The growth specification is included because it is deemed to be a way to avoid the causality problem at the micro-level[1] (Sjöholm, 1999).

The data employed for estimation in this study are from the *Yearbook of China's Electronics Industry*, for the years 1996, 1998, 2000 and 2001. Industry-level data are preferred because there is more variation in the FDI variable. In the *Yearbooks*, the electronics industry is divided into nine categories: (1) radar; (2) communications equipment; (3) broadcasting and TV; (4) computers; (5) components; (6) measurement equipment; (7) special equipment; (8) household electronic appliances; and (9) other electronic devices. These categories are then divided into 47 sub-sectors. Due to data imperfections, our sample consists of 41 sub-sectors for the years 1996, 1998, 2000 and 2001, yielding a total of 164 observations in the form of a panel.

Table 1 shows that labour productivity in the electronics industry as a whole in 2001 was about 2.5 times that of 1996, while the foreign capital share remained almost unchanged. *Prima facie*, this might indicate that productivity growth over the period might not, at least in the largest measure, be attributable to the direct impact of foreign capital participation.

[1] The drawback of a levels specification is that the direction of causality between FDI and productivity is not clear, since it is likely that foreign affiliates may locate in above-average productivity industries. Although our data constitute a panel, there are observations only for four years. This period is not long enough to allow us to test causality between overall productivity and FDI. However, employing Chinese manufacturing industry data, Buckley et al. (2002) found that causality runs as expected from FDI to growth rather than the other way around.

Table 1. Summary (Observations=41) statistics

Items	1996		1998		2000		2001		2001/ 1996
	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean
Labour productivity	3.95	4.83	5.30	5.26	8.99	6.63	9.80	7.45	2.45
Capital-labour ratio	6.71	4.33	9.82	6.67	13.37	10.87	13.25	11.77	2.01
Intangible assets per worker	1.01	0.99	1.22	.04	0.45	0.98	1.52	1.19	1.50
Employment share of engineers & managers	0.25	0.09	0.26	0.11	0.29	0.12	0.29	0.12	1.16
Fixed assets per firm	4007	4885	6794	8933	11566	14745	10147	11571	2.53
Foreign capital share	0.32	0.19	0.34	0.27	0.26	0.22	0.33	0.27	1.03

Source: authors.

Further information on the share of foreign capital in each sub-sector is detailed in table 2. As is evident from the table, foreign capital accounted for a varying percentage of the total in different sub-sectors. For instance, in 2001 the foreign capital share was a mere 1.6% in “electronic heating equipment”; whereas it amounted to 99.4% in the “calculator” sub-sector.

While the overall foreign capital share remained almost unchanged over the period, the distribution of the foreign capital share changed considerably, i.e. there has been significant variation in the data. The share decreased by 98% in “electronic heating equipment”, while there was almost a 21-fold increase in “wire transmission equipment”. From 1996 to 2002, in about half of the sub-sectors (21) the foreign capital share rose, and declined in the other half. The sub-sectors with the greatest increase in foreign capital share include “distributed communication equipment”, “broadcast and TV equipment”, “electronics components and electronic special equipment”. Each of these are sub-sectors with particularly high growth worldwide.

Table 2. The foreign capital share of China's electronics industry 1996-2001, per cent)[a]

Category	1996	1998	2000	2001/ 2001	1996
I. Communication Equipment	26.13	32.27	19.99	35.21	1.35
1. Wire transmission equipment	1.59	24.34	20.73	33.07	20.80
2. Wireless transmission equipment	13.93	31.99	15.84	16.48	1.18
3. Exchange equipment	34.87	25.04	18.59	16.55	0.47
4. Wire communication terminal equipment	38.60	37.67	28.48	33.18	0.86
5. Wireless communication terminal equipment	24.73	36.77	21.68	62.73	2.54
6. Other communication equipment	20.38	19.38	8.83	23.51	1.15
II. Broadcast and TV	30.36	33.18	42.44	36.47	1.20
7. Broadcast and TV equipment	2.08	3.24	2.07	2.99	1.44
8. TV sets	26.73	29.45	41.17	35.34	1.32
9. Radio and recorders	36.31	36.10	48.17	55.83	1.54
10. Video	46.16	49.40	41.19	27.17	0.59
11. Other broadcast and TV products	18.06	20.71	21.54	21.46	1.19
III. Computers	35.99	27.21	20.84	23.84	0.66
12. Complete computer	18.18	12.06	15.93	22.51	1.24
13. Computer exterior equipment	56.94	43.34	34.22	38.97	0.68
14. Computing requisite accessories	20.27	10.16	3.86	6.31	0.31
15. Software	20.72	15.64	1.22	1.99	0.10
16. Calculators	22.24	42.99	88.69	99.39	4.45
17. Other computer products	71.02	65.24	59.57	63.85	0.90
IV. Electronics Components	24.31	31.56	32.71	33.83	1.39
18. Electronic micro-electrical machines	33.02	23.95	31.18	34.10	1.03
19. Electronic electrical wires and cables	11.13	13.54	16.82	18.25	1.64
20. Electronic storage batteries	4.26	29.33	7.52	31.41	7.38
21. Electronic dry batteries	85.64	85.08	77.67	71.04	0.83
22. Electronic components	24.66	33.49	36.79	38.78	1.57
23. Electronic component special materials	37.90	40.49	35.48	38.50	1.02
24. Other electronic component products	32.24	39.79	21.68	14.82	0.46
V. Electronic Measuring Equipment	11.29	11.03	8.76	10.84	0.96
25. Electronic measuring instruments	6.33	7.04	5.29	10.47	1.65
26. Other electronic measuring instruments	23.11	22.12	14.87	11.19	0.48
VI. Electronic Special Equipment	23.25	20.03	19.51	26.57	1.14
27. Electronic special equipment	29.60	28.80	29.68	22.98	0.78
28. Electronic industrial moulds and gear	21.37	21.21	21.04	23.88	1.12
29. Other electronic equipment	19.98	16.98	13.88	28.65	1.43
VII. Household Electronic Appliances	47.40	36.43	21.30	33.11	0.70
30. Refrigerators	49.19	1.50	14.32	24.04	0.49
31. Electrical fans and air conditioners	60.12	67.92	2.92	24.23	0.40
32. Electronic heating equipment	85.39	63.86	2.36	1.60	0.02
33. Electronic toys	27.29	33.64	56.68	70.97	2.60
34. Other household electronic appliances	35.88	46.43	42.53	58.61	1.63
35. Other	30.92	26.64	13.46	11.89	0.39
VIII. Electronic Devices	29.67	32.57	32.88	32.08	0.91
36. Bulbs	57.26	54.95	23.78	50.35	0.88
37. Electrical vacuum valve devices	29.51	36.03	37.81	33.60	1.14
38. Semi-conductor devices	16.12	16.18	20.60	3.46	0.21
39. Integrated circuits	36.57	40.84	15.78	29.27	0.80
40. Electronic device materials manufacture	30.69	26.98	22.91	21.02	0.68
41. Other electronic device products	40.72	15.57	7.58	32.98	0.81

Source: authors

[a] The foreign capital shares for eight aggregate sub-sectors are calculated as the sales-weighted arithmetic average

Table 3 shows that "communications equipment", "broadcast and TV" and "computers" enjoyed the highest levels of productivity. These sub-sectors are also those with heavy foreign investment, as indicated in table 2. While the overall picture conveyed by table 2 suggests a generally high penetration by foreign capital, these three sub-sectors support the view that FDI does gravitate towards the more productive sub-sectors (Aitken and Harrison, 1999).[2]

Results

We first pooled data on the 41 sub-sectors over four years and then estimated results from equation (1). These are presented in table 4. Column (1) shows that the FP variable carries a rather large, statistically significant coefficient, suggesting that firms in sub-sectors with more foreign capital are significantly more productive than those in sub-sectors with a smaller foreign

Table 3. Labour productivity of China's electronics industry, 1996-2001[a]

Category	1996	1998	2000	2001
I. Communication equipment	8.63	43.01	17.48	22.64
II. Broadcast and TV	2.61	33.35	52.69	9.94
III. Computers	4.93	16.55	13.54	15.45
IV. Electronics components	1.86	8.90	5.80	8.13
V. Electronic measuring equipment	1.09	5.84	3.42	4.74
VI. Electronic special equipment	1.63	7.81	4.42	14.21
VII. Household electronic appliances	2.60	19.36	9.13	10.76
VIII. Electronic devices	3.61	17.76	10.20	7.58

Source: authors.

[a] The remarkable fluctuations over the years are due to a number of external and internal factors. For example, the dramatic drop of productivity in 2000 over 1998 may be related to the lagged effects of the Asian crisis. Other factors include industrial restructuring, large scale redundancy in State-owned enterprises, price fluctuations and the entry of large foreign TNCs.

[2] This justifies our procedure of controlling for differences in productivity between sub-sectors.

presence. The point estimate, 0.20, suggests that a 10% increase in foreign capital share is associated with a 2% growth in overall productivity. This result is in accordance with studies by R. Caves (1974), S. Globerman (1979) and X. Liu et al. (2000), each of which finds evidence of spillovers that increase local firms' labour productivity. It also accords with studies on China (Zhu and Tan, 2000; Buckley et al., 2002).

This result, however, should be treated with some caution since the estimation does not control for sub-sector-specific productivity differences in employing a specification that is closest in spirit to earlier cross-section studies. Since the apparent effect of productivity spillovers tends to be higher when cross-sectional data are employed (Görg and Strobl, 2001), we therefore re-estimate equation (1) while controlling for sub-sector-specific productivity differences by including sub-sector dummies. The results are presented in column (2) of table 4. By comparing the two adjusted R-squares, one can see that

Table 4. The impact of FDI on productivity[a]
(Pooled estimation for 1996, 1998, 2000 and 2001)

Dependent variable: LP (Value-added per worker)	(1)	(2)
C	-0.07	
	(-0.13)	
KL (Capital-labour ratio)	0.26	0.23
	(2.61)***	(1.86)*
INT(Intangible assets per worker)	0.04	0.058
	(0.82)	(1.23)
FS (Fixed assets per firm)	0.31	0.36
	(4.72)***	(3.68)***
FP (Foreign capital share)	0.20	0.11
	(3.33)***	(1.60)
Industry dummies	No	Yes
R-square adjusted	0.48	0.64
F-statistic	31.71***	83.89***
Number of observations	164	164

Source: authors.

[a] Figures in parentheses are t statistics (two-tailed tests); *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively.

explanatory power is significantly increased when sub-sector dummies are included in the equation.[3]

In column (2), the coefficient on the FP variable registers the correct positive sign but fails to reach significance, indicating that the positive effect is not robust. The apparent spillover benefits of FDI in our results vanish when industry-specific productivity differences are controlled. This suggests, *prima facie*, that the positive effects of foreign presence measured in previous studies may, to some extent, be attributable to the tendency of TNCs to concentrate in more productive industries. An overview of the data in tables 2 and 3 accords with the view that foreign affiliates cluster in above-average productivity industries.

One possible explanation for the lack of robustness in the FDI–productivity relationship is that spillovers may diminish over time, leading to insignificant results from panel data. A second possibility is that FDI presence may positively affect only a selection of sub-sectors. As discussed in section II, FDI may be important in certain sub-sectors, but not in others. To investigate these possibilities, the remaining part of this section first examines whether or not there is a pattern of diminishing spillovers over time. Then we break the full sample into sub-samples based on: (1) export intensity; (2) intangible assets intensity; and (3) State capital share, to see whether spillovers benefits only pertain to local firms in certain types of industry.

Table 5 shows the results from cross-sectional estimations of equation (1) for each individual year.[4] The FP variable is positive and statistically significant in the 1996 and 1998 estimations, though the magnitudes of both coefficient and level of significance slightly decreased. However, we should note that the FP variable becomes insignificant in the regressions for 2000

[3] The sub-sector dummy variable itself also serves to eliminate a potential source of omitted-variable bias.

[4] Where heteroscedasticity exists, variance-covariance matrices have been estimated according to White's (1980) method. Ramsey RESET tests indicate that all models suffer no specification error.

and 2001. This appears to signal a declining trend in the impact of FDI spillover effects in the China's electronics industry within the period under consideration, though these effects are nevertheless significant in the growth form in column (5).

Surprisingly, the capital intensity variable (*KL*) fails to reach significance as expected in all but the regression for 2000, thereby performing inconsistently and contrary to standard results. From this we might surmize that capital intensity is a less important determinant of labour productivity in China's electronics industry, perhaps on account of the labour intensive

Table 5. The impact of FDI on productivity [a]
(Cross-sectional estimations)

Dependent. Variable: LP (Value-added per worker)	Level estimation				Growth estimation
	1996	1998	2000	2001	1996-2001
	(1)	(2)	(3)	(4)	(5)
C	2.10	-0.04	-2.02	0.96	0.82
	(1.89)*	(-0.03)	(-1.54)	(0.91)	(6.14)***
KL (Capital-labour ratio)	0.10	0.01	0.69	-0.09	0.06
	(0.32)	(0.08)	(2.69)***	(-0.78)	(0.56)
INT(Intangible assets	-0.01	-0.05	-0.08	0.29	0.11
per worker)	(-0.13)	(-0.36)	(-1.74)*	(3.83)***	(1.18)
LQ (Employment share of	1.52	1.24	0.20	0.52	0.62
engineers and managers)	(4.63)***	(3.98)***	(0.46)	(1.36)	(2.65)***
FS (Fixed assets per firm)	0.20	0.44	0.28	0.27	0.13
	(1.62)	(3.43)***	(2.58)***	(3.20)***	(1.04)
FP (Foreign capital share)	0.49	0.45	-0.10	0.24	0.26
	(4.89)***	(3.23)***	(-0.71)	(1.66)	(3.38)***
R-square adjusted	0.60	0.45	0.63	0.47	0.44
F-statistic.	12.92***	7.64***	14.79***	8.17***	7.21***
Number of observations	41	41	41	41	41
Heteroscedasticity					
(F-statistic)[b]	(2.52)**	(2.00)*	(4.85)***	(4.09)***	(1.56)
Functional form					
(F-statistic)[c]	(0.85)	(0.49)	(5.68)*	(0.02)	(0.98)

Source: authors.

[a] Figures in parentheses are t statistics (two-tailed tests); *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively.

[b] White test (Cross term)

[c] Ramsey RESET tests are based on the squares of the fitted values (one term).

nature of this broad industry compared with developed countries. Two further factors may explain this insignificance. First, China's electronics enterprises have been under so-called "asset restructuring". This involves a substantial re-allocation of assets between firms under different ownership and between different sub-sectors within the industry to improve overall industrial efficiency. The outcome is a change in the distribution of assets between sub-sectors, causing some degree of mismatch between capital intensity and productivity. The effect may be to wash out the significance of the variable. Second, the relatively small number of observations may contribute to this insignificance. As shown in tables 4 and 6, the capital intensity variable is more often significant when the number of observations increases.

Over time, *INT* changes from insignificant to significant, while *LQ* shows quite the reverse movement – changing from significant to insignificant. Taking a broader view of learning activities, *INT* and *LQ* might be acting as proxies for different aspects of the technological capability of China's firms.[5] The significance of *LQ* in the 1996 and 1998 regressions could be construed as an indication that labour quality was the primary variable capturing the knowledge complement of domestic firms. However, the 2001 regression shows that by the end of the period *INT* has come to dominate. This pattern of results suggests that there may have been an increase in the role played by intangible assets in domestic productivity.[6] The firm size effect variable, *FS*, registers the correct sign and is statistically significant in all regressions. This suggests that industry sub-sectors populated by larger firms are more likely to achieve higher levels of productivity. This result also implies that most firms are smaller than the size of the most efficient firm in the industry, and that scale economies are available to them in the event that they grow.

Table 6 displays the results for the sub-samples. The first two columns show that those sectors in which firms are local-market oriented, the coefficient for foreign presence is positive and statistically significant at the 5 % level. On the other hand,

[5] The correlation coefficient between the two variables is very small.

[6] Although the quality of this variable is suspect, as discussed later.

export oriented sectors experience no significant productivity benefits from foreign investment. This finding agrees with Blomström and Sjöholm (1999), who have suggested that inward FDI confers little additional benefit on sectors that are already exposed to international competition by exporting to the international markets.

Contrary to expectation, the results in columns (3) and (4) show that the *FP* variable does not attain statistical significance in either the high or low intangible assets per worker sub samples. This may reflect the generally low absolute importance of intangible capital in China's industry, a characteristic that may share common roots with the widespread labour intensity. Taken together with the negative signs in earlier regressions in table 5, the performance of *INT* seems poor and unstable. This could either be an outcome of poor data quality, as Chinese firms have only recently started to calculate and report intangible assets. The problem of errors might also be

Table 6. The FDI impact and industry characteristics[a]
(Pooled estimation for sub-samples over 1996, 1998, 2000 and 2001)

Dep. Var.: LP (Value-added per worker)	Exports/Sales		Int. assets intensity		State capital share	
	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
KL (Capital-labour ratio)	0.11	0.51	0.29	0.32	0.47	0.24
	(0.44)	(2.98)***	(1.74)*	(1.42)	(2.49)***	(1.25)
INT (Intangible assets per worker)	0.06	0.05	0.25	-0.03	0.05	0.06
	(0.94)	(0.59)	(2.33)**	(-0.46)	(0.57)	(0.77)
LQ (Employment share of engineers and managers)	0.20	0.94	2.57	0.39	2.09	0.26
	(0.53)	(3.60)***	(4.92)***	(1.64)*	(4.63)***	(1.16)
FS (Fixed assets per firm)	0.45	-0.01	-0.02	0.23	-0.01	0.15
	(2.51)***	(-0.06)	(-0.15)	(1.59)	(-0.10)	(1.13)
FP (Foreign capital share)	-0.16	0.16	0.11	0.09	0.15	0.08
	(-0.79)	(2.17)**	(1.20)	(0.88)	(1.79)*	(0.78)
R-square adjusted	0.57	0.68	0.71	0.66	0.67	0.63
F-statistic	34.17***	47.80***	55.79***	43.61***	48.53***	39.77***
Number of observations	84	80	84	80	84	80

Source: authors.

[a] Figures in parentheses are t statistics (two-tailed tests); *, **, and *** denote significance at the 10%, 5% and 1% levels respectively.

compounded by lumpiness, caused by the absolutely low values in the data.

The third pair of sub-samples (columns 5 and 6) concerns the impact of State ownership on the FDI-productivity relationship. The results suggest that the effect of foreign presence on labour productivity is statistically significant only in sub-sectors in which the State capital share is large. At first sight, this result appears to conflict with the results of P. Buckley at al. (2002), who found that State-dominated sub-sectors in manufacturing experienced negative spillover effects. However, the purpose of the present study is to employ a more detailed unit of analysis - the single industry rather than the whole of manufacturing, and this might be expected to alter the findings. This point is taken up in the discussion section.

Discussion

Here we reflect further on some possible explanations for the unexpectedly weak role that has apparently been played by foreign affiliates in the electronics industry. First, the considerable FDI into China's electronics industry might not have been accompanied by a commensurate amount of technology transfer via FDI. In support of this, a number of studies – not specific to the electronics industry – have pointed out that there has been a lack of technology transfer via FDI into China (e.g. Chen and Zhang, 1995; Lan and Young, 1996). A possible factor behind this, and one that might be expected to influence a technology-intensive industry such as electronics, is weak intellectual property protection in China. This may discourage the transfer of all but the labour-intensive stages of production to China, and act as a disincentive to TNC's from undertaking significant technological development in the host country. The insignificant contribution of foreign affiliates to overall domestic productivity might therefore be a result of limited opportunities for technological spillovers.

A second explanation relates to the nature of the relationship between spillover effects and foreign ownership. The very high share of foreign capital may be responsible for

the unexpected findings. At greater levels of foreign presence, the market share of local firms may be cannibalized, so raising their costs of production and resulting in a "crowding out" effect. In such a situation, negative spillover effects can arise that counteract the existing positive effects, so resulting in a decline in overall spillover benefits (Buckley et al., 2003).

Third, in this article we address the bias-evident in much empirical work-towards finding a positive impact for FDI on host country productivity. Our results suggest that TNCs are attracted to higher productivity sub-sectors. We control for this effect, but the implication is that much of the prior literature may have over-estimated the impact of FDI on host country productivity. Consequently, our results stand in stronger contrast with the existing body of work and appear more unexpected than perhaps they should be.

A fourth consideration is that other factors that determine productivity may overshadow the role of FDI. For instance, despite policy efforts to foster the transfer of technology via FDI, Chinese firms may be primarily absorbing technology through imports of technology embodied in physical capital assets. A good reason for believing this is that the Government of China implemented preferential policies encouraging imports of advanced technology in the electronics industry, as a means of localizing high technology. In certain circumstances, the Government allowed machinery and equipment incorporating advanced technologies to be imported duty free. Product and process technologies imported in this way may have played a primary role in developing new electronics products and in improving the performance and quality of China's electronics industry. This inference is in line with the emerging literature on the link between international trade and international technological spillovers.

Fifth, the results in table 5 point to a diminution of spillovers over time following the establishment of foreign affiliates in sub-sectors of the electronics industry. However, it is easy to see how a snapshot of the years 1996 or 1998 could lead researchers to believe in the existence of a strong positive

and continuing relationship between foreign presence and host country productivity. Equally, the growth regression for 1996-2001 suggests the same strong relationship. However, snapshots of 2000 and 2001 would produce the opposite conclusion. These regressions make the point powerfully that the date of measurement can determine the results obtained. This may help to account for the large amount of mixed findings in the literature in studies that rely on data for just one year. But our results also indicate that a dynamic structure may exist in the relationship between foreign presence and host country productivity, which is as yet very inadequately explored. This may account for the weak effect of the foreign capital share in the last two years of our sample, and points the way for future research.

The positive relationship between State ownership and domestic industrial productivity is at variance with previous research. This article concerns one industry as opposed to the whole of the manufacturing sector. It is therefore necessary to consider the special conditions that might apply to the electronics industry. First, it is a fast changing industry and this may profoundly modify the nature of the relationship between inward FDI, high State ownership and productivity. Second, a very different performance outcome is likely where inward FDI takes the form of joint ventures with successful State -owned firms, rather than competition against State-owned firms. A large number of high-technology foreign affiliates, e.g. the local affiliates of Motorola (China) are joint ventures with State-owned enterprises. These close and productive partnerships may be responsible for a sort of "crowding in" effect. Such affiliates are also often highly export oriented, and are responsible for high levels of intra-group exports.

The breaking of the data into sub-samples reveals and supports some of the above discussion. We have seen that the impact of inward FDI on host country productivity is significant only for certain groups of firms, not all. The pattern of significance gives some idea of why this might be. As prior research suggests, export oriented sub-sectors experience insignificant gains from foreign capital presence. Experience of exporting points to the existence of a learning effect for local

firms, and this learning appears to pre-empt that which might otherwise be conferred by inward FDI. This gives some support to the notion that learning via independent technology imports and via foreign presence are substitutes. It also indicates that the learning is of a "one shot" nature. A given gap in knowledge between foreign and local firms, once closed, exhausts the potential for significant spillover effects. If so, it provides some supporting evidence that host country productivity gains via learning from FDI, even when they are initially present, should be expected to diminish over time.

Conclusions

Using a small panel of China's electronics industry sub-sectors, we find partial support for the view that inward FDI has promoted overall productivity growth over the period 1996 to 2001. However, we also find some support for our argument that the impact of FDI on host country industry performance diminishes over time. Our evidence suggests that the productivity gains from FDI were significant for certain (but not all) groups of firms in China's electronics industry. This suggests that spillovers benefits do not flow automatically from FDI, but are contingent upon other factors. This article also provides some evidence to caution that sub-sector-specific productivity effects associated with, but not caused by, foreign presence exist. TNCs do appear to concentrate in more productive sub-sectors within China's electronics industry. This suggests the possibility that prior research has been biased in favour of finding stronger impacts on host country productivity. Our research also suggests that the date of measurement in cross-sectional research can be critical, and misleading if generalization is sought, when making inferences about the relationship between inward FDI and host country productivity.

We must acknowledge the limitations of our study. In particular, it should be noted that some factors that influence productivity have not been controlled for. These include variables such as R&D and imports, for which data are unavailable at this level of disaggregation. As our data are drawn from those collected by the Ministry of the Electronics Industry,

unlike the industrial census data published by the State Statistical Bureau of China, the productivity of foreign and domestically owned firms is not separately identified. While this would have been desirable, the investigation in this article has been constructed to make optimal use of the data that are available for the host country industry.

The fact that the impact of FDI on overall productivity is so sensitive to the set of sub-sectors that are selected suggests caution in inferring the existence of spillovers without first adequately controlling for industry-specific characteristics. Recent studies of spillovers from FDI suggest that such effects may be significant, but that they are not guaranteed, automatic, or free. The effects may depend to a large extent on the host country, in particular on host country industry characteristics and on the policy environment in which TNCs operate.

There are a number of policy implications that arise from our findings. First, foreign capital participation in China's industries, and sub-sectors, with low levels of exports is likely to be especially beneficial for productivity growth in China, and should be encouraged. A caveat here is that the industry concerned should be one in which export potential exists. Second, the import of technology by local firms, outside an equity relationship with TNCs, may well be an effective means to raise productivity in China, especially where there are no long-term benefits from foreign capital participation or where TNCs express little interest in investing in an industry.

Third, and linked to the previous point, joint ventures between foreign affiliates and China's State-owned enterprises, for which we find evidence of beneficial effects, may offer a more long lasting route to learning than stand-alone foreign affiliates.[7] The significance of the FP variable for sub-sectors

[7] Joint ventures between the primary affiliates of TNCs and State-owned enterprises are to be distinguished from primary affiliates that are international joint ventures, as used to be legally required in most of China's industry. The type of joint ventures referred to here are entirely voluntary, and are expected to be superior in terms of knowledge transfer and spillover benefits.

in which the State capital share is high may be a sign that joint ventures between foreign affiliates and state-owned firms can be a productive one under certain industrial conditions, as in this case. As our data show, the electronics industry is dynamic, and in these circumstances benefits are thought to arise from establishing a learning network within China linked to TNCs' international operations. It can be argued that, once linked into the international network of foreign firms, state-owned enterprises enjoy an extended opportunity to benefit from learning and knowledge transfer. In high technology industries, foreign affiliates frequently operate a learning network, both globally and locally, into which state-owned enterprises have the potential to be embedded (Buckley *et al*., 2002). This embeddedness can include joint R&D. With regard to the long term impact on host country productivity, such inward FDI might offer a significant and sustained positive impact. We can contrast this with the time-limited benefits from foreign affiliates operating in China, where foreign firms exploit an existing technological advantage created outside the host country, with little or no local linkages.■

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Globalization and development: an international business strategy approach

Robert Pearce*

This article seeks to reformulate the "colourful and fluid" early debate on the effects of foreign direct investment in two ways. Firstly, the wide range of separate specific concerns of the early debate are subsumed within four generic issues: efficiency, distribution, sovereignty, and growth and development. Secondly, the analysis is now structured around modes of analysis of transnational corporations, as the agents that carry out foreign direct investment. Transnational corporations are seen as using the freedoms of international transfers central to globalization in order to leverage competitively the differences of national (or other coherently-defined) economic units. Crucially this response to difference is analyzed as reflecting three potential strategic motivations: market seeking, efficiency seeking and knowledge seeking. The core of the article investigates how the adoption of different motivations by transnational corporations would affect performance in terms of the different generic issues. The synergies of this mode of analysis with trade policy (the implicit, or often very explicit, move to outward-oriented industrialization in the era of globalization) and new growth theory are also discussed.

Key words: globalization, TNC strategy, efficiency, distribution, growth and development

Introduction

The early debate on the role of foreign direct investment (FDI) in developing countries has been neatly characterized as

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"colourful and fluid" (Balasubramanyam, 1985, p. 159). One reason for the colourfulness of this debate was its emergence within the politically-charged birth of development economics *per se* and related attempts to co-opt it into disparate wider political-economic postures. This points forward to my, hopefully calmer, concern here with the parallel need to *evaluate* transnational corporations (TNCs) as participants in the processes of globalization. Another factor in leaving the early debates open and fluid was the lack of a commonly agreed methodology for analysing, in a convincing manner, an observable mode of international transaction (FDI) with an obvious potential for a wide-ranging diversity of often intangible or unmeasurable implications. This meant that much early analysis of the developmental effects of FDI fractured around detailed investigations of specific aspects of a wide range of separate areas of concern (e.g. extent and appropriateness of technology transfer; job generation and employment conditions; the allegation of decapitalization; balance-of-payments and trade effects; bargaining mechanisms; spillovers; industry structure).[1] As V. N. Balasubramanyam (1985, p. 173) indicates, the emergence of a separate analysis of the TNC (as the principal source of FDI) and its immediate association with market imperfections further undermined attempts (e.g. MacDougall, 1960) to formalize the evaluation of FDI around the constructs of orthodox trade theory and, in particular, perfect competition.

If early theorizing of the TNC helped to explain the indecisiveness of attempts to evaluate the implications of FDI, then the subsequent analysis of these firms, now most usefully positioned at the interface of business strategy and economics, provides methodologies that are highly attuned to elucidation of issues of globalization and development. Central to this analysis, and to the lines of argument developed here, is a preference for *organizing* an understanding of *diversity*, rather

[1] These issues have been reviewed and evaluated in MacBean and Balasubramanyam (1978, chapter 8), Casson and Pearce (1987) and Dunning (1994).

than simplifying it or assuming it away. Two vectors of diversity define the structure of our subsequent analysis.

Firstly, the aims of an evaluation of TNCs in a globalized economy are seen as still having logical origins in the diversity of concerns addressed in early analysis of FDI. However, to organize these into a more functional structure, I suggest that these variegated concerns can be subsumed into an evaluation framework of four distinct generic issues (Dunning and Pearce, 1994). Within globalization, the opening of national economies (with an increasing freedom of trade) has been interpreted as allowing TNCs to improve the ways in which productive resources are used, so that *efficiency* becomes an element of the framework through which we evaluate their performance. By contrast the "flexibility and adaptability" (Balasubramanyam, 1985, p. 160) provided to TNCs by globalization may limit their need for positive embeddedness in the *growth and development* processes of individual national economies. This provides another concern for the evaluation framework. However, an important insight of analysis of the growth of TNCs was that organizing globally through "an internal bureaucracy of the enterprise transcending the market" (Balasubramanyam, 1985, p. 161) gave them powers "in areas of pricing of products and technologies", and in bargaining more generally, that raised issues of the *distribution* "of gains between [TNCs] and host countries"; furthermore, these characteristics of TNCs give them control over dispersed elements of a global strategy that can be "seen to pose a threat to the economic *sovereignty* of new nation states in the Third World" (Balasubramanyam, 1985, p. 161).

The core of this article, therefore, seeks to evaluate the implications of TNCs in terms of the four broadly-defined issues of efficiency, distribution, sovereignty, and growth and development. To do this, it is useful to characterize the strategic posture of the contemporary TNC as one of seeking to use the increasing freedoms of international transfers, reflecting the essence of economic globalization, to leverage the *differences* between economic areas. Such areas may, in practice, be national economies (especially where policy factors are

influential), regions defined by the capacity to support cost-effective production,[2] or the type of technology- and skill-based agglomerative clusters that build around creative interdependencies and tacit-knowledge spillovers (Porter, 1998, chapter 7; Birkinshaw and Hood, 2000; Cantwell and Iammarino, 1998; Balasubramanyam and Balasubramanyam, 2000).

To operationalize this view of the TNC as responding to such international differences, it is useful to see its overall global strategy as encompassing a number of analytically separable motivations or priorities.[3] Thus, this framework discerns three strategic aims.[4] Firstly, *market seeking* (MS), in which a TNC invests in a particular economy in order to supply its established

[2] A specialized institution here is the export processing zone (EPZ) "defined as an enclave outside the customs territory of a country" (Balasubramanyam, 1988, p. 157). Goods are allowed to enter an EPZ for processing, storage and manufacture without payment of customs duties and local taxes, and subsequently re-exported without payment of duties. With access to low-cost labour and the support of tax holidays and other fiscal incentives, such EPZs can attract the efficiency-seeking elements of TNCs' global strategies. In some countries, such as India, Indonesia and the Philippines, the early adoption of EPZs served as a "grudging concession in favour of an outward-looking strategy of development" within a policy context that remained predominantly protectionist and "centred on import-substituting industrialisation" (Balasubramanyam, 1988, p. 158). Where EPZs represented such a policy compromise, serving as "a second-best method of attracting FDI into export industries for countries wedded to protecting their import-competing industries", the results were usually unsatisfactory in terms of immediate performance or developmental impetus. As examples of EPZ success, the city states of Hong Kong and Singapore are seen by Balasubramanyam (1988, p. 164) to tell a different story since "the entire economy in [these cases] could be regarded as a duty-free zone" and thus operatively closer to his (1988, p. 161) "first-best method [of] the adoption of a liberal foreign trade regime bereft of tariffs and quotas on imports". Residual distortions, after the 1991 reforms, are found by Balasubramanyam and Mahambare (2003, pp. 65-8) to play a major role in the persisting limited success of EPZs in India.

[3] The antecedents of the approach used here are in Behrman (1984) and Dunning (1993).

[4] A fourth logical motivation, not used here, would be characterized as "natural-resource (or primary product) seeking".

products to the market of that country. Secondly, *efficiency seeking* (ES), where a TNC's operations in a particular location are expected to supply certain parts of the product range to the company's international markets in a highly cost-competitive manner. Finally, *knowledge seeking* (KS), which involves the internationalization of a TNC's learning, technology-generation and creative processes. The two aspects of KS invoked in the subsequent discussion here are product development through product mandate (PM) affiliates,[5] and decentralization of R&D operations (including precompetitive basic/applied research).[6] The exposition also makes use of the ownership advantage (OA) and location advantage (LA) elements of John H. Dunning's (Dunning, 1977, 1993, 2000) eclectic framework.

The aim of the methodological framework outlined here is, ultimately, to understand how TNCs' strategic behaviour (now conditioned in particular by the forces of globalization) affects the development of the *global* economy. The efficiency criterion is explicitly articulated at this level. However, since the argument then focuses on differences between components (locations) of this global economy, much of the remaining exposition is mainly illustrated by the cases of developing countries or economies in transition. It is not, though, explicitly about (or limited to) these cases, but uses them to exemplify factors likely to impinge on changes or processes faced by any country (or location) affected by TNC behaviour responding to an opening global economy.

[5] Product mandates are creative affiliates (Pearce, 1999a) which take responsibility for the creation as well as supply of parts of a TNC's product range. They were originally conceptualized (Poynter and Rugman, 1982; D'Cruz, 1986) from observation of affiliates operating in Canada. Their position in contemporary strategies of TNCs have been investigated by *inter alia* Papanastassiou and Pearce (1999), Roth and Morrison (1992), Birkinshaw (1996), Feinberg (2000), and Tavares and Pearce (2002).

[6] The role of dispersed R&D in the globalizing strategies of TNC has been investigated from many perspectives (e.g. Hakanson and Nobel, 2000; Furu, 2000; Granstrand, 1999; Pearce, 1999b; Papanastassiou and Pearce, 1997a, b; Kuemmerle, 1999).

Efficiency

Here we address the purely economic concern with the effectiveness (allocative and productive efficiency) of the use of the *world's* fixed stock of resources and capabilities. Essentially, I idealize the question as "under what conditions do the operation of TNCs in a host country contribute to raising world economic welfare to a level that could not have been achieved in any other way?"

I can perhaps initiate discussion rhetorically, with the suggestion that the sustained growth, in recent decades, of the numbers of internationally-competing firms, alongside the persistent deepening of the global scope of most existing TNCs, must surely be strongly indicative of such efficiency growth. Immediately, however, a full acknowledgement of the strategic heterogeneity of TNCs questions the inevitability of such a prescription. Two aspects of the strategic concerns or behaviour of TNCs can support such doubts.

Firstly, the presence of MS motivation certainly need not support, and often actively compromises, productive efficiency. Two historical contexts can now be seen as having generated MS behaviour in TNCs. During the interwar years, the economic disruption of the early 1920s and the later period of sustained economic depression, generated high levels of protectionism in most leading industrial economies. This forced many firms with a strong established commitment to international markets to extend considerably the number of countries in which they located supply facilities, with such production affiliates now predominantly constrained to provide only for the host-national market. This mode of international supply can be seen to remain dominant in the first two decades after World War II, as trade protection remained in place but the individual national economies grew at healthier rates in response to processes of reconstruction and the confidence generated by an emergent belief in Keynesian macro policies.

A second historically distinctive wave of MS investment by TNCs occurred in the 1950s and 1960s, in response to the

import-substitution strategies adopted by many poor countries seeking to initiate a manufacturing sector. Here again, TNCs had to resort to tariff-jumping investment in order to retain access to established profitable markets for their goods, in the face of infant-industry protection. A second significant factor often conditioned this mode of MS behaviour by TNCs, however, in the form of a dualistic or highly-inequitable local economy. Thus the availability of significant demand for the normally middle- and high-income goods that were supplied in TNCs' existing trade patterns frequently required the presence of a peculiarly prosperous elite in essentially poor countries. A concomitant use of capital- and skilled-labour-intensive production processes by TNCs often meant that they not only supplied an urban elite but also generated employment and reward patterns that served to reinforce it. Ultimately the difficulty of sustaining and deepening this form of industrialization, and the limited potential for such industrial/urban growth to spread into wider forms of development, led to the abandonment of these import-substitution strategies.

A third, more contemporary and differently focused, use of the MS strategy has also been observed. Thus survey evidence (Manea and Pearce, 2004a; Lankes and Venables, 1996; Mutinelli and Piscitello, 1997; Rojec and Svetlicic, 1993) on the early operations of TNCs in the Central and Eastern European (CEE) transition economies found that, rather than the predicted extensive ES use of (presumably cost-effective) inputs, the predominant initial motivation was MS supply of local markets. Rather than the traditional response to new protection barriers denying access to established markets, the MS in this case has a more market-development orientation, with local production and marketing seeking a first-mover familiarity within these new environments. In fact there may thus be an implicit *a priori* acceptance of inefficiency in this approach to the geographical expansion of established TNCs, acknowledging that the relatively unformulated economic, market and institutional infrastructure of these CEE economies would preclude optimized decisions regarding immediate supply potentials. MS entry may here allow TNCs to use their most secure OAs (underpinning supply of well-established goods) to learn about the real

capabilities of CEE LAs, prior to possible movement to more refined ES operations or even creative accessing of technological and skilled capacities (KS) (Manea and Pearce, 2004a, b).

These contexts for use of MS strategy by TNCs are likely to generate inefficiency in several ways. Firstly, the limited markets in which MS behaviour was usually constrained would be likely to preclude a full realization of plant-level economies of scale. Secondly, the fact that patterns of production in MS operations were dictated by the structure of demand and protection in the local economy, rather than its most effective productive potentials (static comparative advantage), provoked problems of inappropriate technology transfer. Thus, TNCs again suffer from non-optimization of the use of their OAs, whilst host-countries do not secure the most efficient activation of their LAs. Thirdly, the protection against imports and frequent limitations in local competition often allowed scope for high levels of X-inefficiency.

A second strategic context for understanding that TNC expansion often did not mean achievement (or even pursuit) of optimized efficiency emerged from pioneering research (Knickerbocker, 1973; Flowers, 1976; Graham, 1978) on oligopolistic interaction in the location decision process. Such research indicated that many TNC investment decisions (at least in increasingly concentrated globally-competitive industries) were made more as a subjective response to moves made by leading rivals than on the basis of an independent objective evaluation of a country's LAs in conjunction with the firm's OAs. Rather than proactively making location decisions directly aimed to optimize their own efficiency, growth and profitability, TNCs were often taking defensive options to limit the effect on their position of rivals' moves and/or to precisely constrain the benefits pursued by rivals.

Though quite significant elements of MS behaviour may still play important roles in the competitive expansion of contemporary TNCs, changes central to the evolution of the global economy have moved the focus of their strategic development elsewhere. Two of these changes explicitly remove

the key LAs that supported earlier MS dominance. Firstly, the moves towards a free-trade environment, through the multilateral negotiations of GATT/WTO rounds and the rise of significant regional-integration schemes (EU, NAFTA, MERCOSUR, ASEAN). Secondly, the reorientation of developing countries' industrialization strategies away from protectionist import-substitution towards export-oriented participation in an opening global economy.[7] Taken with a rise in the numbers of major internationally-operating firms in many industries, the systematic opening of national economies amounts to a radical intensification of *globalized* competition for TNCs. At the level of an established MS affiliate this change was manifest in the removal of protection for its inefficiencies, through an opening to generalized import competition and, crucially, a more focused group-level awareness that the particular national market might now be supplied more cost-effectively by another affiliate through trade. The latter perception is central to TNCs' *use* of freer trade to move towards network supply strategies in which individual affiliates play the ES role.[8]

[7] An element of potential distortion sometimes remained present when *preferred* access to developed country Generalised System of Preference (GSP) schemes replaced *protected* access to domestic markets as a policy basis for infant-industry support.

[8] In an investigation of Japanese FDI in the European Union in the buildup to the 1992 Single European Market programme, Balasubramanyam and Greenaway (1992, pp. 185-186) trace two routes to the emergence of export-oriented (i.e. ES) operations using the increased freedom of Union-wide trade. Firstly, "*bridgehead investment* refers to new investment in a specific location which is regarded as a base from which to supply the wider European market." To the extent that the decision to produce within *Europe* here includes concern over "fortress Europe" then this "fortress-jumping investment" includes a clear residual element of MS behaviour. But the precise location chosen as the bridgehead in the European Union is then likely to reflect ES influences. Secondly, completion of the Single European Market may affect incumbent operations in the European Union in the form of *rationalization investment*, involving "a restructuring of existing operations, for instance closing down some facilities and concentrating on others, or building additional plants to service the entire market rather than subsets of it." Here, operations that would have originally responded to MS imperatives are now reformulated to meet a new ES context. Affiliate positioning and evolution in the context of European Union strategy has been investigated for Ireland (Tavares, 2001) and Portugal (Tavares and Pearce, 2001).

An individual affiliate in an ES supply programme would specialize in the production of a small part of the TNC group's overall product range and export the vast proportion of output for distribution through the firm's global marketing network.[9] Such an affiliate repositioning would be expected to overcome the inefficiencies endemic to the MS role. Firstly, group-wide market access would be likely to remove possible constraints in the realization of plant-level economies of scale. Secondly, the need to sustain levels of productivity that are open to the informed scrutiny of planners of the group's internally-competitive supply network should remove any significant X-inefficiency. Thirdly, what goods or services an ES-affiliate produces can be selected so as to seek to optimize the match between the production technology used and the most cost-effective input availabilities of the host country (i.e. its strongest sources of static comparative advantage).

If the achievement of economies of scale and the removal of X-inefficiency can be considered to be generally location-neutral, then one can see the essence of the construction of an ES supply network as pursuing the complementarities between a TNC's OAs and a host-country's input LAs. If a TNC's operation in a particular location had found *the* most productive LAs available to it worldwide (i.e. those that secure the most cost-effective use of the relevant OAs) and that TNC was making available a better package of OAs[10] (i.e. the capabilities to get the greatest value from the country's input potentials) than could any other firm (including indigenous industry), then such an optimized complementarity would achieve the idealized level of efficiency maximization postulated earlier. In more routine terms, I can propose that competent decision-making, as TNCs adopt ES aims in generating global supply profiles, will bring

[9] Variants of this could be performance of one stage in a vertically-integrated production sequence, assembly, or supply of particular intermediate goods.

[10] Here appropriate OAs would not only involve the technologies and management capabilities to maximize productivity but also the best international market access (provided by the TNC's distribution network) in terms of current size, stability and growth potential.

about some degree of efficiency improvement in the ways indicated here.

Distribution

If the articulation of the efficiency issue could be seen as purely economic, then the logical follow-on is a more political-economic concern with fairness, justice or equity in terms of how the performance outcomes of TNCs (whether seemingly beneficial or problematic) is distributed. The premise here is that, since the performance of a TNC investment in a particular country reflects both the firm's OAs and the country's LAs, the distribution of the outcome should reflect in some fair way the respective contribution of these inputs. The provenance of distribution issues in early concerns that FDI[11] might, in some sense, exploit (in particular) host developing countries has widened into the suggestion that TNCs' positioning in globalization can increase inequalities between countries and within countries.

The persistence and stridency of debates about equity can be seen to reflect the impracticality of attempting to define what would be a *fair* distribution of the outcome from a particular TNC investment project, or even providing a meaningful summary of what that distributed outcome *actually* is (from an overall perspective). This allows for the intuitive assertion of reasons why a TNC, in particular, may be able to co-opt "unfair" benefits from investments that may, on other grounds, be effective and desirable. The problem of categorizing an accurate/fair distribution derives from the absence of anything approaching a competitive market price for many of the inputs to a TNC operation.[12] From the TNC side the intangible and

[11] It was, for example, suggested that imperfections in the markets for the separate elements of the FDI package negated the advocated possibility of "unpackaging" FDI and thereby allowed firms to earn monopoly rents on their technology, skills, etc.

[12] It is also unlikely that attempts to agree on imputation of *ex post* shadow prices within a formal analytical attempt to resolve distribution debates on particular TNC outcomes would achieve consensus.

highly firm-specific nature of many of their OAs leads to their internalized transfer and use, which precludes any form of even negotiated informed pricing of specific attributes. Whilst many host-country inputs (e.g. labour, energy, raw materials) will certainly be rewarded in terms of a transparent price, it is not always the case that the market in which this was determined operates competitively or is immune to policy-based manipulation, so that elements of distributional unfairness are again possible. When a significant aspect of the viability of an operation reflects host-government policies that pursue specific objectives (variants of import-substitution industrialization) at the expense of permitting rent-seeking TNC behaviour, then any idea of fair "pricing" of benefits is again meaningless.

Though the "stakeholders" in a TNC operation may be able to hold clearly formulated views of aspects of its successes or failures, these would represent elements of very differently composed objective functions. For a TNC, a particular affiliate would be expected to make distinctive contributions to the current profitability and/or longer-term competitive development of its overall *global* operations. It is central to my analysis that this contribution can take various forms at any point in time, and also be open to change over time (so that processes of evolution can be accepted as a reason for temporarily compromised performance). For a host country, the varied expectations from TNC participation may include improved supply to local customers (quality and/or price of goods and services), improved conditions for local inputs (degree of usage and levels of rewards), improved achievement of short-run government policies (e.g. taxation, industrialization, trade balance) and the provision of significant impetus to longer-run objectives in terms of sustainable growth and development. Under these (essentially bounded-rationality) circumstances, a particular investment may be deemed satisfactory by both "partners" and allowed to progress in an orderly fashion (i.e. without unanticipated strategic repositioning by the TNC or additional performance requirements from the host government). This does not imply the presence of any form of aggregated measure of the overall level of achievement of the operation or,

therefore, of any possible way of specifying what was the *actual* division of the outcome between TNC and host-country interests.

Thus, the comparison of actual distribution outcomes with idealized fair outcomes presents a doubly infeasible calculation, precluding empirical verification of suggested injustices driving aspects of globalized inequality. Nevertheless, the arguments demonstrating the implausibility of resolving distribution issues in practical terms also provide equally precise reasons for a persisting concern, by underlining the presence in determining the basis for a successful operation (i.e. one satisfying the needs of interested parties enough to survive) of various market imperfections and policy distortions. These factors also indicate that in many cases distribution is, in practice, strongly influenced by explicit or implicit bargaining processes between TNCs and host locations (countries, regions or, increasingly, creative clusters) in which the parties seek to leverage the unique characteristics and capacities of their inputs (i.e. in effect claim monopoly prices for their OAs or LAs respectively). Once again, a crucial factor determining the content and concerns of such bargaining situations is the strategic positioning of the operation, in terms of perceived contributions to wider objectives of both the TNC and host country.

The focus of much of the practical intuitive assertion of inequities in globalization is, in effect, ES behaviour by TNCs. In its most contentious form, one can see an ES strategy as TNCs using undifferentiated cost-effective host-country inputs to enhance the international efficiency of supply of highly price-competitive goods embodying standardized technology and low-skill production processes. The potential for distributional concerns here reflect a case of asymmetrical information, in the sense that TNCs may be able to project superior knowledge of key factors in a bargaining process. In terms of LAs, once a host-country is not able to assert convincingly any strongly distinctive qualitative characteristics to its inputs, a TNC may then be in a position to claim a more informed comparative knowledge of rival economies and thereby suggest a potential for competitive location (or relocation) of investments

elsewhere. Such an invocation of the 'footloose' option represents the bargaining strength accruing to TNCs from operating a global-network strategy, both in terms of a manifest flexibility and an ability to assert plausibly possession of better information on comparative productivity than would be available to an individual host-country government.

Though the OAs used in much ES behaviour are in fact likely to be routine and not significantly differentiated qualitatively between competing firms, the ability to assert otherwise may still be projected by TNCs. This, of course, reflects the familiar market-failure argument for intangible or knowledge-based competitive attributes, in that TNCs will not reveal the detail of the technology or commercial information central to their bargaining position. Something that may, indeed, differ between potential investors and that can therefore be "spun" strongly in bargaining processes is the market to which export-oriented ES supply may have access, both in terms of current size and growth possibilities. If such elements of asymmetrical information are convincingly projected by TNCs, they can assert both that their OAs can better develop competitive potentials of a host economy than could those of rival firms, and that other locations are available to them with equal or better supply potentials (LAs). This, it could be suggested, would then lead a host location to concede unnecessarily beneficial terms to a TNC, imparting a bias to the distribution process.

A generalized capacity of TNCs to exercise bargaining advantages in ES situations would lead to excessively generous incentive packages (fiscal benefits in terms of tax breaks and subsidies) and downward pressure on input prices, with a notable emphasis on low wage-rates and perhaps repressive employment regulations and conditions. One distributional outcome of this would be worsened *international* inequality, in that enhanced benefits would normally accrue to interests in more developed countries (shareholders and home-country governments benefiting from TNCs' profitability gains, and consumers from lower prices) at the expense of reduced benefits in host

developing countries. Furthermore, where TNCs benefit from ES relocation of labour-intensive supply, this normally places downward pressure on employment levels and conditions in the home country and other countries in the supply network. Unless governments activate effective adjustment mechanisms in these countries (as required in the positive efficiency scenario), the overall outcome would be a deterioration in global income distribution in terms of a worsened situation for low-skilled labour to the benefit of capital, skilled labour and higher-income consumers.

In the light of my association of the traditional (import-substitution) contexts for MS with pervasive inefficiency, one may here be dealing with the distribution of losses as much as gains, though these would normally be interpreted as the costs of protectionism rather than wilfully perverse TNC decision making. From a TNC point of view, it might still logically impute profitability gains to a particular MS investment, where these represent the difference between profits now earned through local production and those that could have been earned through continued external supply under the implemented levels of protection. It might also feel a clear awareness of losses, however, by comparing the counterfactual (often "once factual") profitability of supply under free (or freer) trade with the lower profitability of the current MS production.

An MS involvement can also be interpreted as providing forms of second best benefits to a protected economy. In the case of rising generalized protectionism in developed economies (a counter-globalization scenario), TNCs' MS investments may provide offsets to declining employment levels (due to declines in export sectors), though the protected jobs created are likely to be inefficient and insecure. In import-substitution industrialization strategies, MS investments create jobs that would not otherwise have emerged but, as noted in the previous section, these would be closely associated with an inequitable internal income distribution and usually be too small in number to be part of a sustainable and balanced development process. Where an MS operation is implemented successfully, this implies

welfare gains for local consumers compared to the alternative of importing under protection. They may also be aware, however, of welfare declines compared to importing under a freer trade regime. Profitability in a MS affiliate should generate tax revenue for the local government, though this will be offset by some loss in the tariff revenue from any imports that would have continued without the local production. Where a government is actively pursuing MS investments, tax rates may be subject to bargaining, probably in conjunction with levels of effective protection (covering tariff levels for both the final good and any imported intermediates).

Though less clearly established as a matter of public concern, our perception of globalized knowledge seeking (KS) behaviour in TNCs can certainly also provoke distribution issues (Pearce, 2002; Pavitt and Patel, 1999; Narula, 2003). Thus, where a KS operation in a particular location achieves success (in terms of securing original scientific results from a precompetitive basic/applied research project or the competitive finalisation of a significant new product innovation), this is likely to reflect its position in *two* technological and creative communities: that of the host country (its national system of innovation – NSI) and that of a TNC group. The selection of a particular location for a pure-science research operation will reflect its established reputation and capacity in an area of investigation of strong interest to a TNC (i.e. one with a *potential* to provide new technology capable of driving innovation in the firm's industry). Similarly a product mandate affiliate with innovation responsibilities will emerge where a TNC accepts such an operation's capacity to leverage distinctive local creative capacities (scientists, technologies, market research insights, perceptive engineers, dynamic entrepreneurial management) to complete and operationalize the development of new goods. However, a presumed ability to use these attributes of an NSI more effectively than could local industry (an aspect of *efficiency* in innovation) will depend on the application of complementary inputs from a TNC. In the case of basic/applied research a TNC is likely to provide additional funding and, perhaps more significantly, new scientific questions and complementary

scientific knowledge that enrich the perspectives and potentials of this element of the host-country NSI. The localized product mandate innovation may also be supported by supplementary inputs of technology, engineering expertise and market-research insights from elsewhere in a TNC group.

On the one hand, this suggests that TNCs' globalized approaches to knowledge-based competitive progress can enrich a host-country's NSI, both in terms of its scientific capacity and its ability to operationalize successfully creative potentials. But particular KS successes are normally seen in terms of their networked positions by TNCs, and sequential benefits may therefore accrue elsewhere in the group's operation (rather than moving "horizontally" within the originating NSI). Thus, exciting new scientific results from a particular basic R&D lab are most likely to move forward towards commercial potentials when possible synergies with other results and technologies in other locations can be realized. Therefore, such results may flow out of the country in a raw-science state, and have no further local effects. So such successes may well secure further research projects for the TNC laboratory, but will not have benefited the immediate competitiveness of the host country. Similarly sustained appropriation of the rewards of successful new product development in a mandate affiliate is not guaranteed. Though the innovating affiliate is likely to initiate production of its new product (and thereby secure early high-value export trade), the international success of the good may soon lead to the sharing of supply responsibilities with other parts of the group network (for ES or MS reasons), again limiting the benefits a host country receives from its contribution to the competitive enhancement of the TNC.

Sovereignty

Here, I briefly review selected aspects of the more politically-oriented concerns with the ways that economic globalization might undermine the sovereign powers of governments. This could involve both constraints on the ability to secure the intended results from implemented policy (e.g.

monetary and fiscal) and restraints on governments in terms of even the meaningful formulation of policies to pursue desired aims in certain areas (welfare and social policies). In general terms, the theme of such sovereignty concerns is that the vast opening up of global markets for, especially, capital, technology, skilled labour, intermediate goods and final products and services, places many governments in a situation of international policy competition. TNCs can then be seen as distinctive contributors to such sovereignty concerns, partly because they are major players in many of these markets and partly because they often, in practice, avoid such arms-length transactions with internalized transfers between different parts of their global networks. Though generalized concerns about such aspects of TNC behaviour are longstanding, they become much more strident and precise with the growth of ES networks. This reflects both the inherent higher levels of intra-group transfers within such integrated supply programmes and the ability to leverage the internally-competitive flexibility of their networks in negotiating with host-country governments (with, therefore, concomitant distribution implications).

The classic illustration of TNCs' scope to use intra-group transactions to undermine the effectiveness of a particular host-country policy is, of course, the transfer pricing of intermediates. Here, the prices charged for transactions between parts of a TNC group[13] can be set at levels to influence the extent of reported profits in a particular location, so as to minimize the payment of corporation tax in high-tax locations and, thereby, maximize global post-tax profitability. A country that persists with high tax rates may then get limited revenue from any international firms (domestic as well as foreign) within its economy. Alternatively, a country with high levels of TNC participation may have to abandon any intention of implementing tax rates that are out of line with those acceptable to those firms as being in line with global norms. Fiscal policy thus becomes

[13] This can include physical goods in the form of components, intermediates in vertically-integrated production processes and final products, and also cover intangibles in terms of royalty rates for technology, fees for management services and so on.

constrained by the international positioning of a country's industry.

Governments may also find that attempts to attract inward investment in order to generate improved employment opportunities for their labour supply may then constrain their ability to influence the quality of jobs and to implement other aspects of welfare policies. Here again, TNCs are able to play on the footloose potentials of a range of potential locations for their more standardized production processes, where the discriminating factor derives from costs rather than any distinctive qualities in inputs. Then, minimum wage legislation, setting of particular standards for workers welfare, permission of active unionization, and general attempts to determine employment conditions above levels that appear to be available elsewhere, can be presented by TNCs as seriously compromising the "natural" value of host-country labour. As an extreme, it is sometime suggested, TNCs may even project suspicion of the competitive implications of social democratic publically-financed welfare and social programmes as indicative of a climate unsympathetic to business interests. In the same way, any attempts to increase levels of business regulation in general may lead to threats of relocation by TNCs.[14]

Growth and development

If the generic issue of *efficiency* was concerned with the purely economic matter of how effectively a fixed stock of productive capacities (OAs of TNCs and LAs of host countries) was utilized at a point in time, I can now complete the evaluation framework with the complementary issue of how the expansion of such capacities can support *growth and development*. This

[14] There may be an important paradox here. Thus it may be felt that the benefits of globalization cannot be fully and fairly achieved without adequate adjustment mechanisms (and welfare-support systems) operated internally by *national* governments. But the bargaining postures of TNCs (as potentially positive agents in globalization) may oppose or constrain the ability of governments to fund, or perhaps even to advocate, the forms of interventionism involved.

then broadly relates to the capacity of TNCs' globalized pursuit of knowledge seeking (essentially the aim of regenerating their OAs) to play a role in the creation of dynamic sources of comparative advantage in host locations. Central to the investigation of such possibilities is the acknowledgement that, from the point of view of TNCs, growth and development means changes in LAs. Thus development can be seen to manifest (but also, of course, to pursue) changes in host-country market size and characteristics, changes in input prices and productive capacities, changes in infrastructure and policy stances, and the increasing emergence and importance of a distinctive science base and research capacity.

Our analysis of TNCs' strategic motivations can indicate four possible responses to changing location characteristics of economies in the processes of development (Pearce, 2001). Firstly, footloose *closure* of existing ES affiliates as increasing wage rates and other input prices undercut their cost-effective position in the TNC supply network. Secondly, the *upgrading* of an affiliate's position in a supply network, by co-opting the higher productive potentials of, in particular, increasingly skilled (albeit also higher-cost) labour into production of more technologically-sophisticated higher-value-added elements of a TNC's existing product range. Here a TNC transfers the use of more technically-advanced and quality-competitive OAs into a particular affiliate/country, replacing the more standardized ones originally used there (which are then, indeed, reapplied – in the footloose manner – in other countries, which, in effect, can replicate the original LAs).

Thirdly, TNCs may use their operations in a particular country to address the more forward-looking strategic aim of extending their competitive scope by drawing local creative resources (also, obviously, part of a country's key developmental potentials) into the innovation of new products. Here, product mandate operations now seek to generate and activate new OAs for their group in a KS manner, rather than apply existing OAs in pursuit of MS or ES aims. Fourthly, as countries generate increasingly strong and distinctive science bases and research

capabilities, as part of their pursuit of sustainable longer-term growth, these too may become attributes (more intangible forms of LA) attractive to the KS strategies of TNCs. Thus, the fully-developed pursuit of strategic competitiveness (Pearce, 1999b) in TNCs would recognize the need to investigate quite systematically those sources of precompetitive scientific progress (basic research) that have the potential to fuel the more radical long-term evolution of their industry's core technologies, and also perceive that increasingly these sources can be dispersed in a number of separate environments (specific creative clusters as well as more traditional NSIs). The relation of these last two strategic responses in TNCs to growth and development will be elaborated below. First, however, I review how they might emerge from the traditional (MS/ES) strategic positions in TNC affiliates.[15]

It is in the nature of effective MS affiliates to build up knowledge of aspects of their local economies, in the process of adapting existing products and processes so as to maximize the profitability they can generate from their TNCs' established sources of competitiveness. Sustained embeddedness in a country where development eventually begins to individualize significantly local tastes, skills, technologies and scientific capabilities would be quite likely to lead ambitious MS affiliates to seek to internalize the elements of locally distinctive creative scopes towards the aim of accession to product mandate innovation. It is likely that, in practice, little of this mode of localized product development occurred during the earlier phases of MS operations. Thus the need to refocus import-substitution MS affiliates may have mainly occurred before very many host countries were strongly demonstrating such creative/knowledge

[15] This is not to presume that such KS activities can only emerge out of antecedent MS or ES operations. Production affiliates could be set up as product mandates *ab initio* and, perhaps as often as not, basic/applied precompetitive research laboratories may emerge independently of any (past or present) supply facilities. Nevertheless, it is generally plausible that the familiarity with, and interpretation of, a location's KS potentials may be conditioned by the presence and form (MS or ES) of well-established operations there.

potentials, and also before restructured TNC supply networks became systematically amenable to the incorporation of KS/ product mandate operations.

More realistic possibilities may be implied, however, within the more contemporary, innately exploratory, MS operations through which TNCs seem to build their bridgeheads in emerging European economies in transition (Manea and Pearce, 2004a). Here, these affiliates have a tendency, quite early in their operations, to seek to individualize their competitiveness in CEE markets by generating distinctive additions to their TNC group's established product range, through the substantial competitive development of existing local goods and the adoption of local technologies. The more original and competitive of these new goods may then be found to have considerable potential for export to the parent TNC's more important existing markets (notably Western Europe). It may, in fact, be the case that, whereas attempts to build-up new cost-efficient export-supply (ES) facilities in CEE economies may have been constrained *inter alia* by the political skills and influence of those existing Western European units that they might usurp, the export of newly-derived goods would be easier because they do *not* seem so clearly competitive with existing interests in the established network. Ultimately CEE operations of TNCs may enter wider group supply-networks on the basis of KS creativity rather than ES cost-efficiency. This would then also be likely to provide a more valuable and more sustainable contribution to the development and growth of these transition economies.

As already observed, the purely resource-allocative interpretation of ES operations precludes any form of endogenous dynamism. A very specific set of host-country LAs are activated in a highly competitive manner by a very specific package of TNC OAs. This projects an entirely group-positioned role, with no scope for affiliate-level individualism or ambition and, therefore, no allowance for forward-looking creation-oriented expenditures (R&D; market research). In fact, the heterarchical (Hedlund, 1986, 1993) TNC views its network as

inherently flexible and as seeking dynamic sources of competitive evolution as much as static efficiency. Thus, rising input prices may not be automatically interpreted as a reason for closure, in a one-dimensional decision process, but rather as a signal for a re-evaluation of the particular location and the competitive positioning of the affiliate in it (Pearce, 2001; Birkinshaw and Hood, 1998; Birkinshaw, Hood and Jonsson, 1998). This would, in turn, allow increasingly ambitious and confident local managers to assert the developmental possibilities that they can derive from their economy's widening qualitative potentials. As noted above, this would initially involve the employment of increasingly distinctive and productive local inputs in the supply of more sophisticated and technologically-advanced parts of a group's product range. In some cases, this systematic process of affiliate evolution, involving an increasingly committed interpretation and cooption of the expanding host-country capacities, can eventually reach the point of using local *creative* capacities to *develop* new parts of a TNC's product range. This process of creative transition (Papanastassiou and Pearce, 1994, 1999) embeds the affiliate more profoundly in a country's development, by basing its supply operations around, in effect, unique locally-generated OAs, rather than persisting dependence on those from elsewhere in the group.

Product mandate (PM) affiliates can be considered to make a positive contribution to development when they secure better performance from those local creative attributes that they access than indigenous enterprises would otherwise have been capable of doing. Thus, a PM affiliate emerges within a TNC group in reflection of its ability to internalize distinctive host-country competences in human capital (talented scientists, creative engineers, innovative marketing personnel, entrepreneurial and ambitious managers) alongside favoured access to existing stocks of indigenous technology (either already embodied in established products or awaiting commercial development) and unique elements of research capacity in the science base (e.g. areas of world class specialization in local universities). Policy support by governments for the generation of such attributes

within a development programme will target specific aspects of broadly perceived growth. These may summarize as sustainable full employment across an appropriate range of skills, so as to support an internationally-competitive economy that is increasingly driven by logically-evolving sources of dynamic or created comparative advantage. A TNC's strategic expectations from a PM affiliate (normally the creation and supply of competitive new goods to international markets) are clearly consistent with a host-country's normal developmental expectations. The precise forms of host-country benefits that emerge, and the ability of PM operations to generate them, can then be seen to remain strongly influenced by the affiliate's intra-group positioning.

One aspect of this is that the developmental aims of a PM (or, importantly, of an advanced ES affiliate that is seeking the move to a systematic creative KS role) will be formulated in the light of its familiarity with the established core competitive capabilities and aims of the group (existing OAs). This may give it a superior capacity, compared to local enterprise, to detect and evaluate emerging innovation-supporting potentials (knowledge-related LAs). Nevertheless, PM affiliates will often need to secure their access to these creative inputs in competition with local firms. Their ability to do this may reflect their ability to offer higher rewards, along with a more stimulating creative environment. Once again, this will reflect a PM's ability to leverage its access to group-level OAs. Here, the core established technologies and skills of the group are still likely to be relevant, often providing an affiliate with a secure and familiar platform from which to assimilate the distinctive local inputs and build the idiosyncratic contributions of its own innovation process. Similarly, even where a PM affiliate takes responsibility for key aspects of how its own products are marketed internationally, it is likely to receive considerable benefits (compared with an alternative indigenous product innovator) from access to a TNC's global distribution network and established trademarks and reputation.

PMs can be seen as an embedded element of development since they extend a country's competitiveness through the operationalization of new skill and knowledge scopes generated by investments in education and training and scientific research and technology programmes. The most direct manifestation of this may be higher levels of higher-wage employment, improved foreign-exchange earnings and higher growth rates, which can then generate (at the macro level) capacity for further public investment in resource improvement. Within the purview of evolutionary economics, a successful PM generates its own sources of developmental momentum. Thus, those sources of local creative competence (personnel employed, research collaborations, etc.) that are co-opted because of their current expertise will exercise this in conjunction with TNC technology and insights and, in the processes of contributing to immediate (product development) success, also increase their own tacit knowledge. This may not only be a source of evolutionary impulsion within the PM (bases for further innovations) but also a new and distinctive (because partly conditioned by TNC inputs) element in the country's creative scopes. It can also be observed that the more successful a PM is in its *developmental* objective, the less need there is to be concerned with the potential *distributional* problem (noted in the relevant section) that the TNC might quite quickly relocate production of a new good to an alternative lower cost site. Thus, where the internal creative competences of a PM can sustain a strong developmental impetus, reflecting growing capacities of the host NSI, the freedom to focus on the higher-value-added innovation stages of the product life cycle and shed the more routine supply of maturing goods would be welcomed.

The other form of KS to be evaluated briefly here is the increased propensity of TNCs to carry out (through "stand alone" labs or collaborations with local universities) precompetitive (basic and/or applied) research in internationalized networks. The emergence of this reflects, firstly, an acknowledgement, by both firms and countries, that new scientific knowledge is likely to fuel the longer-term processes of development in the form of

the capacity to create radically new goods and services. Secondly, the decentralization of such research reflects TNCs' realization that different parts of a programme of investigation covering a range of different scientific disciplines can be beneficially spread across a number of different country's science bases. This reflects a globalized technological heterogeneity, in which particular countries have established positions of research leadership in particular areas of investigation.

The decision by a TNC to locate a particular facet of its precompetitive research agenda in a particular country is likely to strengthen further the relevant areas of that country's scientific capacities. One aspect of this is that the TNC's commitment of additional funding may permit, otherwise unavailable, expansion of work in these areas of specialization. Perhaps most significantly, the TNC participation may enrich this expansion by providing it with new challenges and perspectives. Thus, the TNC will locate a project in a country where the science base is highly qualified to carry it out, but with the aims of the research defined within the firm's much wider technology interests. Local scientists will exercise their defining capabilities (reflecting the technological heritage of their NSI) to address a rather different research agenda than would have been otherwise generated and probably in conjunction with new technology perspectives (those of the TNC). This may usefully offset an increasing agglomerative narrowing of the scientific specialization of the NSI, by adding new research dimensions that use its existing areas of leadership but widen them in logical and coherent directions (that would not have been provoked by local needs).

If TNC involvement may strengthen the facet of a country's NSI that pursues pure-scientific investigation through basic and applied research, it would not seem to have any potential to improve the inherently rather inchoate and ill-defined mechanisms through which new scientific results are perceived to provide real possibilities in commercial development. Two interlinked factors may in fact diminish the potential for the

achievements of TNC's basic research in a country to flow towards localized innovation. Firstly, in a way that might be more elusive for R&D units in a purely national firm, TNCs' basic research laboratories are often able to secure physical and organizational independence from their company's other operations in the country. Whilst this allows them to avoid undesirable distractions, in the form of "firefighting" short-term technical problems in production and marketing, it also limits the possibilities of providing direct technological inputs into the generation of developmental aims in the TNC's local operations. Secondly, complementing the previous point, the more or less predetermined destination for the results of successful pure research in these stand-alone units is out of the country, for some form of synthesis or co-development with the work of other similar TNC-group labs. Thus, the corollary of the strengthening of basic research, through access to new resources, challenges and technologies, is that this networked positioning implies the leakage of significant results into wider group-determined usage.[16]

TNC strategy, trade policy and new growth theory

One area of debate, developed within mainstream economics, that has strong synergies with lines of argument generated here, is that relating host country trade-policy regimes to differential implications of FDI for growth performance. The pioneering exposition of Jagdish Bhagwati (1978; 1985; cited in Balasubramanyam et al., 1996) combines two assertions: export promotion (EP) trade strategies will attract more FDI than import substitution (IS) strategies; and FDI made under

[16] This leakage does not systematically counter the argument that these TNC labs can generally strengthen precompetitive research in the NSI. Thus important new scientific results take on public good characteristics within the TNC and, even when being applied and developed elsewhere in the group, also remain part of the enhanced competences of the lab that created them. This may then become a key part of the capacities of the lab that can attract further important research projects within the group network. Similarly, host-country scientists who participate in successful projects gain significant tacit knowledge in the process, which can have strong potentials to spillover into benefits to the wider local science base.

EP regimes has more favourable effects on growth than that made under IS policies.

The Bhagwati indictment of an IS environment for FDI encompasses many of the distortions and inefficiencies that have been here associated with the MS mode of TNC strategy, deriving primarily from tariffs and quotas on trade as the principal policy instruments. Summarized by Balasubramanyam et al. (1996, pp. 93-94), this includes "widespread distortions in factor and product markets" and "adoption of techniques of production widely at variance with the factor endowment of the economy". Also, along with such promotion "of misallocation of resources [IS] also encourages X-inefficiency". Furthermore IS "contributes to growth of income disparities" and "provides widespread incentives for rent seeking and directly unproductive profit seeking activities". By contrast, Bhagwati's characterization of EP as emerging from a trade neutral or bias free policy framework, "allows for a free play of market forces and the allocation of resources on the basis of comparative advantage" (Balasubramanyam et al., 1996, p. 94) that could be compatible with TNCs' ES strategies.

In an empirical investigation, Balasubramanyam and Salisu (1991) validated Bhagwati's expectation that EP countries would attract greater *quantities* of FDI than IS countries. Subsequently, Balasubramanyam, Salisu and Sapsford (1996) addressed Bhagwati's *qualitative* assertions. Here, the effect of FDI on growth in a sample of EP countries was significantly stronger than for a sample of IS countries, with, in fact, FDI not being significantly related to growth for the latter group of countries. Furthermore, in the tests for the EP-country sample, FDI proved the strongest determinant of growth, "followed by additions to the labour force, followed by increased exports", with increase in the stock of domestic capital least influential (Balasubramanyam, et al. 1996, p. 102). The authors interpret these results in terms of the tenets of new growth theory. This argument (Balasubramanyam et al., 1996, pp. 94-96) embodies two strands. Firstly, that FDI in principal has the capacity to add to a country's endowment of those characteristics (human

capital accumulation and learning by doing; R&D and technology generation; scale economies; knowledge spillovers) whose endogenization in growth allows the social rate of return on investments to exceed the private rate. Secondly, that this potential is more likely to be realized when FDI is part of a country's EP industrialization strategy than an IS regime.[17]

Our interpretation of TNCs' strategic options is fully compatible with the explanation offered above, and can offer a supportive refinement to the second strand of Balasubramanyam et al.'s exposition. As suggested earlier, the sources of profitability for MS affiliates in a host-country's IS policy environment involve no guarantee (indeed limited likelihood) of the transfer of appropriate technologies or human capital capabilities, in the sense of being those that can become endogenized in host-country growth that is realizing the true potentials of local comparative advantage.[18] By contrast, both ES and KS (PM innovation and R&D) strategies fit into EP policy frames, and do so in potentially sequentially-embedded (or endogenously-evolutionary) ways. Thus, ES *transfers* appropriate technologies that secure economies of scale and productive efficiency and inculcate (through training) the most relevant improvements in local human capital to support activation of growth around current sources of *static* comparative advantage. Then KS and product development activities of TNCs can supersede ES technology transfer by (within a properly formulated host-country development programme) *generating* new technology and sources of *dynamic* comparative advantage that embed these affiliates' operations within the core attributes of the growth process.

[17] The ways in which the broad trade policy context, and particular details of its implementation, affect the extent and form of FDI in India and China, are evaluated by Balasubramaniam and Mahambre (2003, pp. 55-60).

[18] As Balasubramaniam, Salisu and Sapsford (1996, pp. 96) observe "mere infusion of human capital and technology into a distortion ridden economy may neither lift the economy to a higher plane nor alter the slope of the production function. It may, instead, merely serve to redistribute income in favour of the new agents of production."

Conclusions

This article seeks to investigate the use by TNCs of two separable aspects of the globalizing economy of recent years. Firstly, the *institutions* of globalization have increased the freedoms of international transfer and motivated the opening of national economies. Secondly, the *processes* of globalization have often enhanced the rate of change of the characteristics of national economies in ways that increasingly respond to external challenges and potentials. The differential strategic imperatives of heterarchical TNCs are seen as inherently interactive with the dynamic diversity inculcated within economic globalization. The analysis has indicated two positive *potentials* that can derive from the globalized context for the TNC/national economy interface. Firstly, the efficiency seeking motivation can support countries' moves towards outward-oriented industrialization based on activating sources of static comparative advantage. This can not only provide an initiating impulse to national economic growth but improve global resource-allocative efficiency. Secondly, TNCs' expanding knowledge-seeking motivation can both enhance the competitive application of a country's creative attributes (notably in localized product development) and also become embedded in the further enrichment of these technology- and skill-related sources of sustainable growth.

Since the suggested positive efficiency and development potentials are predicated on TNCs' beneficial leveraging of various differences between national economies (or sub-regions thereof), it is logical to emphasize also the continued responsibilities of national governments' policies within the globalization scenarios. One aspect of this is to ensure that the national economy is perceived as one whose existing sources of competitiveness are freely available for international strategic operationalization. Part of this would be a neutral trade policy stance in the sense of one that does not discriminate against export-oriented activity *per se*, and then allows this to emerge around the country's genuine sources of comparative advantage (i.e. eschewing any form of distorting export subsidization).

Complementing this, internal factor and other markets should also be permitted to allow resources to move into those industries that manifest international competitive efficiency. Then, from the development point of view, government policies need to accept the (desirable) transitory nature of a particular source of competitiveness (e.g. low-cost labour) and invest in the upgrading of human- and knowledge-capital through education, training and scientific research.

But these positive potentials are also predicated on TNCs' move to global strategies (predominantly encompassing ES and/or KS motivations rather than MS) that position individual affiliates within internationalized programmes and networks. Thus, for TNCs, success is defined in terms of realizing a desired objective in terms of contribution to the group's overall competitiveness, which may reflect very different priorities from those of a host country. Though TNC operations may often provide positive sum outcomes, how this is then distributed may be a cause of considerable concern. Central to this is the perception that unique firm-level competences and globalized competitive postures provide TNCs with considerable bargaining strength.[19] This perception has often been manifest in the adoption of some variant of inward investment policy. Where countries feel themselves to be in a very competitive market for the types of FDI they believe will benefit them, they may seek to boost their attractiveness through the defensive offering of investment incentive packages. Or where countries believe they are capable of providing more distinctive attributes to TNCs, they may adopt a more proactive stance, targeting particular benefits through the imposition of various performance requirements. Both of these have clear distribution implications, with incentives surrendering (perhaps unnecessarily) possible benefits *ex ante* to secure investments and performance requirements (UNCTAD, 2003) aiming to ensure *ex post* that TNC operations behave in ways that provide explicit forms of

[19] Once countries apply any form of measure to directly attract, or influence the behaviour of, TNC operations it can be considered that some form of bargaining power has imposed itself.

benefits targeted by the host country. Importantly, however, these measures may also affect the efficiency and development outcomes by potentially distorting investment decisions and the content of affiliate operations.

The bargaining stances affecting distribution may also be seen to have implications for national sovereignty, in the sense that policy positions are articulated specifically in relation to the needs and influence of external economic agents. The origins of this in the global options (and, therefore, flexibility) of TNCs can then be generalized into the concern that wider, essentially non-discriminatory, areas of national policy become constrained by a perceived need to attract TNCs and to secure particular types of performance from them. ■

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Export platform FDI and dualistic development*

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There is increasing growth in export platform foreign direct investment globally, reflecting both the international fragmentation of production associated with globalization and the adoption of policies to promote this type of investment as part of the "export-led growth" strategies of developing economies. This article explores the relationship between transnational corporations and local enterprises over the long term, using data on Singapore and Ireland – two of the world's most active and persistent promoters of foreign direct investment. Our analysis finds evidence of a more dualistic relationship between transnational corporations and local enterprises in Ireland, as evidenced by the combination of relatively higher transnational corporations and lower local enterprises export ratios, and a greater and persistent disparity between transnational corporations and local enterprises labour productivities. In Singapore, these differences are smaller and declining. We suggest that the contrast between the two countries reflects the greater success of Singapore in building globally competitive local enterprises and in creating linkages between transnational corporations and local enterprises.

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Introduction

There is increasing growth in "export platform" foreign direct investment (FDI), i.e. where foreign affiliates of transnational corporations (TNCs) export most of their output so that the local market in the host country is of no significance to the TNC's location decision. This type of export-platform FDI (EPFDI) may have a home-country orientation (output exported back to the home country), a third-country orientation (output exported to destinations other than the home country) or a global orientation (output exported to home and third countries).[1]

The increasing importance of EPFDI reflects two distinct phenomena – the international fragmentation of production associated with globalization/new technologies and the promotion of this type of investment by certain economies as part of their economic development strategies. The former phenomenon is particularly prevalent in the case of products that have high value-added relative to weight.[2] Many of these products are in high-tech industries such as the electronics and pharmaceuticals industry. In such cases, transportation costs are low relative to output values and technology is such that production can be fragmented and hence benefit from differences in factor costs across economies. (Arndt and Kierzkowski, 2001). The latter phenomenon of promoting EPFDI is most often found in countries that see their economic growth as being "export-led". Typically, these are economies that seek access to international technology, have small domestic markets and have a resource mix that makes them highly dependent on imports to provide balanced consumption possibilities. In effect, their small domestic markets provide little attraction for a potentially

[1] Here we follow the nomenclature in Ekholm, Forslid and Markusen (2003).

[2] Quah's (1999) so-called "weightless products".

locating TNC. Furthermore, the lack of scale in these small domestic markets makes it difficult for local enterprises to develop the scale necessary to become successful exporters.

Governments in some of these countries have, for several decades now, promoted their economies as international production/distribution bases for TNCs, without any emphasis on their local markets as an attraction. In such instances, little or no attempt is made to force such foreign companies to become involved in local joint ventures or even local content agreements, although in many cases linkages are facilitated with local enterprises, and joint ventures are encouraged.

In cases in which countries systematically promote export platform FDI over a long period of time, a question that naturally arises is whether this policy generates a Lewis-type dualism in the economy, with little relationship/interdependence between TNCs and local enterprises and each developing according to its own pattern. Such dualism is most likely to occur when there are neither backward/forward linkages between TNCs and local enterprises, nor spillovers occurring through product/factor market connections. One would expect such dualism to be reflected in differences in the types of industries in which TNCs and local enterprises are active. For example, TNCs might operate in modern/high-tech industries while local enterprises are active in the traditional ones.[3] Where TNC and local enterprise activities co-exist in the same industry, dualism would be reflected in the global perspectives of the enterprises (such as their export intensity patterns), in their productivities and in their factor payments. For example, exceptionally high export ratios by TNCs would suggest little interdependence with other entities within an economy, even among clusters of TNCs.[4] The interpretation of correspondingly low export ratios by local enterprises is complex. They may be low because they have: (a)

[3] This would accord strongly with the concept of dualism developed by Arthur Lewis (Lewis, 1954).

[4] In many countries, EPFDI is associated with clusters of TNCs in the same industry.

strong sub-supply relationships with TNCs (i.e. TNC backward linkages); (b) highly profitable local domestic markets; or (c) no capacity to compete on international markets. To focus on dualism, we ask whether, in industries in which TNC export ratios are high, one finds that local enterprises export ratios are also high. In industries in which TNCs have high labour productivity, the question is whether local enterprises also have high labour productivity. Do TNCs and local enterprises pay similar wages when they operate in the same industry? And do such differences persist or diminish over time?

In this article, we address the issue of dualism by looking at sectoral data for two countries (Ireland and Singapore) that have very proactively built up their economies as export platforms for manufacturing production over the past 35 years.[5] These countries were first movers in the development of export platforms and, as such, they provide an interesting study of what happens when TNCs and local enterprises exist side by side over time. The extent of TNC activity is evident in the fact that 50% of manufacturing employment in both countries is accounted for by TNCs.[6] In the case of both countries, the possibility of dualism as between TNC and local enterprise activities has been recognized for some time. Among others, J. Stewart (1975) noted this duality in the Irish manufacturing sector in the early 1950s, together with the lack of linkages between local enterprises and TNCs. More recently, L. Low (1993, p. 342) noted that one of the potential difficulties with Singapore's strategy is that it may not be wise "to have a dualistic structure where what remains in Singapore are more likely the high technology, high-value added multinational corporations (MNCs) while indigenous enterprises

[5] The co-existence of TNC and local enterprise activities over the long term raises other issues, such as whether the presence of TNCs supports the development of local enterprises or leads to crowding out of local enterprises by TNCs. The consideration of such issues lies beyond the scope of the present article.

[6] It is difficult to establish how exceptional Singapore and Ireland are as data on the employment share of TNCs are only gradually emerging as more countries are beginning to look systematically at the ownership composition of their industrial and service sectors.

find themselves more compatible with other production bases and markets in ASEAN, China, Indochina and South Asia".

In section 1 of the article we discuss briefly the theoretical and empirical literature on the relationship between trade, FDI and economic growth. Section 2 reviews the strategies that Ireland and Singapore have adopted to promote EPFDI. In section 3, we outline the differences and similarities in the performance of the two economies over the past 40 years, by examining trends in growth, trade, employment and FDI. In section 4, we analyse the manufacturing sectors in both countries since the early 1980s to establish whether either or both economies exhibit the type of duality that might be expected from export-focused FDI. Specifically, we look at whether local enterprise and TNC export-intensity ratios are correlated by sector, and at differences in levels and trends of labour productivities and average wages in local enterprises and TNCs. Finally, in section 5, we make some concluding comments.

Trade, FDI and economic growth

It is widely accepted among economists that economic growth is a complex process, which depends on many variables and the interactions between them. The "new" growth theory (endogenous growth theory) has postulated several important dynamic factors, such as human capital accumulation and technological advance through R&D activities, which can influence growth. It has also been suggested that technology diffusion plays an important role in economic development and, in this context, trade and FDI have been shown to be among the most important channels for developing countries in accessing advanced technologies.[7]

The general importance of trade in determining rates of economic growth features strongly in the endogenous growth theory literature emanating from P. Romer (1986). G. Grossman and E. Helpman (1991) identify international trade in

[7] See Barro (1999) for a review.

intermediate goods and capital equipment as one of the major sources of technology diffusion, and hence economic growth. In a recent survey on international technology diffusion, W. Keller (2003) argues that the use of foreign intermediate goods in final output production can give enterprises access to new technology in embodied form; he also makes a case that trade in specialized inputs might enhance growth by facilitating learning about the products and imitation of the technologies developed in other countries.

It is also argued that economic growth can be enhanced through export-oriented policies, as well as, unsurprisingly, by a strategy of promoting growth through the expansion of exports has long been advocated in the policy literature. P. Krugman (1987) and O. Havyrlyshyn (1990) outline the main benefits arising from export-promoting policies as: increased real output through an increase in demand for a country's output via exports; promotion of specialization in the production of export goods which can increase the productivity level and general skill levels; and loosening of foreign exchange constraints, which in turn can make it easier to import inputs and allow output expansion. According to its advocates, exports can perform as an "engine of growth" in an economy (Krueger, 1997). The experience of the so-called Asian Tigers (Hong Kong (China), Taiwan Province of China, Singapore, the Republic of Korea) is well documented in the literature as an example of export-led growth (e.g. World Bank, 1993).[8]

FDI by TNCs is considered to be a major channel through which developing countries can gain access to advanced technologies, since TNCs account for a substantial part of the world's R&D investment. R. Findlay (1978) postulates that FDI increases the rate of technical progress in the host country through diffusion of more advanced technology, management practices, etc. used by foreign affiliates. J. Y. Wang (1990) incorporates this idea into a model more in line with the neoclassical growth framework, and shows that FDI can increase

[8] Also see Giles and Williams (2000a, b) for a review of the empirical literature.

the knowledge applied to production in host countries. Adopting the endogenous growth theory framework, Romer (1993) argues that there are important "idea gaps" between rich and poor countries and that FDI can ease the transfer of technological and business know-how to poorer countries. These transfers may have substantial spillover effects for the entire economy, so that FDI may boost the productivity of all enterprises, and not just those receiving foreign capital. During the past decade, a number of macroeconomic studies using aggregate FDI flows for a broad cross-section of countries on the role of FDI in stimulating economic growth has appeared. In a survey, L. R. de Mello (1997) identifies two main channels through which FDI may enhance growth. Firstly, FDI can encourage the adoption of new technology in the production process through capital spillovers; secondly, FDI may stimulate knowledge transfers, both in terms of labour training and skill acquisition and by introducing alternative management practices and better organizational arrangements. However, for such knowledge transfers to occur, there must be some interdependency between TNCs and local enterprises.

E. Borensztein *et al*. (1998) test for the effect of FDI on economic growth using data on 69 developing countries and find that FDI is an important vehicle for the transfer of technology, contributing to growth in a larger measure than domestic investment. However, they argue that the growth impact of FDI may depend on other characteristics of the developing country in which FDI takes place. For example, they find that FDI raises growth only in countries in which the labour force has achieved a certain minimum level of education. By contrast, M. Blomstrom, R. Lipsey and M. Zejan (1994) find no evidence that education is critical, but they argue that FDI has a positive growth-effect when the country has a relatively high per capita income. In turn, L. Alfaro et al. (2004) find that FDI promotes economic growth in economies with sufficiently developed financial markets, while V. N. Balasubramanyam, M. Salisu and David Sapsford (1996) stress that trade openness is crucial for obtaining the growth-effects of FDI. An OECD study (2002) concludes that developing countries must offer a supportive business environment and must have reached a minimum level

of economic development before they can capture the growth enhancing effects of FDI.

Another strand of literature examining the impact of FDI on growth is based on micro studies at sectoral and enterprise levels. In this literature, the main focus has been on the potential benefits to indigenous enterprises through spillovers with the entry and activities of TNCs in host countries. Magnus Blomström and Ari Kokko (1998) argue that the most important reason behind many countries' efforts to attract more FDI today is a desire to acquire modern technology. They and others suggest that the investments of TNCs generate important positive externalities or spillovers that enhance the productivity of indigenous enterprises in an economy. These spillovers arise because TNCs in general bring with them some sort of enterprise-specific assets such as technological know-how and management skills. (For a review, see John H. Dunning (1993) and Richard Caves (1996)).

There are different mechanisms through which FDI could generate positive production externalities and improve the productivity of domestic enterprises. Firstly, the entry of TNCs can lead to increased competition in host country markets and force domestic enterprises to improve their productivity. Secondly, the presence of foreign affiliates in a host economy may lead to diffusion of information on new technology and production process to the local enterprises. Thirdly, TNCs can enhance the development of local enterprises through creating backward and forward linkages: TNCs can help local enterprises to reduce costs by increasing the scale of production. Also, through forward linkages, with cheaper intermediate products, final goods producers can decrease their cost base and hence increase productivity. (For a detailed analysis see A. Rodriguez-Clare (1996) and J. R. Markusen and A. J. Venables (1997)). [9] Finally, spillovers from TNCs to local enterprises can occur through labour mobility. A. Fosuri et al. (2001) show that local

[9] Rodriguez-Clare (1996) also argues that TNCs could generate a negative backward-linkage effect if they behave as enclaves, by importing all their inputs and restricting their local activities to hiring labour.

workers who get training in foreign affiliates can later join local enterprises or set up their own companies, bringing with them technological, managerial or marketing knowledge that they previously acquired.

However, it is also suggested in the literature that foreign presence can reduce the productivity of domestic enterprises, i.e. generate "negative productivity spillovers", especially if foreign enterprises are producing for the local market. For example, Brian J. Aitken and Ann E. Harrison (1999) show that foreign entry, by disturbing the existing market equilibrium in the host country, could force domestic enterprises to reduce output and hence lower the productivity of these enterprises as their scale of production declines. If this negative productivity effect is large enough, net domestic productivity of local enterprises can decline despite the technology transfer from foreign affiliates.

The general approach in the literature to examining the productivity spillovers from foreign to local enterprises has been to relate the productivity of domestic enterprises to some measure of foreign presence, while controlling for industry and firm characteristics. This approach dates back to the articles by Richard Caves (1974), Steve Globerman (1979), and M. Blomström and H. Persson (1983), which focus on horizontal spillovers using cross-section industry level data. These early studies have found positive productivity spillovers from activities of TNCs in host countries.

One drawback of these early studies was their use of cross section data sets at the sectoral level, which made it impossible to control for firm characteristics in different industries. Hence this initial approach has been refined and extended to use firm level panel data. Early empirical studies using firm level panel data, such as Mona Haddad and Ann E. Harrison (1993), Aitken and Harrison (1999), have found negative or no spillover effects of FDI and attribute this to market stealing or crowding out effects of FDI. Blomström et al. (1998) further argue that positive FDI spillovers are less likely in countries/industries in which

the gap between the technologies of domestic and foreign enterprises is large, and the absorptive capacity of local enterprises is low. A further explanation for the lack of evidence for spillovers from TNCs to local enterprises in these studies was that they only explore horizontal/intra-industry spillovers. (See Holger Görg and David Greenaway (2004) for a recent review of empirical studies in this literature.)

More recently, it has been argued that if TNCs were to generate spillovers, they are more likely to be vertical rather than horizontal in nature since TNCs have the incentive to minimize technology leakages to competitors while improving the productivity of suppliers by transferring knowledge to them. Using firm level panel data for Lithuania from 1996 through 2000, B. S. Javorcik (2003) examines whether the productivity of domestic firms is correlated with the presence of TNCs in downstream industries and finds evidence of productivity externalities from FDI taking place in upstream industries where local suppliers are in contact with TNCs. Similarly, using a panel dataset of Indonesian manufacturing establishments, G. Blalock and P. Gertler (2003) also find evidence of positive vertical externalities.

Overall, one conclusion that emerges from the empirical literature is that it is difficult to find robust evidence of positive productivity spillovers from TNCs to local enterprises in the same industry. In fact, many studies for developing countries have actually found evidence of negative horizontal spillovers arising from TNC activity while confirming the existence of positive spillovers from TNCs to local enterprises in upstream industries. The contrast between the findings of earlier cross-section and panel data studies and the later ones shows the importance of interconnectivity and linkages between transnational and local enterprises for any spillovers effects to occur in host countries. In this regard, by its nature export-platform FDI may create dualism in host countries whereby TNCs operate in enclaves, thus limiting any benefits that can flow to local enterprises through their activities.

EPFDI strategies: Ireland and Singapore

In this section, we outline briefly how Ireland and Singapore have come to establish themselves as two of the world's major FDI export platforms. Though the time frames are different, the two countries have followed strikingly similar paths.

At independence

Both Singapore and Ireland are former British colonies. A shared consequence of this colonial past is that English is spoken and many of the characteristics of United Kingdom public service prevailed in both following independence. Ireland was among the first colonies to become independent in the 20th century, separating from the United Kingdom in the early 1920s when it obtained dominion status within the Commonwealth; it subsequently became a Republic in 1949. Prior to its independence, Ireland had completely free trade within the Commonwealth, and its major trading partner was the United Kingdom. Its exports to the United Kingdom were primarily agricultural produce and its imports were industrial goods and coal. Given its climate and land availability, Ireland operated like a region of the United Kingdom, supplying food to feed the much larger and more densely populated neighbouring island. At independence, the agricultural sector accounted for 54 % of all employment in Ireland, and over 80% of its exports.

Singapore was among the earliest of the countries that received independence in the late 1950s/early 1960s. Prior to independence, Singapore operated as a major port and military base for the British Empire in Asia. In the interests of developing it as a major centre, the British operated the colony as a free trade island, and built a centre that was attractive for entrepôt trade because of the absence of tariffs and quotas. In contrast to Ireland, Singapore did not have an agricultural sector of any significance at independence.

Protectionist trade policy

Free trade with the United Kingdom continued for almost a decade following Irish independence but came to a sudden and dramatic end when political disagreement between the two countries resulted in very high rates of tariffs being levied on goods traded between the two countries (McAleese, 1971). Tariffs were imposed in 1932 and remained at exceptionally high levels until the 1960s.[10] Part of the reason for this lengthy period of protection was a belief in the "infant industry argument" – the idea that, if Ireland was to build up an industrial sector, this sector needed protection at its fledgling stage (Haughton, 1995). An indigenous manufacturing sector did develop behind the tariff walls,[11] though it became stagnant and X-inefficient as the years of protection continued into the 1950s. Part of the problem, over and above the tariffs leading to rent-seeking behaviour on the part of indigenous industry, was that the local market was too small to realize the economies of scale that were possible with the new technologies of the post-war period. A further unique aspect of Irish policy was that, at the time protection was introduced, the Government enacted the *Control of Manufacturers Acts*, which ensured that it was not possible for new foreign affiliates to establish behind Ireland's protective tariffs. This had the effect of reducing competition behind the tariff barriers, so that Ireland's price and cost structures were very high. Thus the foreign-owned sector in the early 1960s comprised mainly United Kingdom enterprises that had been established before independence, and consequently this sector had few of the characteristics we normally associate with FDI. There was little enthusiasm in the Government to remove tariffs because of the potential loss of revenue, the risk to the balance of payments of a flood of imports and the possibility of increased unemployment as sectoral adjustment occurred.

[10] In the context of the world recession following the Wall Street crash in 1929, the decision to impose tariffs was not unique – but what became unique about Ireland in a European context was that these tariffs lasted so long.

[11] Industrial output rose by 40% between 1931 and 1936. See Haughton (1995).

Singapore also adopted protectionist policies at the time of independence in line with the prevailing policy orthodoxy for newly independent developing countries (Hughes, 1995). It provided protection to its "pioneer industries" and began to encourage FDI to flow into those industries, which again was a common strategy in most developing countries. However, in contrast with many developing countries and with Ireland, Singapore's protectionist period lasted little more than half a decade. Once the possibility of a Malaysian Federation disappeared, the Government realized quickly that an economy with a small local market would not be large enough to provide the scale necessary for an import substitution growth strategy. By the mid-1960s, Singapore had introduced export-promotion strategies, based on attracting FDI into industries that would employ low-cost labour and make full use of the port and network facilities established during the British colonial period. As the second most developed country in Asia (after Japan) in the 1960s, and without the huge agrarian populations of other developing countries to manage, Singapore was in a unique position to benefit from this strategy.

Outward trade and FDI policies

In contrast to Singapore's swift change of strategy, the change in Ireland from a protectionist, anti-FDI strategy to an export-led growth, pro-FDI strategy took place over 15-20 years. While major balance-of-payments crises and massive outward migration in the mid-1950s led to a realization that protectionism could not achieve growth, the philosophy of "self-sufficiency" was deeply engrained in the political system. Furthermore, the *Control of Manufactures Acts* were still in place. The transition from protectionism to free trade occurred in a series of slow but steady steps. Starting in the early 1950s, policies were introduced to provide capital grants to newly-established export-orientated plants that located in the depressed areas of the country; these were areas where the decline in agriculture had led to the highest levels of unemployment and emigration. Gradually, these capital grants became available to exporting plants throughout the country but at lower rates than applied in the more depressed

areas. Rather than beginning the process of tariff reduction, very generous tax holidays were given from the mid-1950s onwards to profits associated with incremental exports in order to reduce the anti-export bias implicit in the tariff policy.[12] As a separate policy, the *Control of Manufactures Acts* were repealed in the late 1950s and early 1960s, on the basis that they were no longer necessary or appropriate. The new foreign affiliates that were established were eligible for the same financial and fiscal incentives as indigenous enterprises, i.e. they received capital grants and tax holidays as long as they exported all of their output. Not surprisingly, this policy led to the location of FDI in Ireland that was completely export-driven in its orientation. A strong political and social consensus has underpinned the content and implementation of this development strategy, with the Industrial Development Authority (IDA) as a "one-stop shop" agency assisting enterprises in making investment decisions.

Singapore used very similar types of incentives to encourage FDI plants to locate with an export-orientation, even ahead of the abolition of its protectionist strategy. As in the case of Ireland, it took a proactive approach, with the Economic Development Board (EDB) playing a role similar to that of the IDA in Ireland. Policy towards FDI has been consistently positive since the early 1960s, and this has been possible since there has been only one party in power since then – the People's Action Party . Indeed, since the mid-1970s, the broad trade and FDI policies of the two economies have been very similar, as have the industrial policies, which have consistently promoted high-tech, high value-added activities. In particular, both countries have promoted the electronics industry, as will be discussed further in section 4. A final strong similarity between the two countries in recent times is the use of macro management policies to support the industrial development strategy. In both countries the labour market is managed in a rather centralized way – in Ireland it rests on social partnership agreements between

[12] This tax break was intended to encourage existing producers to switch from rent-seeking behaviour behind tariff walls to seeking out new markets and hence generating the scale of production required for survival.

the Government, employers and unions, while in Singapore similar tripartite arrangements are underpinned by the single-party political system. A consequence of this is that wage rate increase in both countries is managed in a centralized system.[13]

There are some significant differences between the two economies. Firstly, Singapore has promoted joint-venture investment between the State and foreign affiliates, whereas Ireland's foreign affiliates are virtually entirely 100% foreign-owned. This difference may be significant as these joint-ventures provide Singapore with greater potential for integrating foreign and indigenous enterprises and, in effect, reducing duality within sectors. It also means that the differences between domestic and foreign companies are likely to be more marked in Ireland, as there are few enterprises that combine foreign and domestic ownership. A second significant difference is that Singapore has had a more focussed FDI development strategy with concentration on certain industries (electronic products in particular) only, whereas Ireland's development strategy has combined a special focus on electronics and pharmaceuticals with broad support for FDI in all industries.[14] This reflected the major focus in Ireland's development strategy on job creation, while Singapore has been close to full employment for decades and immigration is needed to meet is labour market demands. The third significant difference is that, for some time, Singapore has promoted actively and openly the development of local enterprises to grow into Singaporean TNCs as a counterbalance to the strong presence of foreign-owned TNCs in Singapore. Ireland has some major domestic TNCs at this point, but these have been developed outside of Government policy for the most part, and the role played by the State in supporting this development is relatively small and certainly does not appear to play a major part of Government policy as it does in Singapore (Ruane, 2001).

[13] See Honohan and Walsh (2002) on Ireland and Pebbles and Wilson (2002) on Singapore.

[14] For example, Ireland supported FDI into the clothing industry as late as the early 1990s. Most of this industry has subsequently closed down.

Economic performance, 1960-2000

Table 1 provides a picture of the demographics of Singapore and Ireland. Both, at around 4 million people, are small countries in terms of population. In historic terms, the growth in Ireland's population, while much lower than Singapore's, has been considerable, following over 100 years of population decline. During this period, there was still considerable out-migration from Ireland, and only in the most recent period (since the mid-1990s) has there been very substantial immigration. By contrast, Singapore has enjoyed a much higher rate of population growth throughout the period, much of which has been due to a consistent inflow of migrants (Peebles and Wilson, 2002).

Table 2 presents annual average growth rates of GDP for both countries and shows that Singapore has experienced nearly double the growth rates of Ireland in terms of GDP during the period 1960-1990. This pattern persisted into the early 1990s; but in the latter part of the 1990s, Irish growth far exceeded that of Singapore. In terms of per capita GDP, the recent differences are even more marked, with Irish growth per capita being double that of Singapore. This performance explains how Ireland came to be described as a Celtic Tiger during that period.

Next we turn to examine the changes in the structural composition of the two economies over the period 1980-2000.

Table 1. Population in Ireland and Singapore, 1960-2000

	Population levels		Annual percentage population growth		
Year	Ireland	Singapore		Ireland	Singapore
1960	2,832,000	1,646,000	1960-1970	0.4	2.1
1970	2,950,000	2,075,000	1970-1980	1.3	1.4
1980	3,401,000	2,414,000	1980-1990	0.3	2.1
1990	3,505,800	3,047,000	1990-2000	0.7	2.5
2000	3,794,000	4,018,000	1960-2000	0.7	2.2
1960-2000	33%	59%			

Source: World Development Indicators 2002 CD-ROM, World Bank.

Table 2. Annual growth rates in GDP and GDP per capita in Ireland and Singapore
(Constant 1995 $ prices)

	GDP		GDP per capita	
Year	Ireland	Singapore	Ireland	Singapore
1960-1970	3.7	8.5	3.4	6.4
1970-1980	4.2	7.8	2.9	6.5
1980-1990	3.2	6.4	3.0	4.3
1990-2000	6.3	6.8	5.5	4.2
1990-1995	3.8	7.3	3.3	4.8
1995-2000	7.7	5.1	6.8	3.0

Source: World Development Indicators 2002 CD-ROM, World Bank.

In both countries, the share of total employment accounted for by industry has decreased – from 32% and 35% in Ireland and Singapore, respectively, to around 28% in both. Table 3 shows that, even in 1980, Singapore's agriculture sector was insignificant in employment terms and since 1990 it has been less than 3%. As recently as 1980, employment in the Irish agricultural sector accounted for 18% of total employment, which was an exceptionally high proportion by European

Table 3. Sectoral shares in total employment in Ireland and Singapore, 1980-2000

Country/Sector	Year				
Ireland	1980	1985	1990	1995	2000
Agriculture	18.3	15.6	15.1	11.7	7.9
Industry	32.5	28.4	28.1	28.3	28.6
Services	48.5	55.6	56.4	59.6	63.5
Singapore					
Agriculture	1.3	0.7	0.3	0.2	0.3
Industry	35.7	35.7	35.2	31.0	28.5
Services	62.6	63.7	64.4	67.9	71.1

Source: World Development Indicators 2002 CD-ROM, World Bank.

standards at that time. Over the past 20 years, employment in agriculture has dropped by over 50% and continues to fall, as European agricultural policy promotes the consolidation of agricultural holdings and employers in that sector have to compete for labour with employers from other sectors. A further contrast between the two economies is that in 1980 Singapore had a much more significant services sector, accounting for over 62% of total employment, and reflecting its important trading role in South East Asia.

Singapore's trading role is also reflected in table 4, which shows data on trade intensity for the two economies, where trade intensity is defined as the ratio of average exports and imports to GDP. The ratio is significantly higher in Singapore. While the gap has narrowed very considerably over the two past decades, the rate in Singapore in 2000 was close to twice that in Ireland. Part of this difference is undoubtedly explained by the large amount of entrepôt trade that is still significant in Singapore, as an extension of its traditional trading role. On a world scale, both would be considered to be very open economies. Ireland and Singapore rank first and second, respectively, in the A.T. Kearney/ Foreign Policy Magazine Globalization Index (2004).

The scale of inward FDI into Singapore is evident in table 4, which shows, for various years from 1974, that the ratio of FDI inflow to GDP in Singapore was almost 10 times that received by Ireland up to the 1990s. Ireland's success in winning increased FDI is attributed by many to the completion of the EU single market and there has been a rapid growth in the ratio over the 1990s. Table 4 shows the ratio as an extraordinary 28% in 2000, which is in part due to exceptional clustering of investment in that year. A more accurate view would be that found in F. Ruane and J. Sutherland (2002), who found that ratio averaged 8 in the five years 1995-2000.

In summary, both economies have experienced rapid growth in population, income, trade and FDI over 40 years, with Singapore expanding at a more rapid pace throughout the period.

Table 4. Economic openness in Ireland and Singapore, 1974-2000

	Trade intensity		FDI intensity	
Year	Ireland	Singapore	Ireland	Singapore
1974	43.2	126.0	0.6	6.3
1980	48.5	174.5	1.6	10.3
1985	51.3	129.5	0.6	5.7
1990	45.1	144.7	1.3	14.5
1995	56.7	142.9	2.0	13.7
2000	81.1	146.8	28.1[a]	13.7

Source: International Financial Statistics, IMF.
Notes. Trade intensity is defined as the ratio of average exports and imports of goods to GDP. FDI intensity is defined as the ratio of inward FDI to GDP

[a] The average ratio for 1995-2000 was 8.1%, which gives a more accurate reflection of the true picture.

The exceptional performance of the Irish economy is, in effect, a 1990s phenomenon. Both countries now have similarly proportioned industrial sectors, with over 28% of employment in that sector. In the next section, we look in detail at the manufacturing sector which has been central to the development strategies of both economies over the past four decades.

Export platform development and manufacturing performance, 1983-1999

In this section, we draw comparisons between the manufacturing sectors of Ireland and Singapore using 2-digit industry level data. The data for Singapore come from the Economic Development Board, while the Irish data come from the Central Statistics Office, Ireland.[15] In both countries, foreign affiliates refer to companies with more than 50% foreign equity. In the case of Irish manufacturing, most FDI during the period has been in the form of greenfield investment projects that are

[15] The EDB is the official source for Singaporean data which decomposes manufacturing data by nationality of ownership.

exclusively foreign-owned. In Singapore, on the other hand, there have been significant numbers of joint ventures with both majority and minority foreign equity participation. Such joint ventures have been actively promoted by policy.

Table 5 shows the overall picture for the manufacturing sectors in terms of numbers of establishments, employment, gross output and exports for the two countries for three years, 1983, 1991 and 1999. (The choice of 1991 reflects an appropriate mid-point in the data series available to us and also the approximate structural break in the series.) Ireland has a consistently larger number of manufacturing establishments but with a manufacturing workforce that is less than three quarters the size of the Singaporean workforce. Consequently, average enterprise size in Ireland is significantly smaller than in

Table 5. Manufacturing sector performance, 1983, 1991, 1999

	1983		1991		1999	
Item	Total	Foreign share	Total	Foreign share	Total	Foreign share
Ireland						
Number of establishments	5002	13	4,546	16	4,794	14
Employment	208,168	32	196,878	44	248,971	49
Output	14,733,628	41	33,758,154	53	79,789,205	76
Exports	10,568,268[a]	75[a]	20,980,907	74	61,810,068	90
	1983		1991		1999	
Item	Total	Foreign share	Total	Foreign share	Total	Foreign share
Singapore						
Number of establishments	3,616	22	3,785	23	3,928	21
Employment	271,106	52	358,274	58	338,885	50
Output	17,258,610	73	44,732,787	74	78,811,344	78
Exports	10,344,860	83	27,153,001	84	50,362,714	87

Source: Own calculations from CSO and EDB. Value figures are in dollars.

[a] Refers to 1986 figures (earliest date for computing these figures).

Singapore. Irish gross output and manufacturing exports (measured in dollars) have risen rapidly over the period, surpassing those of Singapore during the 1990s. Table 5 also shows the importance of the foreign-owned segment of the manufacturing sectors in the two countries. On every measure, with the exception of exports in 1999, the foreign share in Singaporean manufacturing matches or exceeds that of the foreign share in Ireland. This result is not surprising in the light of the enormous inflow of FDI into Singapore shown in table 4.[16]

One striking difference between the two economies is in the pattern of employment growth across TNC- and locally-owned enterprises during periods of cyclical growth and contraction in manufacturing employment. During the 1980s, as manufacturing employment in Singapore grew by over 30%, the share of employment accounted for by foreign affiliates expanded by 15%, whereas in the 1990s the fall in Singapore's manufacturing employment of 5% was accompanied by a foreign share decline of almost three times that rate. This may reflect the impact of policy in Singapore to seek FDI that is more capital-, technology- and skill-intensive than the FDI secured in previous decades (Low, 1993, chapter 3). In Ireland, by contrast, the share of employment in foreign affiliates continued to rise in both periods – by 35 % in the 1980s, when total manufacturing employment fell by 5%, and over 10% in the 1990s, when it expanded by over 25%.

In order to look at the extent and nature of structural changes in the two economies over the period, we calculated Hirschman-Herfindahl (H-H) indices based on employment in each 2-digit manufacturing industry for the period 1983-1999.[17] These indices are charted in figure 1. They show that the manufacturing sector in Singapore is much more concentrated than in Ireland and that this concentration has increased over

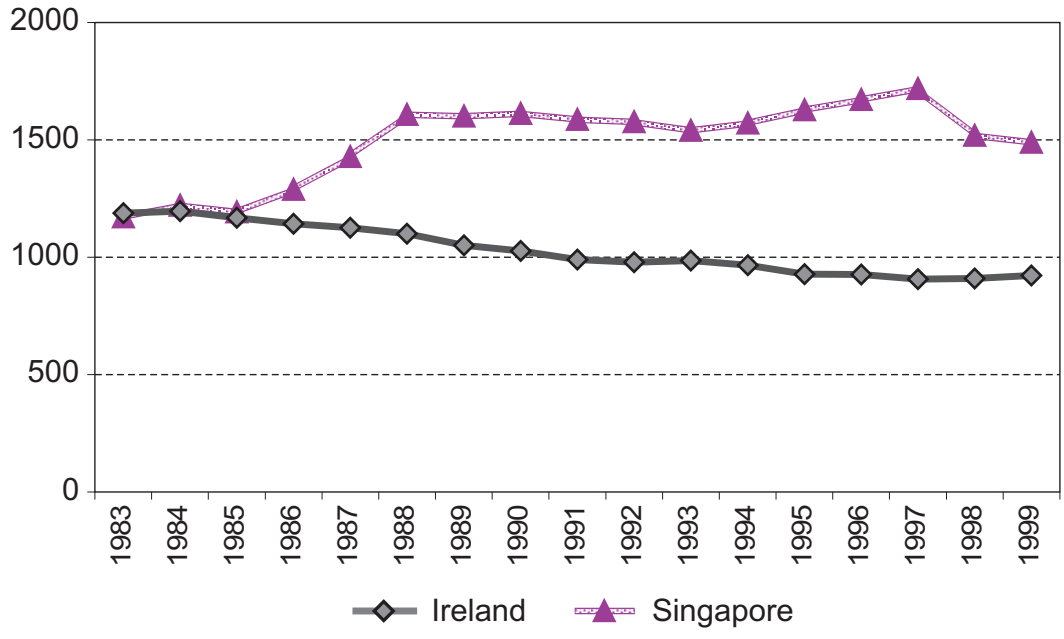
[16] The comparison is not straightforward as the data in table 4 cover all sectors and not just manufacturing.

[17] The HH index is given by $\sum s_j^2$ where s_j is the share of employment in sector j in total employment.

the 16 years while concentration in Irish manufacturing has decreased. Table A1 in the appendix, which shows employment shares by sector for 1983, 1991 and 1999, indicates that the increased sectoral concentration in Singapore came mainly through the expansion of modern industries (electronic products, medical, precision and optical, chemicals). In the Irish case, there has been increased concentration in modern industries, but this has been offset by the significant decrease in the share of the largest industry in 1983, namely food and drink.

What about foreign ownership? In 1999, foreign affiliates accounted for around half of employment in the manufacturing sectors of both countries, but over the previous 16 years they rose by 17 percentage points in Ireland whereas in Singapore they were virtually unchanged. As Ireland had a significant pool of unemployment for most of the period as well as net outward migration, and because of the absence of competition on the domestic market, it is unlikely that this expansion of TNC employment led to a "crowding out" effect, especially as much

Figure 1. HH index: sectoral concentration of total employment, 1983-1999



Source: Own calculations from CSO and EDB. Value figures are in dollars.

of the expansion in TNC employment occurred in modern industries while the contraction in local enterprise employment occurred in traditional ones.

To examine the changing pattern of employment in more detail, we calculate H-H indices for the shares of total employment by sector accounted for by foreign and domestic enterprises, respectively for the period 1983-1999.[18] These indices (figure 2) show that sectoral concentration is consistently much higher in TNCs than in local enterprises in Singapore and there is no evidence of any convergence between the two indices. The high H-H indices for TNCs reflect the strong sectoral focus of Singapore's industrial policy. In Ireland, by contrast, the difference in concentration levels between foreign and domestic enterprises in manufacturing industries is much less marked and declined over the whole period. Furthermore, the H-H index has been higher for local enterprises than for TNCs for most of the period, which may be due to the significance of legacy enterprises among Ireland's TNCs (dating back to the pre-Independence period). However, it undoubtedly also reflects the less sectorally-focussed strategy in Ireland compared to Singapore during the 1960s and 1970s.

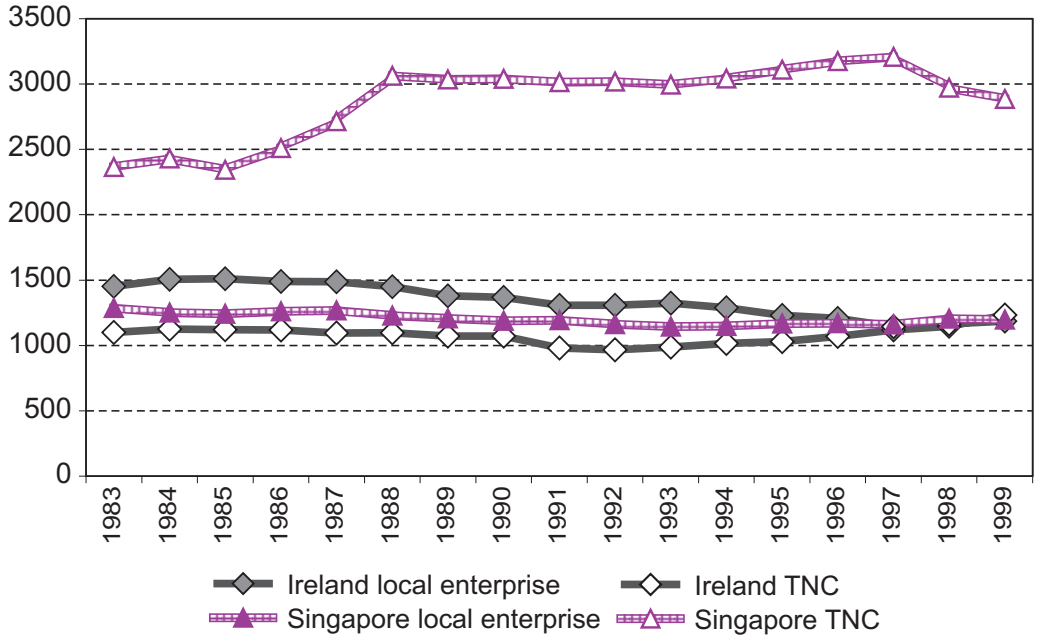
Table A1 shows the dominance of TNCs in employment in modern industries – chemicals, electronic products and medical, precision and optical – in both countries. Chemicals have expanded relatively, propelled particularly by TNCs whose shares have increased. The scale of electronic products has increased in both countries, but the extent of specialization in Singapore is far greater, reflecting its strong policy focus on this industry. Noteworthy is the growing local enterprise share in electronic products, where employment rose fourfold over the period, while it grew by under 25% in Ireland. This suggests that local enterprises in this industry in Singapore may have reached a level of sustainability not yet achieved in Ireland.[19]

[18] The HH index is given by $\sum s_{nj}^2$ where s_{nj} is the share of foreign (domestic) employment in sector j in total foreign (domestic) employment.

[19] For all these comparisons, a similar pattern emerges when we look at sectoral and foreign shares measured in terms of gross output.

Since FDI in both countries is export platform in orientation, we would expect the export intensity of TNCs (share of total output exported) to be very high relative to that of local enterprises, and that a relatively lower TNC export intensity ratio would indicate greater linkages into the domestic market in the case of intermediate products. Unfortunately, the data do not allow us to dichotomize the products into final and intermediates, but we can compute average export intensity ratios by industry for TNCs and local enterprises for the period 1985-1999. Figure 3 shows that Irish TNCs have generally higher average export ratios than their counterparts in Singaporean manufacturing industry, while the reverse is the case for local enterprises. The high export intensity ratios of Singapore's local enterprises suggests that its more "hands on" policies have been more successful than those in Ireland in promoting the development

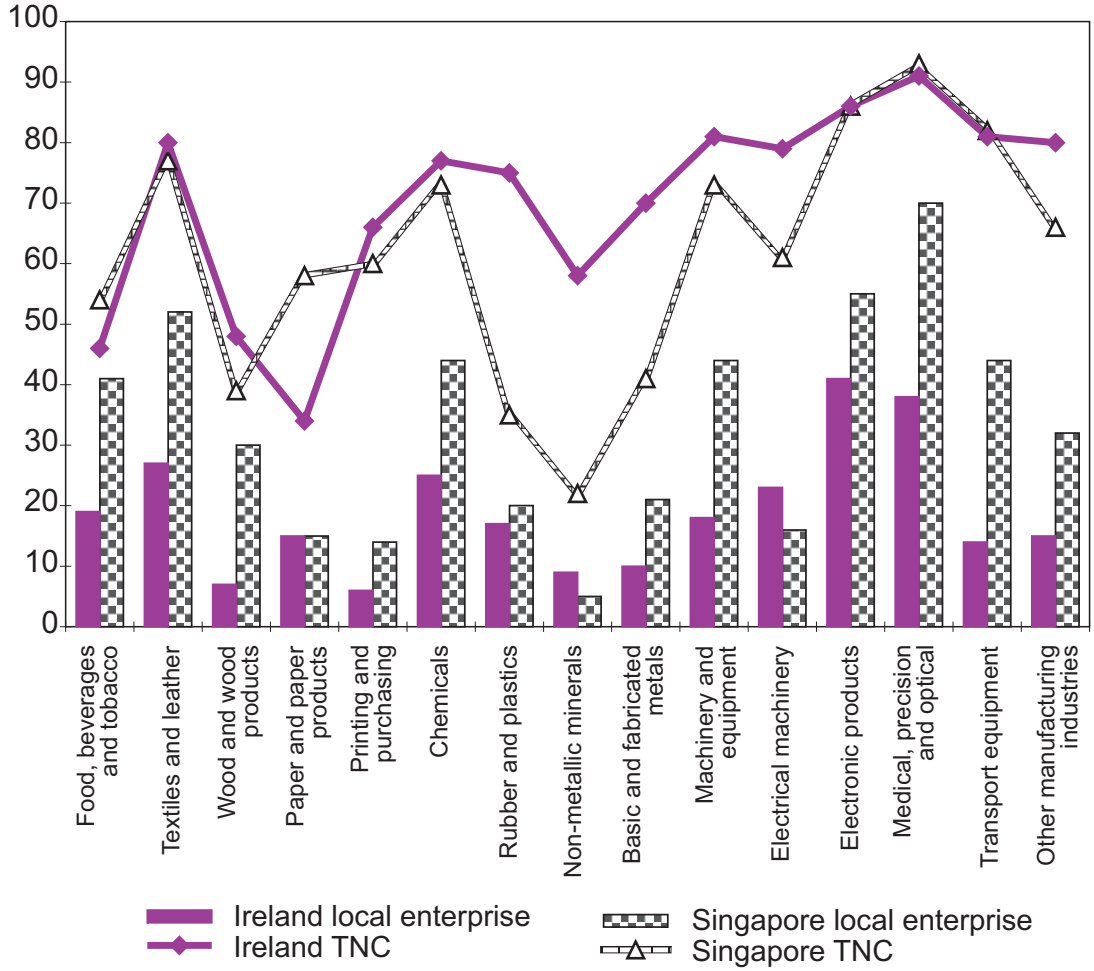
Figure 2. HH index: sectoral concentration of employment in TNCs and local enterprises , 1983-1999



Source: Own calculations from CSO and EDB. Value figures are in dollars.

[20] Ruane and Sutherland (2004a), using micro data on Irish manufacturing, find that a high proportion of local enterprises does not export and that those local enterprises that export do not show improved performance, as measured by stronger enterprise characteristics, over time.

Figure 3. Export intensity in Singaporean and Irish manufacturing industries,



Source: Own calculations from CSO and EDB. Value figures are in dollars.

of its local enterprises.[20] The targeting of indigenous Irish manufacturing in developing its export markets is seen as one of the outstanding challenges facing policy makers in Ireland (see Enterprise Strategy Group, 2004).

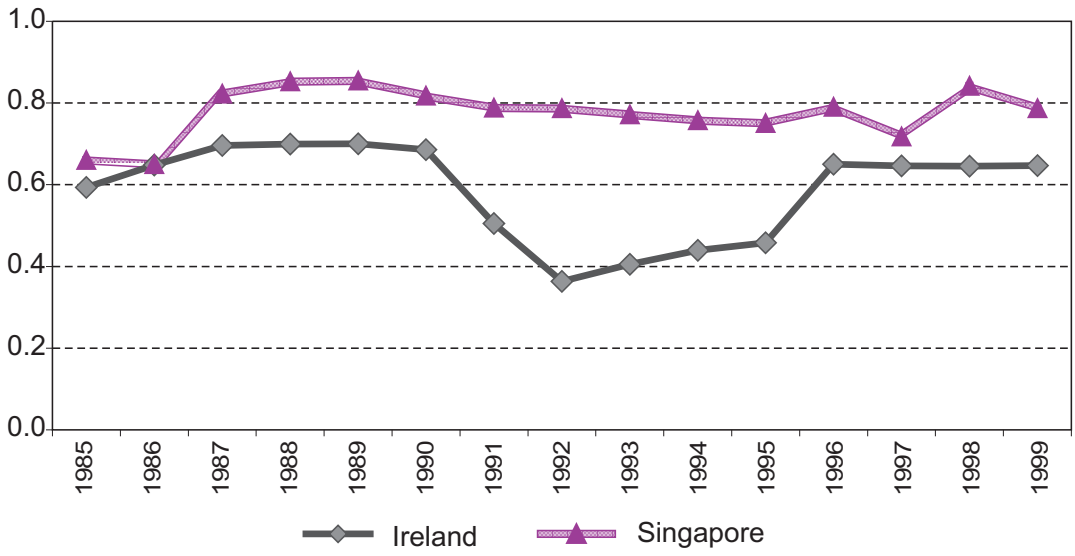
To consider whether EPFDI may have an impact on the export behaviour of local enterprises, we calculate correlation coefficients between the sectoral export intensity of local enterprises with that of TNCs. A large positive coefficient would imply that the share of output exported by local enterprises within a sector is likely to be greater when the export share of TNCs is higher. Figure 4 shows that the correlation coefficients in both countries are positive, but significantly lower in Ireland. This result for Ireland is consistent with research at enterprise level

in Ireland which does not find significant export spillovers from TNCs to local enterprises, where TNC influence is measured through export-intensity ratios (Ruane and Sutherland, 2004b).

Next, we turn to examine foreign- and domestically-owned enterprises within individual manufacturing industries in Singapore and Ireland, using data on labour productivity and wages paid by TNCs and local enterprises. We look at two issues relevant to dualism. Do TNCs have higher labour productivity than local enterprises and is that productivity difference increasing or diminishing over time? Do TNCs and local enterprises pay similar wages when they operate in the same industry and, if different, is there evidence that the differences are narrowing or widening over time? Large and persistent differences between productivity levels of TNCs and local enterprises in the same industries would suggest some degree of dualism, while a narrowing of these differences over time would suggest that linkages and spillovers may be beginning to reduce that dualism.

We undertake our analysis for all industries in the first instance and then for "all excluding chemicals", since this

Figure 4. Correlation between local enterprises and TNC export ratios, 1983-1999



Source: Own calculations from CSO and EDB. Value figures are in dollars.

industry is one characterized by exceptionally high productivity growth.[21] We use a basic regression framework in order to examine the convergence between TNCs and local enterprises in both economies using productivity and wage performance measures, utilising the following regression equation:

$$Y_{it} = a + T_t + T_t^2 + f_i + \in_{it} \qquad (1)$$

where i and t represent industry and year, respectively, Y_{it} is the ratio of TNC productivity (wages) in industry i to local enterprise productivity (wages) in the same industry, a is the intercept term and T is a time trend. We also include T_t^2 to capture any non-linear relationship in the time trend. The coefficient f in the equation captures the time invariant industry-specific effect, estimated as fixed effect, while $\in$ denotes a random noise term. If the coefficient of the time dummy is negative and significant, we interpret this as evidence of convergence.

Table 6 shows the results of the regression analysis examining labour productivity differences between TNCs and local enterprises in Irish and Singaporean manufacturing industries. Columns 1 and 3 include all industries, while columns 2 and 4 exclude "chemicals" from our analysis. The coefficient of the intercept terms indicates that, on average, labour productivity in TNCs is significantly higher than in local enterprises in both countries, suggesting some degree of dualism; this result is especially marked in the Irish case. Turning to look at convergence/divergence, we see that in Singapore there is evidence of convergence taking place at decelerating rates when "chemicals" are excluded from the data set. This implies that the productivity gap between TNCs and local enterprises is narrowing outside "chemicals", suggesting that through linkages or spillovers, the productivity of local enterprises is rising towards that of TNCs. On the other hand, there is no statistically significant evidence of convergence or divergence over time in the Irish case; in other words, the degree of dualism that is

[21] Throughout we excluded "petroleum refining" because of its unique role in development.

Table 6. Productivity convergence between TNCs and local enterprises in Irish and Singaporean manufacturing industries

	Ireland		Singapore	
	(1)	(2)	(3)	(4)
Constant	1.63****	1.62***	1.44***	1.51***
	(8.04)	(7.79)	(13.33)	(11.47)
T	0.002	-0.02	-0.006	-0.03**
	(0.75)	(-0.41)	(-0.24)	(-1.85)
T^2	0.003	0.001	0.002	0.002***
	(1.16)	(0.54)	(1.35)	(2.39)
No of observations	255	238	221	204
R^2	0.09	0.06	0.08	0.05
Prob. F	0.00	0.00	0.00	0.00

Source: Authors' calculation.
Notes: t-values are in brackets.
*** 1%, ** 5%, * 1% statistical significance.

evident in the intercept constant has not changed over the period. This result is not surprising given that Ruane and Ugur (2004a) found no evidence of spillovers in their analysis of TNC/ local enterprise productivities using plant level data for the Irish manufacturing sector.

Table 7 examines average wages paid by TNCs and local enterprises. The regression results show that in both countries wages paid by TNCs are higher on average than those paid by local enterprises. However, the extent of the difference is much less for average wages than for labour productivity, which must in part reflect that wage setting behaviour is influenced by labour market conditions. While the wage differences between TNCs and local enterprises in Singapore are higher, they are converging at a decreasing rate over the period; this evidence is significantly stronger when we exclude "chemicals". The narrowing of wage differentials may reflect spillover and linkage effects associated with the narrowing of labour productivity differentials in table 6. In Irish manufacturing, the wage gap is less marked, which

Table 7. Wage convergence between TNCs and local enterprises in Irish and Singaporean manufacturing industries

	Ireland		Singapore	
	(1)	(2)	(3)	(4)
Constant	1.10***	1.11***	1.20***	1.21***
	(7.02)	(4.55)	(7.80)	(4.23)
T	0.03***	0.02***	-0.01*	-0.02***
	(4.89)	(4.60)	(-1.72)	(-2.68)
T2	-0.001***	-0.001***	0.001***	0.001***
	(-3.92)	(-3.76)	(2.20)	(2.76)
No of observations	255	238	221	204
R^2	0.13	0.12	0.08	0.06
Prob. F	0.00	0.00	0.00	0.00

Source: Authors' calculation.
Notes: t-values are in brackets.
*** 1%, ** 5%, * 1% statistical significance.

may reflect in part the greater centralization in the system of wage setting in Ireland compared with Singapore.[22] It may also reflect a relatively more similar skill composition across the two sets of employers in the same industries in Ireland. The positive and significant sign of the time trend variable and the negative sign on the squared term indicates that the divergence between TNC and local enterprises average wages increased, albeit at a diminishing rate, over the period 1983-1999. This is consistent with increasing labour market pressures over the period and the ability of TNCs to pay higher wages in this context. It is also in line with the findings by Ruane and Ugur (2004b) of no evidence of wage spillovers in the Irish manufacturing sector in the period 1991-1999.

[22] Centralized wage setting in Singapore has always been flexible to take account of industry and enterprise situations; such flexibility has only recently been part of the Irish system. TNCs in Ireland typically do not have unionized labour and the smaller difference may also reflect the ability of the MNEs to bargain strongly and with reference to prevailing rates in the unionized local enterprise sector.

Conclusions

In the introduction we raised the issue of how TNCs and local enterprises relate over a prolonged period when the TNCs have located in an export platform economy. The focus of the article is on whether in such circumstances the relationship between TNCs and local enterprises develops a persistent dualistic nature, with little interaction between them. This dualism would be evident in industrial segmentation and in lower linkages and spillovers between TNCs and local enterprises in the same industry, so that differences in productivities and factor payments would persist. To consider whether this type of FDI induces dualism between the activities of local enterprises and TNCs, we focused on four questions which we now revisit.

Are there differences in the types of industries in which TNCs and local enterprises are active?

Our analysis showed that, in terms of employment, Singaporean manufacturing industry has become more sectorally-concentrated (figure 1), driven by the increased importance of TNCs whose H-H index is more than twice that of its local enterprises (figure 2).[23] In Irish manufacturing, by contrast, we found that levels of concentration were actually lower for TNCs than for local enterprises, with the difference between them narrowing over the period.[24] As noted in section 4, these differences undoubtedly reflect the less strategic focus of Ireland's FDI promotional policy compared to Singapore's. Thus, while both countries have half of their manufacturing employment in companies with over 50% foreign ownership, in

[23] For example, in 1999, over one third of its total manufacturing employment was in electronic products and over 80% of that employment was in TNCs.

[24] This reflected the increased importance of some of the high-tech industries (especially electronic products) among TNCs at a time the importance of some of the main traditional local enterprises industries (e.g. food and beverages) declined, with a net negative effect on the degree of sectoral concentration overall.

the Singaporean case the greater sectoral concentration has facilitated the development of critical mass, making possible the growth of clusters and networks in these industries.[25]

The differences in the H-H indices may also be a sign of the different position of each country in its geographic region. Singapore has been among the highest per capita income countries in South-East Asia for several decades, while Ireland has only recently moved from being one of the lower to one of the higher income countries in Western Europe. Until recently, FDI projects were attracted to Ireland because of its relatively low labour costs (from a European perspective) and its plentiful supply of relatively skilled labour. Singapore, in contrast, has had full employment for decades, and labour costs have been moderated by immigration of labour (both skilled and unskilled) to meet the needs of new establishing enterprises. In effect, the differences in sectoral segmentation are completely consistent with the differences in the FDI strategies pursued by both countries.

Do TNCs and local enterprises have similar export patterns, i.e. where TNC export ratios are high, are local enterprises export ratios also high?

The contrast between export intensities for Irish and Singaporean local enterprises is strong and raises issues for other countries which seek to attract EPFDI on a large scale. As noted above, the Irish results are consistent with the micro data results from existing research by Ruane and Sutherland (2004a) and Ruane and Sutherland (2004b). The availability of similar micro-data for Singapore would provide a fruitful research opportunity to explore what underpins the differences in export intensities of local enterprises in the two countries. The higher export ratios of Singaporean local enterprise plants may in part be due to their larger scale (in terms of employees per plant), allowing more of

[25] Ireland is very concerned to build such clusters but has a limited base on which to try to build them. It has had virtually no success outside electronics, which was the target of policy towards linkages and clusters over the 1990s.

them to export and those who export to achieve higher export intensity. The higher correlation between export intensities of local enterprises and TNCs across industries points to the less dualistic nature of Singaporean development compared to Ireland's development.

Where TNCs have high labour productivity, do local enterprises have high labour productivity also and are any differences on a divergent or convergent course?

Our analysis of productivity levels between TNCs and local enterprises shows that TNCs have higher productivity levels than local enterprises in both countries, a result that is in line with experience elsewhere.[26] There is evidence of convergence between productivity levels of TNCs and local enterprises in Singaporean manufacturing, whereas in Ireland the differences persist. This is consistent with the greater pro-activity of Singaporean policy in terms of developing local enterprises and their relationships with TNCs. Research using micro data would be needed to establish evidence of linkages and spillovers in Singapore.

Do TNCs and local enterprises pay similar wages when they operate in the same industry? And if they pay different wages, do these differences show a tendency to persist or are they diminishing or increasing over time?

In both Singapore and Ireland TNCs pay higher wages than local enterprises – and this is perhaps not surprising given that the TNCs in both countries have higher productivity levels. However, the patterns in the two countries again are rather different – average wages in TNCs and local enterprises in Singapore are converging, indicating a reducing degree of dualism whereas there is evidence of increasing dualism in the growing wage gap in the Irish manufacturing sector.

[26] The sheer scale of TNC presence in these two countries might lead one to suspect that the differences would be lower due to factor market effects.

In summary, while both Ireland and Singapore have adopted broadly similar strategies in promoting EPFDI, with more than half their manufacturing workforces employed in foreign affiliates, we see greater evidence of dualism in Ireland than in Singapore. This result points to the greater success of Singapore in integrating TNCs into the economy (and hence generating more linkages and spillovers) and in developing local enterprises that are global players. The differences between TNCs and local enterprises may, however, also reflect the promotion of joint ventures in Singapore, so that the smaller differences in Singapore reflect the greater presence of these hybrid entities. A comparative study of Ireland and Singapore using enterprise level da■ would allow these differences to be explored in more depth.

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Table A1. Significance of TNCs in terms of employment in Irish and Singaporean manufacturing industries, 1983, 1991, 1999

(Per cent)

Industry	Singapore						Ireland					
	Industry as % of total			TNCs as % of industry share			Industry as % of total			TNCs as % of industryshare		
	1983	1991	1999	1983	1991	1999	1983	1991	1999	1983	1991	1999
Food, beverages and tobacco	5	4	4	28	32	27	25	23	19	22	28	26
Textiles and leather	13	9	3	18	17	9	16	11	5	25	44	34
Wood and wood products	2	1	0	29	7	0	4	2	2	4	11	19
Article and article products	1	1	1	25	32	28	2	2	2	24	26	19
Printing and publishing	5	5	5	9	18	14	5	6	8	5	18	34
Refined petroleum	1	n.a	n.a	100	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Chemicals	3	3	5	63	76	83	6	7	9	65	77	80
Rubber and plastics	4	5	6	24	38	28	4	4	4	35	54	40
Non-metallic minerals	3	2	2	37	35	35	6	5	4	21	18	15
Basic and fabricated metals	7	9	11	33	32	26	8	7	6	19	28	24
Machinery and equipment	10	8	11	65	67	46	4	6	6	46	57	46
Electrical machinery	5	5	3	85	88	69	6	5	6	78	76	70
Electronic products	24	34	31	92	89	81	4	7	13	69	84	89
Medical, precision and optical	2	3	3	85	85	84	4	5	7	91	92	85
Transport equipment	10	8	10	27	24	19	5	5	4	8	18	54
Other manufacturing industries	5	5	4	44	49	32	2	5	4	44	0	27
Total manufacturing	100	100	100	52	58	50	100	100	100	32	44	49
Total manufacturing, levels	271,106	358,274	338,885				208,168	196,878	248,971			

Source: Own calculations from CSO and EDB. Value figures are in dollars.

Globalization, FDI and employment in Viet Nam

Rhys Jenkins*

The article considers the impact of foreign direct investment on employment in Viet Nam, a country that received considerable inflows of foreign capital in the 1990s as part of its increased integration with the global economy. Despite the significant share of foreign firms in industrial output and exports, the direct employment generated has been very limited because of the high labour productivity and low ratio of value added to output of much of this investment. The article also shows that the indirect employment effects have been minimal and possibly even negative because of the limited linkages which foreign investors create and the possibility of "crowding out" of domestic investment.

Key words: foreign direct investment; employment; Viet Nam; manufacturing; capital-intensity

Introduction

The impact of globalization on employment is a central issue of contemporary political economy. From the point of view of workers in developed countries, globalization is often seen as a threat as traditional industrial jobs disappear or are relocated around the globe (and not just traditional jobs, as the recent expansion of call centres in India and elsewhere illustrates). On the other hand, increased employment in developing countries is seen as a major contribution to reducing poverty and meeting the Millennium Development Goals. However, the impact of globalization on labour markets and the mechanisms through which closer integration with the global economy may lead to job creation are still a subject of debate.[1]

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[1] For a recent review of the literature on the impact of globalization on workers in developing countries, see Rama (2003).

There are a variety of ways in which globalization affects labour: the most important ones are through increased trade, foreign direct investment (FDI) and international technology transfer. Empirical research has given much more attention to the effects of trade on labour markets than to the impacts of FDI.[2] This partly reflects the fact that, while there are fairly well established methodologies for analysing the impact of trade on employment and trade data is relatively easily available, the analysis of FDI is more problematic.

While employment creation is regarded by governments as an important potential contribution that FDI can make to their economies, most analyses of the labour market effects of FDI identify both positive and negative potential effects. Table 1 illustrates the main types of effects that can arise.

Looking primarily at the effects of FDI on the level of employment, it is possible to identify circumstances under which it has a significant positive impact. Where such investment supplements domestic investment and involves the creation of new "greenfield" plants, demand for labour will tend to increase. If this FDI is concentrated in labour-intensive industries, this increase will be substantial. FDI can also lead to increased employment amongst local firms as a result of backward or forward linkages so that the direct employment by foreign affiliates may underestimate the total impact. There may also be spillovers to domestic firms as a result of training by foreign investors or technology transfer. Foreign firms that are subject to pressures in their home countries may also bring with them higher labour standards and wages than the norm for the host economy. Where a firm makes a long-term commitment, it can provide stable employment.

[2] This is reflected in a survey of the effects of trade and FDI on employment and wages by Baldwin (1995) in which most of the studies discussed deal with trade effects. Reviewing studies that specifically focus on developing countries, Sen (2002, p. 24) comments that "in contrast to the existence of several studies that examine the impact of international trade on the labour markets of developing countries, there are very few studies that do so for foreign direct investment."

Table 1. The range of potential effects of inward FDI on the quantity, quality and location of employment

	Direct		Indirect	
	Positive	**Negative**	**Positive**	**Negative**
Quantity	Adds to net capital and creates jobs in expanding industries	Acquisitions may result in rationalization and job losses	Creates jobs through forward and backward linkages and multiplier effects in local economy	Reliance on imports or displacement of existing firms results in job loss
Quality	Pays higher wages and has higher productivity	Introduces practices in e.g. hiring and promotion that are considered undesirable	Spillover of "best practice" work organization to domestic firms	Erodes wage levels as domestic firms try to compete
Location	Adds new and perhaps better jobs in areas with high unem-ployment	Crowds already congested urban areas and worsens regional imbalances	Encourages migration of supplier firms to areas with availabler labour supply	Displaces local producers, adding to regional unemployment, if foreign affiliates substitute for local production or rely on imports

Source: UNCTAD 1994, table IV.1.

However, it is also possible for FDI to have very little (or even negative) effects on employment. It may displace local investment, so that the net effect on jobs is lower than the number directly employed by foreign affiliates. Where FDI involves the acquisition of local firms rather than new plants, there is no initial increase in employment; if the foreign owner subsequently rationalizes the firm, employment is even likely to decrease. Often, FDI is concentrated in capital-intensive industries so that jobs created per dollar invested are low. Moreover, there may be few local linkages if most inputs used by the foreign affiliates are imported and these constitute an enclave within the local economy. Jobs that are created may be for labour that is relatively skilled rather than for the unskilled who are in excess supply. If investment is footloose and can easily move to

alternative locations, then the jobs that are created are likely to be highly unstable.

The situations described in the two preceding paragraphs represent opposite poles in terms of the impacts of FDI on employment. Which most accurately represents conditions in a particular country, or more likely where the country lies between these poles, is an empirical question.[3]

The present article considers the impact of FDI on employment in Viet Nam, a country that received significant inflows of foreign capital in the 1990s. It is a companion piece to a paper that looked at the effects of greater trade openness on employment in Viet Nam (Jenkins, 2004a). It also complements a more general study of the employment problem in Viet Nam (Jenkins, 2004b). The next section describes the transition that took place in Viet Nam during the 1990s from a centrally planned economy to a much more market based economy increasingly integrated with the global economy. This is followed by an overview of the morphology of FDI during the 1990s. The reset of the article then analyses the the direct and indirect impacts of FDI on employment in Viet Nam.

Viet Nam's integration with the global economy

The integration of Viet Nam into the global economy began with the adoption of *doi moi* ("renovation") in 1986, a process that intensified from 1989 onwards. Until that time, Viet Nam had operated as a centrally planned economy with significant inputs of aid from the Soviet Union. International trade was managed through agreements with foreign governments, and the

[3] Brown *et al.* (2003, p. 40) similarly conclude their theoretical discussion of the labour market effects of transnational production in developing countries with the statement: "All the cases that we have considered in this theoretical overview … have failed to yield unambiguous conclusions about the effects of foreign direct investment and transnational firms on equilibrium wages in host countries … It is therefore an empirical question whether the actual operations of transnationals have raised or lowered wages in developing countries."

overall level of trade was low.[4] In the 1980s, only around 10% of domestic production was exported and the growth of exports was only 3.5% per annum between 1977 and 1988 (World Bank, 1990, p. 59). Exports were dominated by primary commodities. Around half of total trade was with the COMECON countries (World Bank, 1990, p.61). Moreover, prior to the introduction of *doi moi*, Viet Nam was closed to foreign investors.

Following the fall of the Berlin Wall and the disintegration of the Soviet Union, Viet Nam became much more integrated with the global economy. There has also been a reorientation of trade, with the East Asian economies becoming the country's major trading partners during the 1990s. The OECD countries (including Japan and the Republic of Korea) also became increasingly important markets for Vietnamese exports during the 1990s and, by the end of the decade, accounted for more than half of the country's total exports compared to less than a quarter in 1990 (Institute of Economics, 2001, p. 29).

As can be seen from figure 1, the trade openness of the economy rose sharply in the late 1980s and then continued to grow rapidly throughout the 1990s. By the start of the millennium, trade (exports plus imports) as a share of GDP was more than three times the level of that during the late 1980s. The growth of FDI was equally or even more spectacular. The stock of FDI as a ratio of GDP rose from zero in the mid-1980s to over 75% by the year 2001.[5]

The increased openness of the Vietnamese economy in the 1990s was partly a reflection of the policies that were introduced to liberalize trade and promote FDI, and the ending of the trade embargoes that limited trade during the 1980s. Trade

[4] In 1979, a number of countries imposed a trade and financial embargo on Viet Nam as a result of its military intervention in Cambodia.

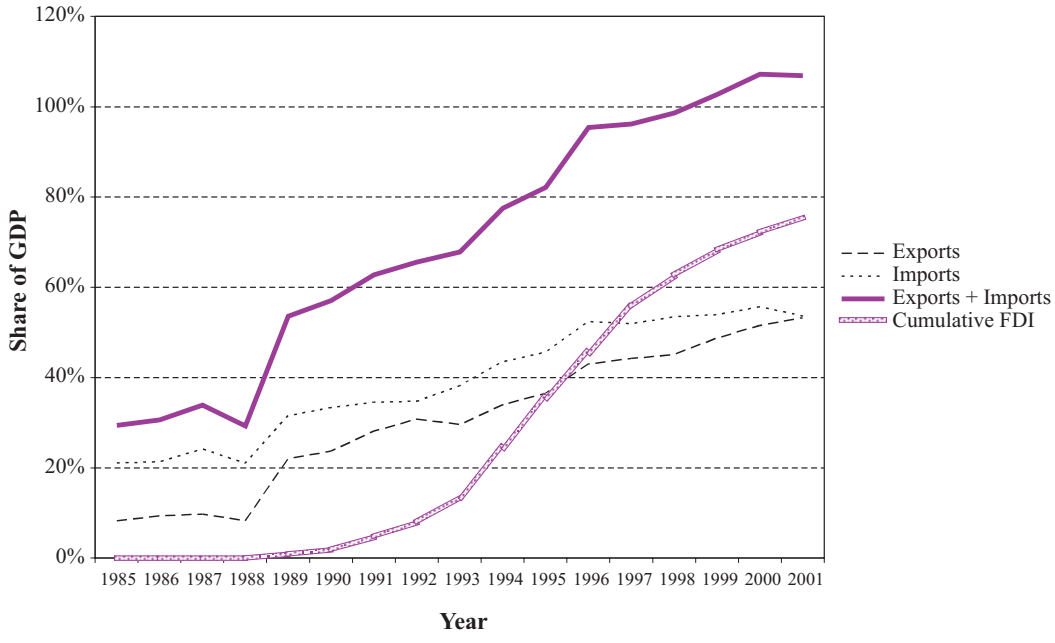
[5] This was calculated as the cumulative sum of disbursed investment in each year. It may therefore exaggerate the true stock of FDI somewhat since it does not take account of any withdrawals or capital repatriation by foreign affiliates.

liberalization began at the end of the 1980s. The main elements included:

- liberalization of entry into international trading activities;
- removal of most export taxes;
- removal of non-tariff barriers;
- reductions in tariff levels and bands – the maximum tariff was reduced from 200% to 120% and the number of bands to 15;
- negotiation of various trade agreements – the ASEAN Free Trade Area (AFTA), agreements with the European Union (1992) and with the United States (2000); and
- measures to promote exports – import duty rebates; establishing export processing zones.

Viet Nam was closed to FDI until the adoption of *doi moi*. In 1987, the first foreign investment law was passed. Since then, the FDI legislation has been revised four times - in 1990, 1992, 1996 and 2000. These revisions have liberalized the original law in a number of ways; e.g. they:

Figure 1. Trade and cumulative FDI as % of GDP



Source: Author's elaboration from Nguyen et al. (2002), Binh and Haughton (2002).

- removed obstacles and difficulties for FDI enterprises to operate;
- reduced risks for foreign affiliates in land clearance and shifted responsibility for compensation and land clearance from foreign partners to the Vietnamese side;
- allowed foreign affiliates to mortgage their land use rights to borrow from credit organizations;
- relaxed currency balance regulations for foreign affiliates;
- gave more autonomy to foreign affiliates and reduced the number of issues that require consensus in the management board;
- allowed investors more freedom to change the investment form, re-organize enterprises, and transfer capital;
- improved procedures regarding the Government's FDI management;
- gave more preferences to foreign investors, increasing the list subject to import tariff exemption and reduction, reduced profit transmittal tax rates from 10%, 7% and 5% to 7%, 5%, and 3% respectively; and
- allowed 100% foreign owned affiliates and foreign partners in business contract cooperation to carry forward losses.

However, these changes have taken place against the background of a general trend amongst developing countries, including those of East and South-East Asia, to liberalize their FDI regimes. Thus, although foreign investors have received increasingly liberal treatment from the Vietnamese authorities, this has not necessarily made the climate for FDI in Viet Nam more attractive compared to that of other potential host countries.

Three modes of FDI were permitted by the 1987 Law; business cooperation contracts (BCC), joint ventures, and 100% foreign-owned affiliates. In 1992, foreign investors in infrastructure construction were allowed to enter on a build-operate-transfer (BOT) basis. Since 2000, foreign affiliates and parties to BCCs have been allowed to change the form of investment, and there have been several cases of joint ventures

becoming 100% foreign-owned affiliates (Nguyen and Nguyen, 2003, p. 14).

The increased integration of the Vietnamese economy into the world economy during the 1990s has been accompanied by rapid economic growth and a substantial reduction in poverty. Despite the negative effect of the 1997 East Asian crisis, GDP growth averaged 7.6% per annum between 1990 and 2000. At the same time, there is general agreement that the 1990s also saw a significant reduction in the various poverty indicators (World Bank, 2000; Haughton et al., 2001; Glewwe et al., 2000). However, there has been relatively little analysis of the causal links between globalization and poverty in Viet Nam.[6]

An overview of FDI in Viet Nam[7]

The opening of the Vietnamese economy to FDI in 1987 and subsequent measures to liberalize the FDI regime, together with the fast growth of the 1990s, led to a rapid increase in FDI inflows from 1988 to 1996. Although FDI carried out (disbursements) lagged behind the commitments that were made, the levels of investment flowing into the country during this period were nevertheless high by any standards. FDI inflows

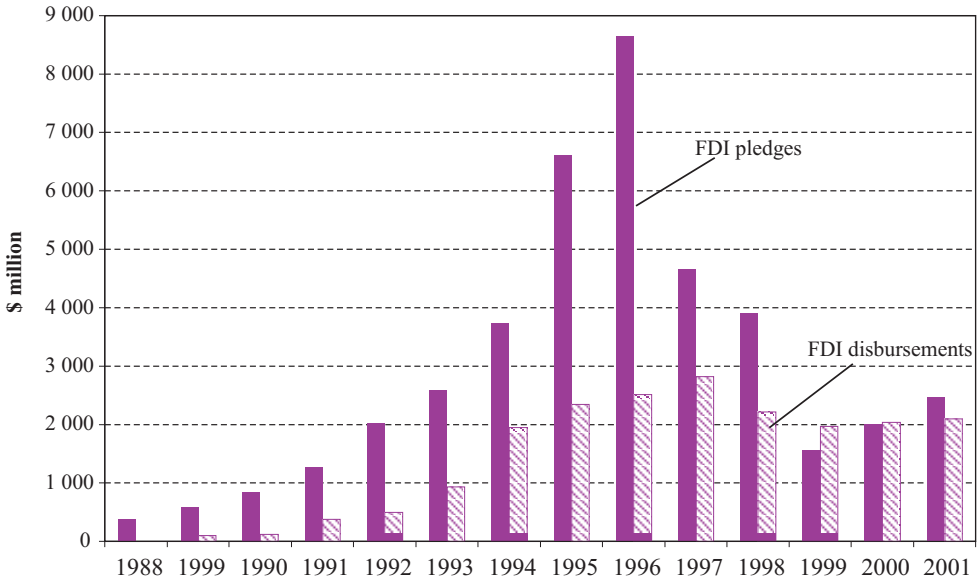
[6] There have been a few studies recently of the impact of trade liberalization on poverty in Viet Nam. For a review of these studies see Jenkins and Thoburn (2002).

[7] The data on FDI in Viet Nam are rather problematic (see Freeman and Nestor, 2002 for a discussion). Official Vietnamese sources give data on FDI commitments (which reflect planned investments) and disbursements (which reflect actual investment carried out). The commitments are consistently higher than subsequent disbursements because not all planned investments are subsequently implemented. However, these figures are not consistent with internationally accepted definitions of FDI, because they include the contribution of Vietnamese partners to joint ventures and so exaggerate the real capital inflow. They also include all foreign loans to foreign affiliates and not just those from the parent company in conformity with international definitions. As a result, World Bank and IMF estimates of actual FDI in Viet Nam are about a third lower than the figures provided by the Ministry of Planning and Investment. However, despite differences over the level of FDI in Viet Nam, there is general agreement between different sources as far as the trends are concerned.

rose to an average of over 9% of GDP between 1994 and 1997, the highest level in any developing and transition economy during this period (FIAS, 1999, fig.1). Despite its relative latecomer status with regard to FDI, the ratio of FDI stock to GDP in Viet Nam was also high, especially compared to other low income countries (Apoteker, 2000, pp. 43-44).

The vertiginous growth of FDI in Viet Nam was abruptly interrupted after 1996. New commitments fell by almost a half in 1997. Although disbursements were still rising in 1997 as a result of past commitments, actual investment also fell in the following year. There are various interpretations of the downturn in FDI inflows. The 1997 East Asian crisis played a part, since the bulk of FDI in Viet Nam in the early 1990s had come from these countries. However, it has also been noted that the beginning of the downward trend in FDI was already evident before the crisis hit. Some commentators attribute this to the slowdown in the economic reform process in Viet Nam in the mid-1990s, while others emphasize the "euphoric" nature of expectations concerning investment opportunities in the country, which were almost bound to be disappointed (Freeman and Nestor, 2002).

Figure 2. Foreign direct invesment in Viet Nam



Source: Binh and Haughton, 2003.

Although FDI inflows to Viet Nam in the past few years were much lower than earlier, they were nevertheless still significant. There is even some evidence that levels may be picking up again in the past year or two (Mekong Economics, 2002, p. 40). As will be shown in the next section, even with a lower annual inflow of FDI, foreign affiliates now play an important and growing role in the Vietnamese economy.

Table 2 shows that, despite the declining contribution of FDI to total investment after 1997, the share of foreign affiliates in the other macroeconomic aggregates has continued to increase in the late 1990s. Between 1996 and 2000, their share of non-oil exports doubled, as did the contribution to GDP.

Table 2. Share of foreign affiliates in macroeconomic aggregates, 1991-2000
(%)

	GDP	Investment	Non-oil Exports	Industrial output
1991	n.a.	14.3	4.0	12.7
1992	n.a.	21.0	4.1	15.2
1993	n.a.	25.2	8.4	15.4
1994	6.4	30.4	9.8	15.2
1995	6.3	32.3	8.8	25.1
1996	7.4	28.6	16.7	26.7
1997	9.1	31.3	25.7	28.9
1998	10.0	25.0	25.9	32.0
1999	12.2	18.0	32.7	34.7
2000	13.3	17.2	33.8	35.2

Source: Mekong Economics, 2002, table 3.1, fig. 3.1; GSO, 2000a; GSO, 2000b, tables 52; Athukorala 2002, table 2.8.

Clearly the role of FDI in Viet Nam has not been marginal in the 1990s. Therefore, it has the potential to make a major contribution to employment.

The pattern of FDI in Viet Nam is unusual in that it is dominated by regional investors rather than North American or

European firms. In terms of cumulative disbursements by foreign investors up to December 2002, the leading economies were Japan (15.7%), Singapore (12.5%), Taiwan Province of China (11.0%), the Republic of Korea (10.1%), Hong Kong (China) (8.5%), and Malaysia (5.5%) (STAR, 2003, table 16). The leading European investing country, the Netherlands, ranked behind Malaysia, while the United States, admittedly affected by the long history of strained relations with Viet Nam, accounted for only 2.5% of total FDI, level with Thailand. Although some of the investments classified as coming from Singapore, Hong Kong (China) and Malaysia were in fact made by the regional headquarters of European or North American TNCs, this does not substantially change the overall picture of the bulk of FDI coming from Japan, the four East Asian newly industrializing economies and some of Viet Nam's more advanced ASEAN partners.

A corollary of the countries of origin of FDI in Viet Nam is the fact that - again contrary to the usual picture of FDI in developing countries as dominated by large TNCs with extensive international operations - a majority of foreign investors tend to be relatively small firms. A recent survey of 171 foreign investors found that the median worldwide employment of the parent companies was only about 2,000 employees (Nguyen, Nguyen and Meyer, 2003, p. 10). The survey also found that the majority of the investors had very little experience of international investment, particularly outside their home region, at the time of their entry into Viet Nam (*ibid*. table 8b). This is particularly true of investors from Taiwan Province of China, which comprise the largest number of foreign firms in the country.

As noted above, Vietnamese law recognizes four different types of FDI, 100% foreign-owned firms, joint ventures, business cooperation contracts (BCC)[8] and build-operate-

[8] Defined as "a written document signed by two or more parties for the purpose of carrying on investment activities without creating a legal entity" (1996 Law of FDI in Viet Nam, Art. 2.9).

transfer (BOT).[9] Only the first two accord with the normal definition of FDI, and these account for the greater share of FDI in Viet Nam.

In the early days of economic reform, the Government had a strong preference for FDI in joint ventures; up to 1995, the majority of projects each year were of this form. The trend, however, has been for the share of 100% foreign affiliates to increase over time; from 1996 onwards, the majority of new projects have been 100% foreign-owned (Nguyen and Nguyen, 2003, table 10a). However, it needs to be pointed out that joint ventures are significantly larger than 100% foreign affiliates so that, in terms of capital invested, the bulk is still in the form of joint ventures (table 2).[10]

Table 3. FDI in Viet Nam, by type of investment, as of 31 December 2001
(US dollars)

Form of investment	Number of projects	Disbursement
BOT	6	39 962 500
BCC	139	3 274 371 386
100% foreign owned	1 858	5 663 310 743
Joint Venture	1 043	9 716 048 731
Total	3 046	18 693 693360

Source: MPI data, 2002.

[9] This is "a written document signed by an authorized state body of Viet Nam and a foreign investor(s) for the construction and commercial operation of an infrastructure facility for a fixed duration. Upon expiry of the duration, the foreign investor(s) shall, without compensation, transfer the facility to the State of Viet Nam (1996 Law of FDI in Viet Nam, Art. 2.11).

[10] The large size of FDI projects in Viet Nam reflects a number of significant infrastructure, construction and oil and gas projects. In recent years there has been a fall in average size as more of the newer FDI has been in smaller manufacturing projects (Schaumburg-Muller, 2003, p. 49).

At the same time, there have been significant shifts in the destination of FDI by sector. Between 1988 and 1992, oil and gas and real estate accounted for more than half of actual inflows, while the share of the manufacturing sector was only about 15% (IMF, 1999, table 31). However, over time, the share of manufacturing has risen significantly, so that, in each year from 1996 onwards, at least 40% of FDI has gone into manufacturing, while the share of oil and gas and real estate has fallen to between a quarter and a third of the total (IMF, 2002, table 29). At the end of 2001, the manufacturing sector accounted for almost 40% of cumulative disbursed investment (Mekong Economics, 2002, appendix table 3.4). Agriculture, which provides the bulk of employment in Viet Nam, has not attracted much FDI and accounted for only 6% of total investment up to 2001 (*ibid*.).

There has also been a shift in the motivation behind manufacturing FDI. In the early years of Viet Nam's opening, most projects were oriented towards the domestic market. Between 1991 and 1997, there was a significantly higher share of export-oriented projects but their share fluctuated from year to year. After 1997, there was a significant upward trend and, by 2000, the majority of new projects were highly export-oriented (Athukorala, 2002, p. 19).

FDI in Viet Nam is concentrated in the major urban centres of the country, with some 30% located in Ho Chi Minh City and 20% in Hanoi. In recent years, as the costs of operating in these cities have risen, there has been a tendency for new investment to locate more in neighbouring areas rather than in the two cities themselves. Ho Chi Minh City and neighbouring areas account for over half of all FDI registered, while Hanoi and its environs make up over a quarter of the total (Mekong Economics, 2002). At the other extreme, the six poorest provinces received only 1% of total FDI between 1988 and 2000 (Kokko et al., 2003).

FDI and employment

Given the significant role played by FDI in the Vietnamese economy, what can be said about the impact of FDI on employment in Viet Nam? Despite the massive inflows of foreign

capital in the 1990s and the significant contribution of foreign affiliates to output in this period (see table 2 above), the numbers directly employed by such affiliates are still relatively low (table 4).

As with other Vietnamese economic statistics, there are different estimates of employment by foreign affiliates. There are considerable differences between the Ministry of Planning and Investment and the Ministry of Labour, Invalids and Social Affairs estimates of the numbers employed in foreign affiliates. Ministry of Labour, Invalids and Social Affairs data are based on the annual Labour Force Survey which collects data from over 100,000 households, while the Ministry of Planning and Investment data are collected from a quarterly survey of enterprises. Although it might be expected that enterprise data would give a more accurate picture of employment, it has been noted by the IMF that Ministry of Planning and Investment data are likely to be biased upwards because firms receive tax incentives for FDI-related activities (IMF, 1999, box II.1).

Table 4. Direct employment by foreign affiliates 1990 -2001

Year	All foreign affiliates) (MOLISA	% of total labour	All foreign affiliates (MPI)	% of total labour	Foreign affiliates in industry	% of industrial labour
1990	…	…	…	…	9 753	0.4
1991	…	…	…	…	13 215	0.6
1992	…	…	…	…	19 773	0.9
1993	…	…	…	…	38 362	1.6
1994	…	…	…	…	62 909	2.7
1995	…	…	…	…	104 715	4.0
1996	95 400	0.3	…	…	163 488	6.0
1997	130 304	0.4	249 940	0.7	225 253	8.3
1998	184 201	0.5	288 782	0.8	253 712	9.3
1999	190 099	0.5	293 510	0.8	293 583	10.0
2000	218 350	0.6	400 130	1.1	288490	…
2001	353 804	0.9	419 837	1.1	301 911	…

Source: Col. (1) MOLISA, 2001, table 22; MOLISA, 2002, table 25; Col. (3) Athukorola; 2002, table 16;
Col. (5) 1990-99 GSO, 2000b, table 46; 2000-2001 Mekong Economics, 2002, appendix 6.

At one level, foreign affiliates have made an important contribution to employment. Since the mid-1990s, total employment by foreign affiliates has increased by around a quarter of a million, most of which has been in manufacturing. However, this is small relative to the absolute level of employment in Viet Nam and the need to increase employment by 1.3 to 1.4 million jobs each year to keep pace with the growth of the labour force.

The extent to which employment in foreign affiliates represents additional job creation depends in part on the mode of entry of foreign firms. A greenfield investment is more likely to create additional employment than the acquisition of an existing firm.

Unfortunately, there is no comprehensive information available about the mode of entry of foreign firms in Viet Nam other than on whether they involve joint ventures or 100% ownership. As was pointed out above, the major share of FDI was in joint-ventures – almost all of which involved State-owned enterprises as local partners – during the early years of Viet Nam's integration with the global economy. Since the mid-1990s, the share of wholly owned affiliates has risen significantly.

Takeovers of local firms by foreign companies have not occurred in Viet Nam. The few examples of acquisitions that do exist involve transfer of ownership from one foreign firm to another. Thus, it can be assumed that 100% foreign owned affiliates are almost entirely greenfield investments.

In the case of joint ventures, however, the situation is more complex. Two types of joint ventures can be distinguished (Nguyen, Nguyen and Meyer, 2003, pp.17-20). Type I involves the setting up of a new firm by a foreign investor and a local State-owned enterprise with contributions by both partners, who continue to run their other operations independently. Examples of this type are the Carlsberg and Honda operations. There is another type of joint venture, type II, in which the Vietnamese

state-owned enterprise transfers all its existing assets and liabilities to the joint venture, which may then be largely managed by the foreign investor, although the state-owned enterprise remains a shareholder and can influence strategic decisions. The ABB joint venture is an example of this type. In terms of the direct impact on employment of the FDI, type I joint ventures have more in common with greenfield investment, whereas type II are more akin to acquisitions.

A recent survey by the London Business School classified 163 investment projects carried out between 1990 and 2001 according to mode of entry (Nguyen, Nguyen and Meyer, 2003, table 11). The majority of investments involved wholly owned foreign affiliates and, as with the overall trend discussed earlier, their share has tended to increase over time. Of the investments in joint ventures, three quarters were of type I and only a quarter of type II. The share of type II joint ventures in all projects also showed a tendency to decline over time.

This suggests that the bulk of foreign affiliates in Viet Nam are in fact greenfield investments rather than changes in ownership of existing firms. This means that the direct employment by foreign-invested affiliates mainly represents newly created jobs.[11]

Why is direct employment by foreign affiliates in Viet Nam so limited?

It is often asserted, particularly by the international financial institutions, that FDI in Viet Nam has been concentrated in capital-intensive industries and that this has limited the extent of employment creation by foreign firms (IMF, 1999, p. 10; FIAS, 1999, p. 8). It is certainly the case that foreign affiliates

[11] One minor qualification is that, as pointed out earlier, joint ventures tend to be larger than wholly owned foreign affiliates in terms of investment. However, in the sample studied by the London Business School project, wholly owned affiliates tended to be larger than joint ventures in terms of employment, and type I joint ventures tended to be larger than type II (Nguyen, Nguyen and Meyer, 2003, figure 8).

in Viet Nam tend to be more capital-intensive than local firms (table 6), but this is not necessarily because they tend to be predominantly in capital-intensive industries. Indeed, the evidence suggests that, while this may have been true in the early years, it became less true in the late 1990s.

Table 5 divides manufacturing industries into three groups, according to their level of fixed assets per person employed. It shows that, in 1995, almost half of the total output of foreign affiliates came from the high capital intensity group and only 29% from the most labour intensive industries.[12] By 1999, however, the share of capital intensive industries had fallen to only 40% of the total output of foreign affiliates, which was only 4% higher than the corresponding figure for Vietnamese private firms, while the share of labour intensive industries was only 3% lower. Foreign affiliates expanded most rapidly between 1995 and 1999 in those industries characterized by medium levels of capital-intensity as reflected in a rise of almost 10% in their share of total output.

Although foreign affiliates are not now disproportionately concentrated in capital-intensive industries, it is nevertheless true that overall these firms do tend to be considerably more

Table 5. Share of manufacturing output by ownership and capital intensity, 1995-1999
(%)

Item	Foreign		State		Non-state	
	1995	1999	1995	1999	1995	1999
High K/L	49.6	38.8	32.6	30.9	38.2	35.0
Medium K/L	21.5	31.0	35.7	38.7	26.7	31.8
Low K/L	29.0	30.1	31.7	30.5	35.0	33.2

Source: author, based on GSO, 2001, tables 136, 148 and 159 for output, GSO, 2000b, tables 1 and 23 for capital intensity.

[12] If extractive industries are included, then the share of capital intensive industries of foreign affiliates in the output of foreign firms is even higher because of the large share of oil and gas projects.

capital intensive than local ones. The 1999 Industrial Survey of Viet Nam provides data on output, fixed assets and employment by sector and different ownership groups in 1998 for 17 provinces.

Table 6 shows that, in aggregate, foreign affiliates are more than seven times as capital intensive as State-owned enterprises and over eleven times as capital intensive as private Vietnamese firms and consequently create much less employment per billion Vietnamese dong of output produced. This is reflected in the second row of the table: on average, local privately owned firms generate five times as many jobs for a given level of output as foreign affiliates; even State-owned enterprises create more than double the number of jobs compared with foreign affiliates.

The difference in the number of jobs created per unit of output between foreign and Vietnamese firms within an industry can be decomposed into two components, one that is attributable to differences in employment per unit of value added (L/VA) and one that arises from differences in the ratio of value added to output (VA/O). The first is the inverse of labour productivity and can be taken as a proxy for differences in technology or degree of mechanization.[13] The second is a measure of vertical integration. The overall difference in employment creation by foreign versus local firms then depends on technology, vertical integration and the sectoral distribution.

Table 6. Capital-intensity and employment creation by ownership of industrial activities in 17 provinces, 1998

Item	Foreign affiliate	State	Non state
Capital/labour[a]	293.7	40.6	25.7
Labour/output[b]	3.2	8.7	17.9

Source: author based on GSO, 2000b, tables 5, 6, 7 and 22.
[a] Million Vietnamese dong of net fixed assets per employee.
[b] Employees per billion Vietnamese dong of gross output.

[13] One limitation of this proxy is that differences in VA/L may reflect differences in the skill mix between different types of firms. Lack of data makes it impossible to consider this aspect.

Overall employment per unit of output from foreign affiliates is only 40% of the level for Vietnamese firms (both private and state-owned). This reflects the fact that the level of vertical integration of such affiliates is a fifth lower (23% as compared to 30%) and that the level of productivity (VA/L) in foreign affiliates is almost double that of local firms (table 7). Thus, overall productivity differences are twice as important as differences in vertical integration in explaining employment creation.

Table 7. Decomposition of inter- and intra-industry causes of differences in labour-intensity and vertical integration in foreign-invested and Vietnamese firms, 1998

Item	**Labour/VA (per bn. VND)**	**VA/Output%**
Vietnamese firms	33.0	29.9
Difference due to composition	+0.5	-2.9
Intra-industry differences in coefficients	-16.5	-3.7
Foreign invested affiliates	17.0	23.4

Source: author based on GSO, 2000b.

The aggregate figures for both VA/O and VA/L can themselves be decomposed into intra-industry differences and into differences in the industrial composition of output. In the case of employment per unit of value added, the entire difference between foreign and Vietnamese firms is due to differences within industries. There is no evidence that foreign affiliates are particularly concentrated in industries with higher levels of productivity than local firms. Indeed, the positive coefficient indicates that the sectoral composition of value added by foreign affiliates is marginally positive in terms of employment creation. This is not surprising given the investment in recent years in labour-intensive industries such as clothing and footwear.

In the case of vertical integration, intra-industry differences remain more significant in accounting for the overall differences in performance than differences in the composition

of output. However, in this case over 40% of the total difference in vertical integration is due to foreign affiliates tending to be concentrated in industries with a relatively low level of value-added to output. The remainder results from foreign affiliates being more heavily dependent on bought inputs compared to Vietnamese firms within industries.

In summary, the most important factor accounting for the lower level of employment generated by foreign affiliates is their more advanced technology. However, the lower level of vertical integration, which probably reflects greater dependence on imported inputs, and the tendency for foreign affiliates to be concentrated in less vertically integrated industries, also contributed significantly to the overall effect.

Indirect employment effects

In order to analyze fully the impact of FDI on employment, it is also necessary to look at the indirect effects that it has on employment. As was pointed out earlier, these can either be positive or negative. Given the data available and the potential problems of interpretation, the results are suggestive rather than conclusive, but provide a first attempt at presenting the broader picture.

An econometric analysis was carried out to identify whether the dominant impact of FDI on employment in Viet Nam was positive or negative. Labour demand functions can be derived from Cobb-Douglas or Constant Elasticity of Substitution production functions (Hamermesh, 1986). The trade and employment literature has extended this by making the technical efficiency parameter in the estimating equation dependent on certain trade variables such as import penetration or export orientation (Greenaway et al., 1999). A similar approach is adopted here, with the difference that it is the share of foreign affiliates in production that is considered to influence the technical efficiency parameter.

First the growth of employment at the 2-digit level of the Vietnamese Standard Industrial Classification between 1995 and

1999 was regressed on the change in the share of foreign affiliates in gross output.[14] The results are summarized in table 8. The main interest here is in the impact of increased foreign ownership on employment in an industry. The impact is consistently negative and significant at either the 5% or 1% level. In other words, industries in which foreign ownership has risen significantly between 1995 and 1999 have tended to lag behind in terms of employment growth.

A number of other variables are included in the different specifications summarized in table 8. The *a priori* expectation from a standard demand for labour function is that employment is positively correlated with output and negatively with wage costs (or strictly speaking wages relative to the cost of capital). As predicted, the growth of production is consistently significant at the 1% level.

Unfortunately, there are no industry level data available on wages in Viet Nam and so an estimate was made of the change in average wages and salaries per person employed between 1995 and 1998.[15] The proxy used for wage costs has the expected negative sign in all three specifications, although levels of significance are not particularly high. The low levels of significance may reflect the fact that it is not a particularly good proxy for the change in relative wage costs.

Equation (1) introduces the share of State-owned enterprises in an industry as a control variable. A high level of State ownership at the start of the period is expected to depress the rate of growth of employment. As liberalization has taken hold in Viet Nam, State-owned enterprises were forced to

[14] The office, accounting and computing machinery industry was excluded as an outlier.

[15] It was not possible to obtain data for 1999 which would have given the same period coverage as for the other variables. The figure for 1998 was obtained directly from the Industrial Survey (GSO, 2000b, table 1), while the figure for 1995 was calculated by applying the share of wages in gross output obtained from the 1996 input-output table to the gross output per person in 1995 as calculated from GSO (2000b, tables 45 and 48).

rationalize. In some cases, they reduced employment, while in others they were able to increase output without taking on additional workers. There is therefore likely to be a negative relationship between the share of State enterprises in an industry and the level of employment. This variable has the expected negative sign and is significant at the 5% level.[16]

In the second equation, the change in the share of exports in output is introduced instead of the level of State ownership. Since Viet Nam has become increasingly specialized in exports in labour-intensive industries, it is expected that the share of exports in production would be positively correlated with employment – and this turns out to be the case. Equation (3) controls for both State ownership and export orientation.

Table 8. Determinants of sectoral employment growth, 1995-99

Variable	Eq. 1	Eq. 2	Eq. 3
PRODGR	0.617*	0.845*	0.756*
DWAGE	-0.0002**	-0.0001	-0.0002***
DFSHARE	-0.271**	-0.484*	-0.403*
SLEVEL	-0.140**		-0.094***
DXSHARE		0.225*	0.163***
Adj. R^2	0.46	0.48	0.53
D-W Stat	1.326	1.356	1.446

Source: author's calculations.
* - significant at 1% level.
** - significant at 5% level.
*** - significant at 10% level.
Notes: PRODGR – % growth of industrial output, 1995-1999.
DWAGE - % growth of wages per person employed, 1995-1998.
DFSHARE –change in share of foreign affiliates in gross output, 1995-1999.
SLEVEL – share of State owned enterprises in gross output in 1995.
DXSHARE – change in ratio of exports to gross output, 1995-1999.

[16] In contrast to the other independent variables, the share of State enterprises in output at the beginning of the period was used, on the grounds that it is a high level of State ownership initially that dampens employment growth.

There are a number of possible reasons why increased foreign ownership tends to be associated with a slower rate of employment creation. As already noted, since foreign affiliates tend to create fewer jobs per billion Vietnamese dong of output than local firms, an increased share of foreign affiliates would be expected to be associated with lower employment growth. However, in this section, we are particularly interested in the indirect impact that FDI has on employment in local firms. There are two types of effects that can be considered. The first is the impact that increased foreign ownership has on production by local firms. This can be either positive because of new market opportunities created for local producers, or negative because foreign affiliates out-compete local firms displacing them from the market.[17] The second impact is the technology effect, whereby local firms, facing competition from foreign investors, adopt more advanced technologies in order to survive. In this case the effect is expected to be a lower level of employment growth.

It is useful to distinguish between State and privately owned Vietnamese firms because they are very different kinds of enterprises and may possibly be affected in different ways by the entry of foreign firms. As noted earlier, where foreign affiliates have set up joint ventures, these have tended to be overwhelmingly with State firms.

First the impact of increased foreign presence on the growth of production of state and non-State firms was estimated. In the case of State firms, no relationship was found between changes in the share of foreign affiliates and the growth rate of

[17] FDI in an industry may create a market for local firms which can either be in the same industry or in different industries. The effects that are measured here are on firms within the same industry; but given the relatively broad industry groups used, this may still capture significant positive effects where they occur. Thus, for example, FDI in car assembly leading to an increased market for local auto parts producers, would be included (because they are within the same industry, motor vehicles), whereas the impact on local tyre producers would not.

production by State firms. However, for non-State firms, a negative relationship was observed, significant at the 5% level.

NSPRODGR = 0.127 – 0.229DFSHARE**
R^2 = 0.155, D-W = 1.762

NSPRODGR – growth of production of non-state (Vietnamese owned) firms

This suggests that the dominant effect of FDI as far as private local firms are concerned is to reduce their market share.[18]

As a second step, the impact on employment growth, given the rate of growth of production was estimated. This captures the impact of the increased presence of foreign affiliates on employment through rationalization, which can be seen as a response to increased competition.[19] In this case there is no significant relationship between employment growth in local firms and the increased share of foreign affiliates, but there is a negative relationship for State firms.

SEMPGR = - 0.090 + 0.756SPRODGR* - 0.184DFSHARE* + 0.001KINT*
R^2 = 0.919, D-W = 1.979

SPRODGR – growth of production of State-owned firms
SEMPGR – growth of employment of State-owned firms
KINT – capital intensity.

This evidence is consistent with the view that the impact of FDI on employment operates in different ways. As far as

[18] Causality could run in the opposite direction if foreign investors entered industries in which local private firms were growing slowly, although there is no intuitively obvious reason why in the Vietnamese context this should be the case.

[19] Again the direction of causation is open to debate. However the opposite interpretation would imply that foreign affiliates were deliberately avoiding those industries in which State enterprise productivity was lagging, which again seems less plausible than the interpretation proposed here.

private Vietnamese firms are concerned, the growth of foreign affiliates affects employment primarily through a reduction in their market share and hence in the growth of production, while for State-owned enterprises the main impact is through competition from foreign affiliates making them rationalize their activities and increase labour productivity. In both cases however the overall impact on employment growth tends to be negative.

Conclusions

Despite the rapid growth of FDI in Viet Nam during the 1990s and the significant share of foreign affiliates in industrial output and exports by the early years of the 21st century, the direct employment generated has been very limited. Most of Viet Nam's labour force continues to be in the agricultural sector and in services such as the wholesale and retail trades, and transport where FDI has been minimal. Even the recent expansion of foreign firms to labour-intensive manufacturing has not had a substantial impact on employment because of the high productivity and low value-added of much of this investment.

Not only have the direct employment effects of FDI in Viet Nam not been very substantial, but the indirect effects have also been minimal and possibly even negative. The outcome in terms of indirect effects depends on the balance between the crowding-in effects of FDI creating new markets for local investors and the crowding-out effects that arise when foreign affiliates displace local competitors. Foreign investors in Viet Nam have created very limited local linkages since they import most of their inputs. According to the Industrial Survey imports accounted for 63.9% of all materials and supplies purchased by foreign affiliates, compared to 36.6% for State-owned enterprises and 18.2% for local non-State firms (own calculation from GSO, 2000b, tables 31 and 35). There are of course important differences between industries; for example food processing tends to make greater use of local inputs than the clothing or electronics industries (GDI, 2000, p. II), but the overall picture is one of heavy dependence on imported inputs.

While the linkages created by foreign affiliates have been limited, there is also evidence of crowding-out of local firms, and of rationalization by State firms in response to foreign competition, both of which tend to reduce employment. ■

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Foreign direct investment in infrastructure in developing countries: does regulation make a difference?

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Since the mid-1980s, governments around the world have pursued policies to encourage private sector participation in the financing and delivery of infrastructure services. The natural monopoly characteristics of infrastructure utilities mean, however, that the privatization of these industries risks the creation of private-sector monopolies. Therefore, governments need to develop strong regulatory capabilities to police the revenues and costs of the privatized utility firms, while, at the same time, establishing regulatory credibility among investors. This article provides an empirical examination of the relationship between the quality of the regulatory framework and foreign direct investment (FDI) in infrastructure in middle and lower income developing countries during the period 1990 to 2002. The results confirm that FDI in infrastructure responded positively to an effective domestic regulatory framework. By implication, where regulatory institutions are weak and vulnerable to "capture" by the government (or the private sector), foreign investors may be more reluctant to make a major commitment to large scale infrastructure projects in developing countries.

Key words: infrastructure; foreign direct investment; regulation; developing countries.

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1. Introduction

In developing countries, an essential requirement for economic growth and sustainable development is the provision of efficient, reliable and affordable infrastructure services, such as water and sanitation, power, transport and telecommunications. The availability of efficient infrastructure services is an important determinant of the pace of market development and output growth, and, in addition, access to affordable infrastructure services for consumption purposes serves to improve household welfare, particularly among the poor. In most countries, however, the potential contribution of infrastructure to economic growth and poverty reduction has not been fully realized, and existing infrastructure stock and services fall far short of the requirements.

Traditionally, infrastructure was the exclusive province of the public sector, with large, state-owned enterprises (SOEs) being responsible for investment and service delivery. Typically, SOEs were costly and inefficient providers of infrastructure services in most developing countries. Since the mid-1980s, however, governments around the world have pursued policies to involve the private sector in the delivery and financing of infrastructure services. Encouraged by international organizations such as the World Bank, privatization has been a major component of the economic reform programmes pursued by many developing countries over the past two decades (Parker and Kirkpatrick, 2004). Privatization was thought to promote more efficient operations, expand service delivery, reduce the financial burden on government and increase the level of foreign and domestic private investment (World Bank, 1995). Early privatization measures were, on the whole, concentrated in the manufacturing sector but, in recent years, the private sector has become increasingly involved in the financing and delivery of infrastructure services. A large number of developing countries have introduced private participation into their infrastructure industries and, by the end of 2001, developing countries had received over $755 billion in private investment flows in nearly 2,500 infrastructure projects (World Bank, 2003a).

Utilities such as water supply, gas, electricity and telecommunications and certain modes of transport, e.g. rail, all have natural monopoly characteristics arising from pervasive economies of scale and scope. These characteristics mean that competition is unlikely to develop or, if it develops, it will be uneconomic because of the duplication of assets. Although technological advances, notably in telecommunications, have whittled away some of the natural monopoly characteristics in utilities, permitting economic competition in certain areas of service delivery, each of the utilities retains some natural monopoly features. As a consequence, privatization of these industries, in whole or in part, risks the introduction of private-sector monopolies that will exploit their economic power, leading to supernormal profits (high "producer surplus") and reduced consumer welfare (a lower "consumer surplus"). Consumers may suffer from no – or a limited choice of – goods and services and face monopoly prices.

To prevent such an outcome, governments need to develop strong regulatory capabilities so that they can police the revenues and costs of production of the privatized utility firms and protect consumers from monopoly exploitation. At the same time, there needs to be commitment on the part of government to the regulatory rules so that they are perceived as credible by investors. Where regulatory credibility is weak or absent, private investment decisions will be adversely affected.

This article examines the relationship between the quality of the regulatory framework and FDI in infrastructure in developing countries. Using data for the period 1990 to 2002, we test the impact of regulation on the inflow of FDI to infrastructure projects in middle and lower income economies. There are seven sections in the article. The next section reviews the recent growth in private participation in infrastructure in developing countries and describes the industrial and geographical distribution of private investment in the infrastructure industries. Section three reviews the recent literature on institutional development and economic performance, focusing on the empirical evidence on the effect

of institutional governance on the location of FDI. Section four considers the role of infrastructure regulation in developing countries, identifies the characteristics of "good" regulations, and discusses the difficulties that are encountered in establishing a regulatory regime that is credible to private market actors, in particular, to potential investors in infrastructure projects. In section five, we address the central question that this article is concerned with; namely, has the quality of regulation influenced the inflow of FDI to the infrastructure sector in developing countries? The dependent and independent variables selected for inclusion in the empirical testing are described, and the data sources are detailed. The econometric model used for testing the relationship between regulation and FDI is also specified in this section. Section six presents the estimation results. The final section provides a summary and conclusions.

2. FDI in infrastructure in developing countries

FDI has expanded steadily over the past three decades. The growth in FDI accelerated in the 1990s, rising to $331 billion in 1995 and $1.3 trillion in 2000 (UNCTAD, 2002). As a result, developing countries experienced a sharp increase in the average ratio of FDI to total investment during the 1990s. A principal feature of the growth in FDI has been its rise in the services sector, which is now the dominant sector in global FDI. For developing countries, FDI in services increased at an annual rate of 28% over the period 1988 to 1999, and by 1999, accounted for 37% of total foreign investment inflows.

A significant part of the increase in FDI in the services sector has been the growth in private capital flows for infrastructure in response to the general trend towards privatization of infrastructure in developing countries. In contrast, there was a sharp decline in donor support for infrastructure projects during the 1990s, with aggregate flows of official development assistance for the infrastructure industries falling by half during the course of the decade (Willoughby, 2002). Private sector participation in infrastructure projects in developing countries has risen dramatically since

1990 and the annual investment commitments reached a peak of $128 billion in 1997. According to the World Bank's Private Participation in Infrastructure (PPI) database, 26 countries awarded 72 infrastructure projects with private participation in 1984-89, attracting almost $19 billion in investment commitments. In the 1990s, 132 low- and middle-income countries pursued private participation in infrastructure – 57 of them in three or all four of the sectors covered in the database (transport, energy, telecommunications, and water and sewerage). In 1990-2001, developing countries transferred to the private sector the operational responsibility for almost 2,500 infrastructure projects, attracting investment commitments of more than $750 billion.

Private infrastructure projects have taken a number of forms, involving varying degrees of investment risk. *Management* and *lease* contracts involve a private entity taking over the management of an SOE for a given period although the facility continues to be owned by the public sector. The public sector retains the responsibility of financing the investments in fixed assets. In the case of management contracts, the public sector also finances working capital. Under a *concession* agreement, a private entity takes over the management of an SOE for a given period, during which it assumes significant investment risk. The ownership of the facility reverts back to the public sector at the end of the concession period. With *greenfield* projects a private entity or a public-private joint venture builds and operates a new facility for the period specified in the project contract. The facility may return to the public sector at the end of the contract period or may remain under private ownership. The fourth form of private participation in infrastructure is *divestiture* where a private entity buys an equity stake in an SOE through an asset sale, public offering or mass privatization programme. Over the period 1990-2001, divestitures accounted for 41% ($312 billion) of total private participation infrastructure projects in developing countries, greenfield projects accounted for 42% and concessions for 16% (World Bank, 2003a).

Among the developing regions, Latin America and the Caribbean accounted for 48% of the cumulative investment in infrastructure. In this region, private participation in infrastructure was often part of a broader reform programme aimed at enhancing performance through private operation and competition, and generating the financial resources needed to improve service coverage and quality through tariff adjustments (World Bank, 2003a, pp. 2-3). Under this approach, divestitures and concessions of existing assets predominated, accounting for 75% of the cumulative investment in private infrastructure projects in Latin America during the period. In more recent years, Latin America's share of investment in infrastructure has declined from 80% in 1990 to 40% in 2001, as other regions have opened their infrastructure industries to private participation. The East Asia and Pacific region has been the second largest recipient of private investment in infrastructure. Over the period 1990-2001, it accounted for 28% of cumulative private participation in infrastructure in developing countries. In contrast to Latin America, the Asia region has focused on the creation of new assets through greenfield projects, which accounted for 61% of the investment in East Asia in 1990-2001. The Asian financial crisis of 1997-1998 saw the region's share in annual investment in infrastructure decline from 40% in 1996 to 11% in 1998, before recovering to 28% in 2001.

Private participation in infrastructure in developing countries has been concentrated in the telecommunications industry, which accounted for 44% of the cumulative investment in 1990-2001. Energy, which includes electricity and the transmission and distribution of natural gas, attracted the second largest share of investment, accounting for 28% of the cumulative investment in private infrastructure projects in 1990-2001. In contract, private participation in the water and sewerage industry has been limited, accounting for 5% of cumulative investments over the period 1990-2001. The limited amount of private involvement in water utilities is likely to be a reflection of the inherent difficulties that face privatization in this industry, in terms of the technology of water provision and the nature of the product, transaction costs and regulatory weaknesses (Kirkpatrick, Parker and Zhang, 2004a).

3. Governance and FDI

There is long established and extensive literature on the determinants of FDI flows to developing countries (Dunning, 1993; Moran, 1999). The focus of many of the early contributions to this literature was on the economic determinants of FDI inflows and they showed that TNCs were attracted to invest in locations that allow the enterprise to exploit its ownership specific advantages.

More recent contributions have examined the influence of institutional factors in explaining cross-country differences in foreign investment flows. Building on the insights of the new institutional economics,[1] it is increasingly recognized that differences across countries in economic conditions provide only a partial explanation of the location choices of TNCs and that the quality of a country's institutional framework can have a significant impact on the perceived investment environment.

Institutions have been defined in a variety of ways. According to Douglas North's widely cited definition, the term "institution framework" refers to the set of informal and formal "rules of the game" that constrain political, economic and social interactions (North, 1990, 1991). From this perspective, a "good" institutional environment is one that establishes an incentive structure that reduces uncertainty and promotes efficiency, thereby contributing to stronger economic performance. Included in this institutional structure are the laws and political and social norms and conventions that are the basis for successful market production and exchange. This broad concept of institutions has been incorporated into empirical studies of FDI using a range of indicators. It is now common, for example, to include a variable to control for inter-country differences in the broad political environment (Altomonte, 2000; Morisset, 2000),

[1] New institutional economics argues that economic development is not simply the result of amassing economic resources in the form of physical and human capital, but it is also a matter of "institution building" that reduces information imperfections, maximises economic incentives and reduces transaction costs.

although, as noted by Dawson (1998), the results have been mixed. A measure of inter-country differences in corruption has also been shown, in several studies, to have a significant impact on private investment (Wei, 2000; IFC, 2002). The extent of legal protection of private property – and how well such laws are enforced – is an additional factor that has also been shown to have a significant effect on foreign investors' location decision.

A parallel stream of research has focused on perceptions and assessments of the quality of public institutions – especially on how well they function and what impact they have on private sector behaviour (IMF, 2003). The term "governance" has been adopted in the literature to cover different dimensions of the quality of public institutions, including government effectiveness and efficiency. Recent empirical evidence has confirmed that cross-country differences in growth and productivity are related to differences in the quality of governance (Rodrik, 2000; IMF, 2003; Jalilian, Kirkpatrick and Parker, 2003). This approach has been extended recently to consider the impact of governance on cross-country differences in FDI flows. Steven Globerman and Daniel Shapiro (2002) use the six governance indicators estimated by Daniel Kaufmann *et al*. (1999) to assess the impact of governance quality on both FDI inflows and outflows for a broad sample of developed and developing countries over the period1995-1997. The Kaufmann indices describe various aspects of the governance structures, including measures of political instability, rule of law, graft, regulatory burden, voice and political freedom and government effectiveness, and therefore encompass many of the individual institutional variables used in earlier studies. The Kaufmann governance variables are combined with measures of physical, human and environmental capital to explain FDI flows. The results indicate that the quality of governance infrastructure is an important determinant of both FDI inflows and outflows (Globerman and Shapiro, 2002, pp. 1908-1914). The study by Ernesto Stein and Christian Daude (2001) uses the gravity model approach to test for the role played by institutional quality on FDI location in Latin American countries during the period 1997-1999. A group of four alternative measures of institutional quality is combined

with two other sets of variables and tested as potential determinants of FDI flows. The first consists of variables that are typically used in gravity models of trade, such as GDP, per capita income and distance between the source and host countries (Greenaway and Milner, 2002). The second group consists of variables, other than the institutional ones, which can affect the attractiveness of a country as a location for FDI, such as the level of taxes on foreign investment activities, human capital and infrastructure quality. The results show that the governance variables are almost always statistically significant, confirming that the quality of institutions has a positive impact on FDI. The results are shown to be robust to the use of a wide range of institutional variables, to different model specifications and to different estimation techniques.

4. Regulation and FDI in infrastructure in developing countries

The role of economic regulation in the development process has generated considerable interest among researchers and practitioners in recent years. Economic regulation by government is associated with righting "market failures", including ameliorating the adverse effects of private enterprise activities. From the 1960s to the 1980s, the market failure argument was used to legitimize direct government involvement in productive activities in developing countries, such as promoting industrialization through import substitution, investing directly in industry and agriculture, and by extending public ownership of enterprises. Since the early 1980s, policy in developing countries has shifted from that of the interventionist state to the current focus on the regulatory state (Majone, 1997). The regulatory state model envisages leaving production to the private sector where competitive markets work well while using government regulation where significant market failure exists (World Bank, 2001).

The widespread privatization of SOEs in developing countries has focused attention on the need for an effective regulatory framework. The available evidence on the effects of

privatization in less developed countries suggests that, in general, privatization has improved the economic performance of former SOEs (Parker and Kirkpatrick, 2004; Shirley and Walsh, 2001). But the evidence also suggests that privatization, *per se*, may not be the critical factor in raising productivity and reducing production costs. More important is the introduction of effective competition and organizational or political changes (for recent reviews of the literature, see Martin and Parker, 1997; Villalonga, 2000; Megginson and Netter, 2001; Kikeri and Nellis, 2001). In the case of infrastructure industries, simply moving a monopoly from the public to the private sphere will not result in competitive behaviour. A key requirement for privatization success then becomes the effectiveness of the regulatory regime in promoting competition or in controlling the anti-competitive behaviour of dominant firms. As a result, a growing number of developing countries have introduced new, dedicated regulatory offices to supervise the activities of their privatized utilities. Most of these regulatory offices are expected to have some degree of independence from day-to-day political control, although, in practice, political intervention seems to occur in a number of countries (Cook et al., 2004). Evidence on the impact of utilities regulation in developing countries is still limited, but studies for telecommunications and electricity industries confirm that privatization brings greater benefits when it is accompanied by an effective regulatory regime (Wallsten, 2001; Zhang et al., 2003a, 2003b).

The aim of utility regulation is to establish a policy environment that sustains market incentives and investor confidence. For this to be achieved, the regulator needs to be shielded from political interference, and the government needs to support a regulatory environment that is transparent, consistent and accountable (Parker, 1999). This implies that the capacity of the state to provide strong regulatory institutions will be an important determinant of how well markets perform. In particular, this form of arm's length, independent regulation is expected to encourage private capital to invest in infrastructure utilities in the face of a potential "hold up" problem (Hart and Moore, 1988). Privatization requires investors to sink funds into fixed assets that are specific to the venture, so that once a

network is created the balance of bargaining advantage shifts from the private-sector investor to the regulator (on behalf of the government) with implications for prices and investment (Spiller, 1996). Where the investor fears this outcome, referred to as "hold up", investors may be deterred from committing to investment, or may require front-end loading of returns or sovereign guarantees from the state or international agencies. In turn, such guarantees reduce the net economic benefits of attracting private capital by reducing managerial incentives to control costs. Some form of independent regulation can provide reassurance to investors that prices, output and profits will not be politically manipulated.

The challenge of providing infrastructure regulation that establishes credibility with the private sector and, at the same time, ensures efficient economic performance on the part of the regulated enterprises is not easily achieved. There is an extensive literature on the distorting effects of state regulation even when conducted by dedicated regulatory bodies (Armstrong et al. 1994; Guasch and Hahn, 1999). Regulation is associated with information asymmetries. The regulator and the regulated can be expected to have different levels of information about such matters as costs, revenues and demand. The regulated company holds the information that the regulator needs to regulate optimally. Thus, the regulator need to establish rules and incentive mechanisms to obtain this information from the company. Given that it is highly unlikely that the regulator will receive all of the information required to regulate optimally, the results of regulation, in terms of outputs and prices, remain "second best" to those of a competitive market. This leads on to "credibility" and "commitment" considerations: *credibility* that the regulatory rules will bring about the intended outcome; and *commitment* of government to the current regulatory rules, so that post-privatization or post-concession award, the regulator does not act opportunistically to reduce the prices and profits of the private regulated businesses.

Regulatory regimes are also prone to "regulatory capture", by which the regulatory process becomes biased in favour of particular interest groups, notably the regulated companies. The

regulatory capture literature concludes that in the extreme case regulation *always* leads to socially sub-optimal outcomes because of "inefficient bargaining between interest groups over potential utility rents" (Laffont, 1999; Newbery, 1999). In the Chicago tradition of regulatory capture (Stigler, 1971; Peltzman, 1976), regulators are presumed to favour producer interests because of the concentration of regulatory benefits and diffusion of regulatory costs, which enhances the power of lobbying groups as rent-seekers. What is clear is that the capability of firms to influence public policy is an important source of competitive advantage (Shaffer, 1995). Balanced against the risks of regulatory capture, however, is the possibility that regulators might develop a culture of arrogant independence, bordering on vexatious regulation. This creates some uncertainty about the desirable degree of regulatory independence. In principle, three broad forms of regulation can be identified: (a) the regulatory authority is *integrated* into the normal government machinery, notably where it is a section of the ministry and controlled by the minister; (b) the *semi-independent agency*, which has some independence from the ministry but where decisions can still be over-ruled by a superior government authority; and (c) the *independent agency*, where there is no right of appeal to a superior government (political) authority, though there usually will be a right of appeal to the courts to ensure fairness and rationality in the decision-making process (Smith, 1997; Von Der Fehr, 2000). The independent agency is normally favoured by western advisors, who draw from the experience of regulation in the United Kingdom and the United States. However, regulatory independence and an impartial judicial review of the due process may not be credible in some institutional settings.

An additional constraint on establishing credible and effective infrastructure regulation in developing countries can be related to the resource constraints that exist in lower income countries. Many developing countries lack the necessary trained personnel to sustain regulatory commitment and credibility. Regulatory offices in developing countries tend to be small, under-manned for the job they face, and possibly more expensive to run in relation to GDP than in developed countries (Domah,

et al., 2003). Familiarity with the regulatory models and methods of regulatory policy analysis is often limited (Kirkpatrick et al 2004b). The other main difficulties found in many developing countries relate to broader governance problems (Stern and Holder, 1999; Minogue, 2002) or the legal powers and responsibilities of regulators, including their effective independence from regulatory (including political) capture.

5. Modelling regulation and FDI in infrastructure in developing countries

The basic question we seek to address is whether regulation has influenced the flow of FDI to the infrastructure industries in developing countries. More precisely, we examine whether the perceived quality of the regulation framework has an impact on the locational choice of TNCs when investing in infrastructure projects in developing countries. With the move towards the privatization of SOEs in utilities, which continues to have strong natural monopoly characteristics, developing countries have been encouraged to establish regulatory bodies that are intended to operate independently of government. Economic regulation attempts to "mimic" the economic welfare results of competition, but it can do so only in a "second best" way because competitive markets generate superior knowledge of consumer demands and producer supply costs (Sidak and Spulber, 1997). Indeed, government regulation can introduce important economic distortions into market economies: "regulation… is far from being a full substitute for competition, it can create systematic distortions, it generally faces a trade-off between promoting one type of efficiency at the expense of another, and it is likely to generate significant costs, in terms of both direct implementation and exacerbation of inefficiency" (Hay and Morris, 1991, pp. 636-637). These difficulties in designing an effective and efficient regulatory framework acquire as additional degree of complexity in the context of developing countries where significant capacity and resource constraints often arise. The impact of infrastructure regulation on market incentives, and on investment behaviour in particular, is therefore uncertain and difficult to predict *a priori*. Where the regulatory regime is successful in establishing credibility with investors, we might

expect regulation to have a benign influence on investment commitments. But where the regulatory institutions are perceived to lack independence from the government and to be vulnerable to political interference, investors may be deterred from committing to large-scale, sunk cost capital investments. Our basic hypothesis, therefore, is that the quality of regulation matters for investment, and we would expect to find a positive relationship, other things being equal, between the quality of infrastructure regulation and the inflow of FDI to the infrastructure sector.

Modelling and Data

The empirical framework employed in the analysis involves the use of a single equation model for testing the relationship between FDI in infrastructure and regulation. The model regresses the FDI data for each country on a measure of regulatory institutional quality, and a set of control variables. Data on FDI were obtained from the Private Participation in Infrastructure (PPI) database made available by the World Bank (World Bank, 2003a).[2] The PPI database records infrastructure projects with private investment in low- and middle-income countries over the period 1984 to 2002, and includes projects in transport, energy (electricity and natural gas transport), telecommunications, and water and sewerage. The database relates to total investment in infrastructure projects with private participation, rather than private investment alone. We used therefore the information on individual projects to estimate the non-private contribution to the projects, which was then excluded from the PPI data to give private investment in infrastructure projects. Examination of the detailed project information in the database also showed that, on average, about 80% of private contribution in infrastructure projects in developing countries came from foreign investors. The data on private investment were adjusted accordingly to give the estimated value of private foreign investment in infrastructure.

[2] The PPI database provides a more comprehensive coverage of infrastructure investment than the World Investment Directory published by the United Nations. It also has the advantage of being assembled on a consistent basis.

A large number of variables have been considered in the literature as possible determinants of inward FDI, although, as Globerman and Shapiro (2002, 1905) note, surprisingly few are consistently significant across the broad set of empirical studies. Real GDP capita is commonly included in FDI studies as a measure of the level of income and demand in the economy. In addition, the literature suggests that macroeconomic stability has a significant impact on FDI inflows. Here, we consider three macroeconomic variables as determinants of FDI inflows to infrastructure: inflation, exchange rate and taxation level. The annual change in the rate of inflation is included to capture the consistency of monetary policy. The annual change in the real effective exchange rate was also included as an economic stability measure, with the expectation that greater volatility in the exchange rate acts as a disincentive to inward investment. The third economic policy variable included in our analysis is the average tax burden, which we expect, *ceteris paribus*, to have a negative impact on FDI.

A second set of control variables are intended to capture those structural characteristics of the host economy that may attract FDI. Trade openness, measured as the ratio of imports and exports to GDP, has been used extensively in empirical research on economic development, and it is typically found to be positively related to economic growth (Sachs and Warner, 1995). The relationship between FDI and openness, however, is more complex. To the extent that trade openness reflects the economy's commitment to the freer international movement of goods and services, it can be expected to encourage FDI. On the other hand, trade protection has been widely used to provide foreign (and domestic) investors with protection from international competition, and to the extent that the trade openness variable reflects a policy of market liberalization, it may have a negative impact, at the margin, on the FDI's locational decision. A country's level of financial development has also been shown to have a significant influence on the rate and pattern of economic development (Jalilain and Kirkpatrick, 2004). Where the domestic financial and capital markets are relatively underdeveloped, the capacity for local financing of large scale private investments will be constrained. We might

expect, therefore, to find a relatively greater use of foreign investment, other things being equal, in economies where the financial infrastructure is at an early stage of development. Labour force characteristics have been widely used as explanatory variables in empirical studies of FDI, with a range of different measures have been used in the literature, including, wage rates, skills level, and educational achievement. The hypotheses tested have varied. In the earlier literature, low wage, unskilled labour was seen as being attractive to FDI, particularly to export-oriented, labour intensive assembly activities. More recent literature has stressed the importance of a skilled and educated labour force for employment in technologically advanced and flexible production processes. Not surprisingly, the labour force variable is often either statistically insignificant or appears with the 'wrong' sign in regression equations (Altomonte, 2000; Stein and Daude, 2001).

The final control variable used in our analysis relates to the quality of the infrastructure stock in the sample countries. The investment decision is expected to be influenced by the need for additional infrastructure provision if, for example, poverty reduction is to be achieved (Leipziger et al, 2003; Fay and Yepes, 2003). We expect, therefore, that countries with greater infrastructure needs will be more attractive to foreign investment in infrastructure. We use two measures of the level of infrastructure provision: telephone lines per 1000 population and electricity generation per capita.

The focus of our research is on the effect that a regulation institutional framework may have on foreign investors' decision to commit resources to infrastructure projects in developing countries. Two variables are used as measures of the quality of the regulatory environment for the infrastructure sector. The first is taken from the set of governance-related estimated by Kaufmann et al. (2003). These indices - which we refer to as Kaufmann's indices in the rest of the article - describe six aspects of the governance structures for a broad cross-section of countries: voice and accountability, political instability, regulatory quality, rule of law, control of corruption and government effectiveness. These indicators are estimated based

on several hundred individual variables measuring perceptions of governance, drawn from 25 separate data sources constructed by 18 different organizations. The indicators are normalized, with higher values denoting better governance. Of the six measures, the index of government effectiveness is used in our analysis as a proxy of the regulatory environment of the infrastructure sector. This index is described by Kaufmann et al. (2003) as being based on "perceptions of the quality of public provision, quality of bureaucracy, competence of civil servants and their independence from political pressure, and the credibility of government decisions".[3] A limitation of this measure is that it relates to regulatory effectiveness at the level of the economy as a whole, rather than the infrastructure industries.

In the light of this limitation of the Kaufmann measure of regulation quality, we constructed a second measure in the form of a dummy variable to indicate whether independent regulators were established in the telecommunications and electric power industries. According to the PPI database, almost three-quarters of the private investment in infrastructure in developing countries during the 1990s was undertaken in these two sectors. This dummy allows us, therefore, to examine whether the existence of independent regulators has affected private investors' confidence and decision to invest in the infrastructure sector. Information on the existence of independent regulators in the electric power sector was obtained from World Energy Council and Energy Information Administration (Zhang, *et al.* 2003a), and the information on the telecoms industry was obtained from International Telecommunications Union (ITU). The dummy takes a value of 1 if there are independent regulators in both of the sectors. While this dummy has the advantage of relating directly to the institutional structure for utility regulation in the sample countries, the data are based on the organizational

[3] The Kaufmann index of regulatory quality measures the burden on business via quantitative regulations, price regulations, price controls and other interventions in the economy, and was judged to be less suitable than government effectiveness as a proxy for the quality of infrastructure regulation.

independence of the regulatory bodies, rather than their actual autonomy from government interference.

In addition to regulatory quality, other broader aspects of governance and institutional development can affect the level of FDI in infrastructure. We included, therefore, the first principal component of Kaufmann's indices to capture the quality of governance infrastructure in general.

Table 1 gives a description of the variables used in the analysis. The correlation matrix for the independent variables is provided in table 2.

Table 1. Variables, Definitions and Sources

Variable	Description	Sources
PPI	Private foreign investment in infrastructure	World Bank PPI database
GDPP	GDP per capita	World Bank Development Indicators
INFLAT	Annual change of inflation rate	World Bank Development Indicators
TAX	Tax revenue/ GDP	World Bank Development Indicators
TRADE	Export and import as % of GDP	World Bank Development Indicators
EDU	Second School Enrolment Rate	World Bank Development Indicators
EXCHANGE	Annual change of real effect exchange rate	World Bank Development Indicators; IMF
CREDIT	Domestic credit to private sector/GDP	World Bank Development Indicators
KAUF	First principal component of Kaufmann's governance indicators	Kaufmann, Kraay and Mastruzzi (2003)
GVTEFF	Kaufmann's index of government effectiveness	Kaufmann, Kraay and Mastruzzi (2003)
REG-DUM	Dummy of independent regulators	Zhang *et al*. (2003a); ITU
TEL	Telephone mainlines per 1000 people	World Bank Development Indicators
ELE	Electricity generation per capita	World Bank Development Indicators

Source: Authors.

Table 2. Correlation between the Variables

	LGDPP1	INFLAT	TAX	TRADE	EDU	EXCHANGE	CREDIT	GVTEFF	KAUF	REG-DUM	TEL	ELE
LGDPP1	1											
INFLAT	-0.007	1										
TAX	0.36	-0.069	1									
TRADE	0.23	-0.022	0.29	1								
EDU	0.47	0.049	0.07	-0.007	1							
EXCHANGE	0.02	0.36	0.028	-0.06	0.491	1						
CREDIT	0.31	-0.11	-0.018	0.33	0.048	-0.03	1					
GVTEFF	0.54	-0.062	0.25	0.26	0.287	-0.08	0.58	1				
KAUF	0.65	-0.07	0.36	0.27	0.309	-0.065	0.44	0.87	1			
REG-DUM	0.26	-0.08	-0.12	-0.23	0.086	-0.07	-0.02	-0.03	0.05	1		
TEL	0.67	0.003	0.56	0.39	0.501	-0.01	0.1	0.45	0.54	0.07	1	
ELE	0.54	0.024	0.49	0.33	0.41	0.015	0.12	0.3	0.41	-0.046	0.71	1

Source: Authors.

The model is specified such that PPI and income per capita are measured in logarithms, with the GDP coefficient measuring the elasticity of private investment in infrastructure. The other controls are in the form of percentage. The variables for income per capita openness, inflation, education, and the real exchange rate were all lagged to allow for potential endogeneity bias and adjustment lags.

The model is specified as follows.

$$\ln(PPI) = \beta_0 + X_{it}\beta_i + REG_{it}(GOV_{it})\beta_r + e_{it},$$

where *REG (GOV)* refers to the regulation and governance variables, and *X* represents the control variables. Data from 67 low- and middle-income countries for the period 1990-2002 were used in the estimation of PPI.

Panel data estimation methods were employed and models of both fixed and random effects were tested. However, in all the cases the Hausman statistics supported the fixed-effect specification. This means that the error term in the model can be decomposed into the unit-specific residual that differs between units but remains constant for any particular unit and the remainder of the disturbance.

6. Results

Tables 3 and 4 present the results. In table 3 we report the results separately for each of the three measures of regulation quality, namely, the Kaufmann principal components index, the Kaufmann government effectiveness index, and the utility regulation dummy variable, combined with the same set of control variables (equations 1-3). We also tested for the combined effect of utility regulation and broader governance, by combining the Kaufmann principal component variable and the utility regulation variable in the same equation (equation 4). Table 4 reports the same set of equations, with the addition of the quality of physical infrastructure variables in the regressions.

Table 3. Estimation Results for FDI in Infrastructure

	(1)	(2)	(3)	(4)
Ln GDP per capita (lagged)	1.596 (1.721)*	1.641 (1.773)*	1.862 (2.006)**	1.591 (1.715)*
Annual change of inflation (lagged)	0.0003 (1.454)	0.0003 (1.243)	0.0003 (1.527)	0.0003 (1.504)
Tax burden (lagged)	-0.016 (0.362)	-0.014 (0.324)	-0.001 (0.035)	-0.0014 (0.333)
Export and import/GDP (lagged)	-0.023 (1.879)*	-0.020 (1.630)	-0.021 (1.706)*	-0.022 (1.798)*
School enrolment rate (lagged)	-0.015 (1.348)	-0.015 (1.408)	-0.017 (1.532)	-0.015 (1.383)
Annual change of real effect exchange rate (lagged)	-0.002 (2.721)***	-0.002 (2.911)***	-0.002 (2.906)***	-0.002 (2.661)***
Domestic credit to private sector/GDP	-0.013 (1.696)*	-0.013 (1.635)	-0.012 (1.559)	-0.014 (1.703)*
First principal component of Kaufmann	1.131 (2.800)***			1.077 (2.643)***
Government effectiveness index		0.773 (1.796)*		
Regulation dummy			0.504 (1.791)*	0.287 (0.987)
Constant	-2.767 (0.409)	-3.909 (0.576)	-5.886 (0.865)	-3.560 (0.987)
D-W d Statistics	1.865	1.851	1.863	1.866
Adjusted R SQ	0.502	0.509	0.492	0.502
No. of Obs.	453	453	453	453

For the key to the independent variables see Table 1 t-statistics in parentheses.
*, ** and *** indicate that the coefficient is significant at the 10%, 5% and 1% levels, respectively.

Turning first to the results for the control variables, we note that, in most cases, the variables display the correct sign. FDI in infrastructure is positively related to the economy's level of development as proxied by income per capita, and is always statistically significant. Among the three macroeconomic

Table 4. Estimation Results with the Infrastructure Quality Variables

	(5)	(6)	(7)	(8)
Ln GDP per capita (lagged)	2.657 (2.765)***	2.827 (2.963)***	2.996 (3.100)***	2.741 (2.840)***
Annual change of inflation (lagged)	0.0003 (1.583)	0.0003 (1.471)	0.0003 (1.588)	0.0003 (1.543)
Tax burden (lagged)	-0.014 (0.327)	-0.011 (0.243)	-0.006 (0.135)	-0.013 (0.300)
Export and import/GDP (lagged)	-0.018 (1.528)	-0.015 (1.257)	-0.017 (1.389)	-0.0157 (1.454)
School enrolment rate (lagged)	-0.012 (1.084)	-0.012 (1.111)	-0.014 (1.266)	-0.012 (1.117)
Annual change of real effect exchange rate (lagged)	-0.002 (2.696)***	-0.002 (2.871)***	-0.002 (2.881)***	-0.002 (2.639)***
Domestic credit to private sector/GDP	-0.014 (1.813)*	-0.014 (1.790)*	-0.013 (1.688)*	-0.014 (1.819)*
First principal component of Kaufmann	1.125 (2.796)***			1.075 (2.648)***
Government effectiveness index		0.866 (2.029)**		
Regulation dummy			0.471 (1.696)*	0.269 (0.940)
Telephone lines per 1000 people	-0.004 (1.173)	-0.003 (1.201)	-0.002 (0.772)	-0.004 (1.170)
Electricity generation per capita	-0.001 (3.056)***	-0.001 (3.285)***	-0.001 (3.300)***	-0.001 (3.040)***
Constant	-9.626 (1.392)	-10.924 (1.577)	-12.577 (1.810)*	-10.340 (1.487)
D-W d Statistics	1.881	1.871	1.866	1.819
Adjusted R SQ	0.518	0.513	0.508	0.518
No. of Obs.	453	453	453	453

For the key to the independent variables see Table 1 t-statistics in parentheses.
*, **, *** indicate that the coefficient is significant at the 10%, 5% and 1% levels, respectively

variables, only the instability in the real exchange rate is statistically significant. The proxy for human capital is negatively related to FDI, but is never statistically significant. The openness variable is always negatively signed and in some cases statistically significant.[4] The level of financial industry development as measured by the ratio of private sector credit to GDP is negative and in most cases statistically significant, providing some support for the hypothesis that FDI will be greater where the capacity of the private sector to finance its investment is constrained by an underdeveloped domestic financial sector. Finally, the physical infrastructure variables (table 4) are negatively signed (and in the case of electricity supply statistically significant), confirming that FDI in infrastructure is attracted, other things being equal, to countries where the need for additional infrastructure provision is greater.

We can now consider the results for the regulation variables. Each of the three regulatory measures is correctly signed, confirming that FDI in infrastructure is positively influenced by the quality of the regulatory framework. The general measure of regulatory quality, proxied by the principal components measure of the Kaufmann indices, is statistically significant and confirms that the overall quality of the governance environment attracts inward FDI in infrastructure. The Kaufmann index of government effectiveness is also positive and statistically significant. The specific measure of infrastructure regulation based on the existence of an independent regulatory agency in the telecommunications and electricity industries is also statistically significant. However, when the independent utility regulation variable and the measure for overall governance are both included in the same equation, the former becomes insignificant, although correctly signed. We are unable, therefore, to detect a strong influence for independent utility regulation, independent of the quality of overall governance, which may indicate that investors in infrastructure

[4] Ghura and Goodwin (2000) also report a negative (and statistically significant) relationship between FDI and openness, for sub-Saharan countries.

are more likely to be influenced in their locational decision by the overall governance environment than the existence of an independent utility regulatory authority.

7. Summary and conclusions

The 1990s saw an unprecedented increase in private foreign investment in infrastructure projects in developing countries. Much of this investment was in the telecommunications and electricity industries. For the private sector, infrastructure investment is associated with a sizeable investor risk linked to the long-term sunk cost characteristics of infrastructure projects. For the government, the involvement of the private sector in "natural monopolies" raises new challenges in designing regulatory structures that can control anti-competitive or monopolistic behaviour, while at the same time maintaining the attractiveness of the domestic economy to potential foreign investors in the infrastructure industries.

The purpose of this article was to assess the impact of regulatory governance on FDI in infrastructure projects in middle and low income economies. Using a dataset on private participation in infrastructure projects in developing countries for the period 1990 to 2002 recently made available by the World Bank, we constructed an econometric model that was used to estimate the determinants of FDI in infrastructure. The determinants were grouped into control variables for economic policy and structural characteristics and infrastructure regulation variables. The selection of control variables was motivated by existing research on FDI, and our results are consistent with the empirical evidence on the key determinants of FDI reported in the literature. Three alternative measures of regulation quality were used in our empirical analysis. All are positively signed and statistically significant.

We interpret these results as confirmation of the basic hypothesis that FDI in infrastructure responds positively to the existence of an effective regulatory framework that provides regulatory creditability to the private sector. By implication,

where regulatory institutions are weak and vulnerable to "capture" by the government (or the private sector), foreign investors may be more reluctant to make a major commitment to large scale infrastructure projects in developing countries. The main policy implication of our findings is the need for supporting capacity building and institutional strengthening for robust and independent regulation in developing countries.■

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Towards a new paradigm of development: implications for the determinants of international business

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This article explores the implications of new thinking on the objectives and content of development for traditional explanations of foreign direct investment and the activities of transnational corporations. In particular, it argues that more scholarly attention should be given to the role of institutions in affecting the competitiveness of firms and the development strategies of countries.

Key words: development, foreign direct investment, institutions, international business, transnational corporations, governments.

Introduction

One of the largely unexpected consequences of the contemporary phase of globalization is that it is compelling academics, national governments and supranational entities to reappraise the nature and purposes of development and the ways in which the activities of transnational corporations (TNCs)[1] are both responding to and helping to shape it.

In this article, I shall first summarize the main ingredients of what I shall term the new paradigm of development (NPD), and how these differ, in substance or emphasis, from those that were generally accepted in the economics profession in the 1970s and 1980s. In doing so, I shall give particular attention to the

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[1] I use the threshold definition of TNCs to embrace all enterprises that engage in FDI and that own or control value-adding activity outside their national boundaries.

recent writings of three Nobel Laureates in Economics – Amartya Sen, Joseph Stiglitz and Douglass North – and set these in the context of the cultures, belief systems and actions of the stakeholders in the international economy in respect of 20/21 globalization.[2] I shall then offer my own interpretation of the NPD and, in doing so, I will focus on what, in my judgement, has been one of its most neglected – though important – components, viz. the content, structure and effectiveness of its institutions.

The final part of the article will examine some of the implications of the NPD for our theorizing about the determinants of TNC activity in developing countries. In particular, I shall introduce the concept of institutional assets into the received eclectic, or OLI,[3] paradigm of international production.[4]

The state of development thinking circa the 1970s

Table 1 summarizes the purposes, nature and determinants of development in the 1970s and early 1980s, as set out in the leading scholarly writings of the time, and in the attitudes, statements, policies, strategies and other actions taken by the leading participants in the development-enhancing process. As then expressed, they were broad generalizations; their precise form varied considerably according to country, sector or firm-specific factors.[5]

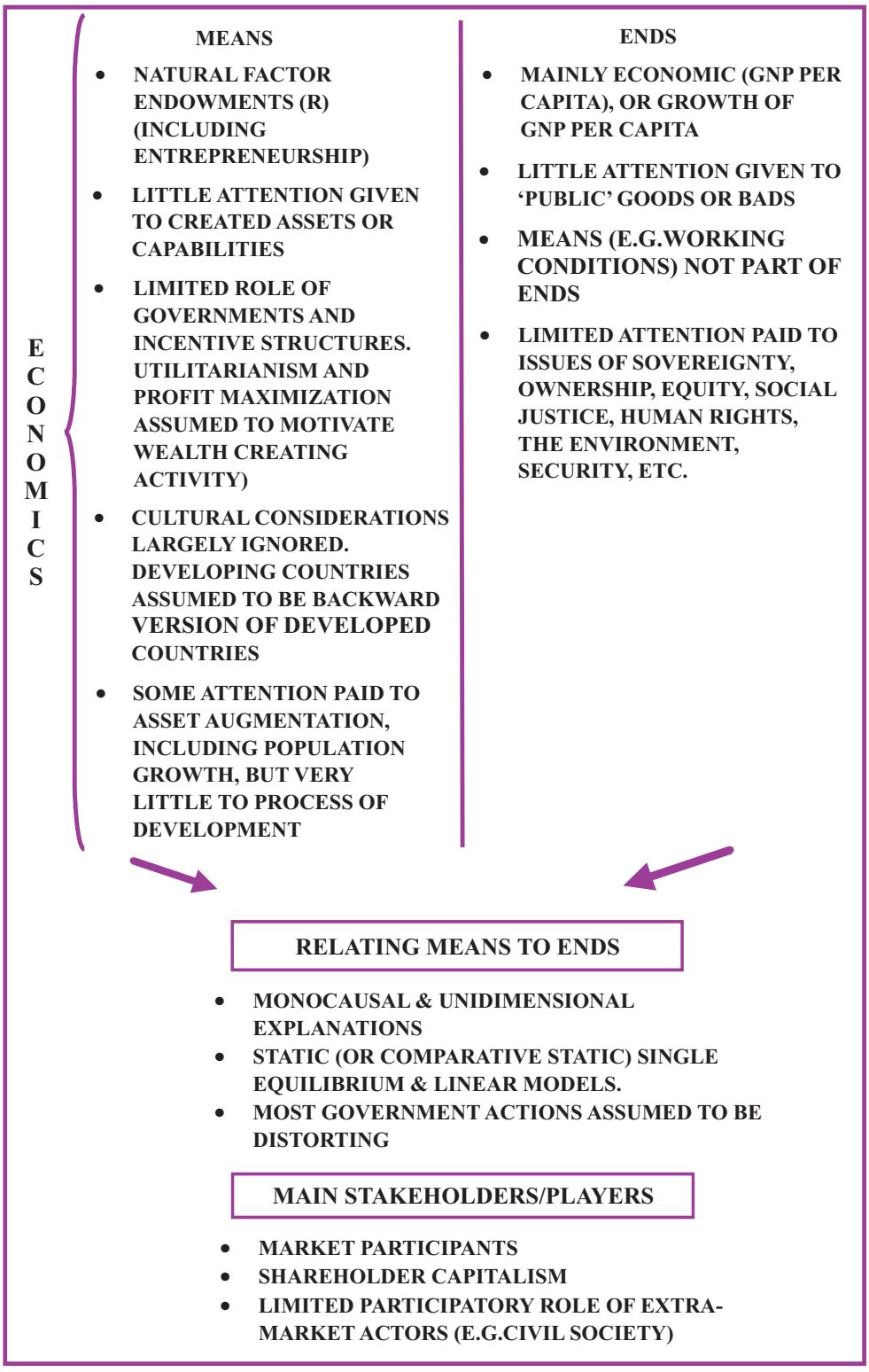
[2] So called to distinguish contemporary globalization from the previous great leap forward in the internationalization of world commerce viz in the 19th and early 20th century and in the late 1950s and 1960s (19/20 globalization)

[3] Ownership, location and internalization.

[4] As set out, for example, in Dunning (2000, 2002a).

[5] As evaluated, for example, by several authors in Meier and Stiglitz (2001). Gerald Meier, for example, in his chapter distinguishes between two generations of post-World War II development economists prior to the current phase. The first, typified by the work of Ragnar Nurkse (1952) and Robert Solow (1957), focused on capital accumulation as the central determinant of development. It was also macro-oriented and emphasized the role of governments in counteracting structural market failure. The second generation of economists were grounded in the principles of neo-classical economics and was more micro-oriented in its perspective. Their work tended to emphasise the adverse and/or unintended consequences of government intervention, and argued for a return to more market-oriented policies.

Table 1. The old development paradigm (Neo-classical model)



Source: Author.

The key propositions of the old paradigm of development (OPD) were based on the underlying premise that, as a group, the goals and characteristics of the developing countries were fundamentally similar to those of developed countries[6] except that the former were in an earlier stage of their development process! Furthermore, it was believed that the best way to advance the material living standards of the poorer countries – usually proxied by gross national product (GNP) per head – was for them to replicate the institutions and economic policies of the wealthier nations, which, it was assumed, had helped the latter to grow and prosper in the first place.

With some notable exceptions (such as those of the dependencia and Marxist schools of thought)[7] and unlike the pioneers of development economics (such as Gunnar Myrdal, Albert Hirschman, Raul Prebisch, Ragnar Nurkse and Paul Rosentein Rodan),[8] the ideas and scholarship of economists on development in the 1970s and early 1980s paid relatively little heed to social goals or to the output of goods and services that could not be readily supplied by the market. In the developed world, at least, most of the literature was an extension of the utilitarian neoclassical paradigm, in which the role of government was limited to facilitating market transactions and supplying goods and services markets could not, or would not, supply. Essentially, western economists interested in development sought to apply the toolkits of received trade, productivity and growth theory to explain why some developing countries grew and others did not (Reynolds, 1970). For the most part, little attention was given to the concept of human development[9] or to such public goods as the environment,

[6] Which differed according to, for example, their resource structures, size, degree of international economic involvement, political identity and cultural traditions.

[7] See, for example, Biersteker (1978), Sunkel (1972), South (1979) in respect of the dependencia school and the Marxist approach. See also several contributions in Moran (1986).

[8] See Hirschman (1958), Myrdal (1957), Nurkse (1953), Prebisch (1950) and Rosentein Rodan (1943). Each of these economists paid special attention to the role of institutions in promoting acceptable economic development.

[9] Later defined by Sen as the process of strengthening human capabilities and expanding human choices (Sen, 1999).

participation, safety, equity and sovereignty, identified, for example, by John Stuart Mill (1852) over two centuries ago and, more recently, by Amartya Sen (1999) and Joseph Stiglitz in their writings.[10]

Although critical – to a greater or lesser extent – of the neoclassical approach, the influential work of scholars such as W. Arthur Lewis (1965), Paul Streeten (1974), Bela Balassa (1981, 1989) and Hollis Chenery (1979), some of which are summarized in Sanjaya Lall (1993), essentially viewed the plight of developing countries as stemming from a deficiency of indigenous resources and capabilities to meet a mosaic of economic objectives. For example, in his careful appraisal of the role of foreign direct investment (FDI) in development, Streeten identified eight "gaps" that developing countries needed to fill if their policy goals were to be met.[11] However, neither he nor other scholars at the time paid much regard to the *process* by which the gaps might be reduced. The neoclassical approach was, by and large, a comparative static and frictionless one.[12] It also tended to be monocausal and unidimensional. In the main, it deployed single equilibrium models. The means and ends of development were treated largely independently of each other. Scant consideration was given to international public goods, such

[10] Notably in Sen (1999) and Stiglitz (1998).

[11] These included a *resource* gap (between desired investment and locally mobilized savings) a *foreign exchange* or *trade* gap between foreign exchange requirements and foreign exchange earnings plus official aid, a *budgetary* gap between target revenue and locally raised taxes, a *management and skill* gap between the supply of and demand for these capacities, a *technology* gap, an *entrepreneurship* gap, an (international) *marketing* gap, an *employment* gap and a *market structure* (improvement) gap.

[12] Hirschman and Balassa were exceptions. In particular, Hirschman viewed investment (both foreign and domestic) in time "t" as a pacemaker for further investment in time "t+1". He was almost one of the first economists to suggest that foreign investment was one of the main catalysts of "unbalanced" growth. Balassa's main contribution was to introduce the concept of dynamic comparative advantage in his analysis of the interface between trade policy and economic development. For a discussion of the relationships between Hirschman's work and that of Buckley and Casson's seminal volume (1976), see Agmon (2003).

as the environment, security and pollution. The role of civil society and supranational agencies was largely discounted, while the broader issues of human rights, ownership, and cultural identity were, for the most part, ignored.

Outside of (western-based) academia, however, a broader – and more people-related – perspective on development issues was emerging. Nowhere was this more demonstrated than in the United Nations in New York, where the whole issue of the sovereignty and participation of the developing countries in the emerging world economy was being actively aired and discussed.[13] In the 1970s, pronouncements such as the *Universal Declaration of Human Rights*, the *New International Economic Order* and *Permanent Sovereignty over National Resources*, together with the report of a Group of Eminent Persons on the *Role of Multinational Corporations on Economic Development and International Relations* (United Nations, 1974) became the template for identifying the major goals and tasks of development.[14] However, the case for a more holistic and integrated strategy towards development that also recognized the desire for sovereignty in economic decision taking by national governments was not shared, or shared to the same extent, by all developing countries. It was, for example, most vociferously voiced by Latin American countries and least by the emerging and rapidly growing East Asian economies.[15]

For the most part, these opinions and actions had little impact on mainstream scholarly thinking. Neither did they greatly influence the views of TNCs, which, at that time, (with

[13] For a full discussion of the role played by the United Nations and its agencies in fashioning thinking on development, see Jolly, Emmerij, Ghai and Lapeyre (2004).

[14] In addition, several UN agencies (e.g. UNCTAD, ILO, UNIDO) also took a broad perspective on development. By contrast, the World Bank, the IMF and the GATT took a more narrow economic efficiency enhancing approach.

[15] The former were most influenced by the "dependencia" group of scholars; the latter by a Western-based neoclassical approach, modified to include the role of the State as an enabling and participatory form of governance.

a few exceptions) thought that it was the responsibility of national governments to deal with the extra-economic issues of development, including those related to human rights, social justice and the environment. Moreover, the strategies of such enterprises were perceived to be very much driven by the need to meet their shareholders' interests, which, in the main, were of a profit-seeking, and/or capital appreciation kind. The voice of civil society – in the guise of special interest groups, including consumer and ethical shareholder activism – was generally muted and ineffective, except when directed to particular issues, like apartheid, natural disasters and the more blatant unacceptable practices of TNCs (e.g. the ITT affair in Chile and the Nestlé milk powder scandal).[16]

One reason for this was that the *awareness* factor and the *radius of concern* – especially among the stakeholders in developed countries – was, itself, not well developed. Neither international travel nor modes of communication approached today's levels or degrees of complexity. However, some established and well-meaning philanthropic organizations and religious organizations continued to emphasize the needs of the poorest inhabitants of developing countries, as indeed did labour groups in respect of the interests of third world workers.

In short, the contents of the OPD, which largely dominated mainstream scholarly thinking in the 1970s and early 1980s, tended to embrace a narrow somewhat ethnocentric, utilitarian linear and static economic approach. In particular, it paid relatively little attention to the extent and quality of institutional infrastructure and social capital, which is widely accepted today as one of the main determinants of the success by which developing countries can create and effectively deploy resources and capabilities, and gain access to markets, which are critical for their development.

[16] These and other early malpractices on the part of TNCs are described by Tagi Sagafi-nejad in his history of the interaction between the United Nations and TNCs (see Sagafi-nejad, 2007).

Globalization and technological advance: the opening for a new paradigm

In the two decades following the election of the Thatcher government in the United Kingdom and the Reagan administration in the United States, the global economic scenario and its implications for thinking on the purposes and characteristics of development has changed dramatically.

Most of the events of these years are well known and have been described at length elsewhere. Table 2 summarizes some of these as they affect the subject of this article. It can be seen that the main triggers to development rethinking were two-fold. The first was the post-1980 liberalization of markets and technological advances in cross-border transport and communication. Both events were – at least partly – the result of the changes in political and economic ideologies following the emergence of the Reagan and Thatcher governments and the fall of the Berlin Wall. Between them, they led to an enlargement of the economic opportunities of firms, a widening and deepening of social intercourse between people of different cultures, and a huge reduction in cross-border transaction costs. The second driving force comprised a series of dramatic advances in all forms of information, learning and knowledge relating to the wealth-creating process. Such information and knowledge are embedded in physical assets, human capabilities and entrepreneurship. They embrace all stages of any given value-chain and across value-chains. They incorporate both micro and macro organizational capital.

When these two forces are combined, it can be seen that they are refashioning the content and form of the production and exchange activities of firms. In particular, it is frequently necessary for firms to work together to create and exploit some kinds of innovations. In other cases, a firm producing end goods and services in one country may need to draw upon the resources, capabilities and markets of a firm in another country either to provide it with essential inputs or to help it market and distribute its product(s). To be effective, such horizontal and vertical coalitions require each of the participants to bring to the table

tangible and intangible assets, and a spirit of cooperation over and above that needed in a hierarchical organization. In particular, research has shown that the virtues of trust, honesty, reciprocity and a respect for cultural and other traditions are particularly important requirements determining the success of strategic alliances and other forms of non-equity partnerships.[17]

Table 2. Some key features of 20/21 globlization

- MARKET LIBERALIZATION
  - (a) As affecting transition economies (and (some) developing economies).
  - (b) As affecting all economies.
- TECHNOLOGICAL ADVANCES
  - (a) Transport and communications (leading to increased speed, lower cost, improved quality).
  - (b) Other
- IDEOLOGICAL CHANGES (cf. pre-1980 period).
  - (a) Reconfiguration of (dominating) belief systems and mindsets of several societies.
  - (b) A more intensive focus on the human (cf. the physical) environment underpinning economic activity.
- RELATIVE GROWTH OF ALLIANCE CAPITALISM AND NETWORK RELATIONSHIPS
  - (a) Intra firm
  - (b) Inter-firm
  - (c) Inter-organization (e.g. between governments, NGOs and firms, etc.)
- LEARNING EXPERIENCES/TRAJECTORIES OF PAST
- EMERGENCE AND GROWTH OF NEW PLAYERS ON WORLD ECONOMIC STAGE (especially China and India).
- NEW IMPORTANCE ATTACHED TO THE INSTITUTIONAL STRUCTURE OF SOCIETIES AS A DETERMINANT OF ECONOMIC SUCCESS.

Source: Author.

[17] For examples, see various contributions in Contractor and Lorange (2002).

Perhaps the most significant consequence of globalization relates to its institutional imperatives, and particularly the ideas, motivation and conduct of its participants. My assertions here are two-fold. The first is that one of the unique features of contemporary capitalism is that, in a variety of ways, it links – it interconnects – different behavioural mores and belief systems, which, though prima facie are not easily reconcilable with each other, need to be respected if international commerce is to be conducted in a peaceful and productive way. Globalization has, in fact, widened and changed the physical landscape and human environment for doing business. The number of new players on the world economic stage – each with its own distinctive ideologies and values – is increasing all the time.[18] Technological advances have made economic and social life more volatile, complex and challenging. Television, travel and the Internet have increased the awareness and understanding of the peoples of the world about both the commonality and diversity of their values, needs and aspirations. They have facilitated the cross-border exchange of knowledge, ideas and information. Dwindling transport and communication costs have widened the radius of interpersonal transactions, and have facilitated new forms of inter- and intra-corporate cooperation. All these events are compelling a re-evaluation of the means and ends of development and are leading to a questioning of the means by which poverty and the other downsides associated with our contemporary global economy might be contained or resolved.

The second of my two assertions is that changes in incentive structures, and the belief systems underpinning them, rarely move in tandem with technical, economic or political change. Indeed, as Michael Novak (1982) has sagely observed, *each age of capitalism depends on a moral culture that nurtures the virtues and values on which its existence depends* (Novak, 1982, p.56). It is the implicit contention of this contribution that not only does 20/21 globalization require a new understanding of the purposes, nature and determinants of

[18] For example, the number of nations belonging to the United Nations at the end of 2003 was 215 compared with 90 thirty years ago.

development, but also that, if it is to be economically sustainable, democratically inclusive and socially acceptable, its institutions and institutional infrastructure need to be remodelled and upgraded. Many of the changes required are in the process of being put in place; others are still necessary. It is the implications of these for the determinants of TNC activity to which I shall give attention in the latter part of this article.

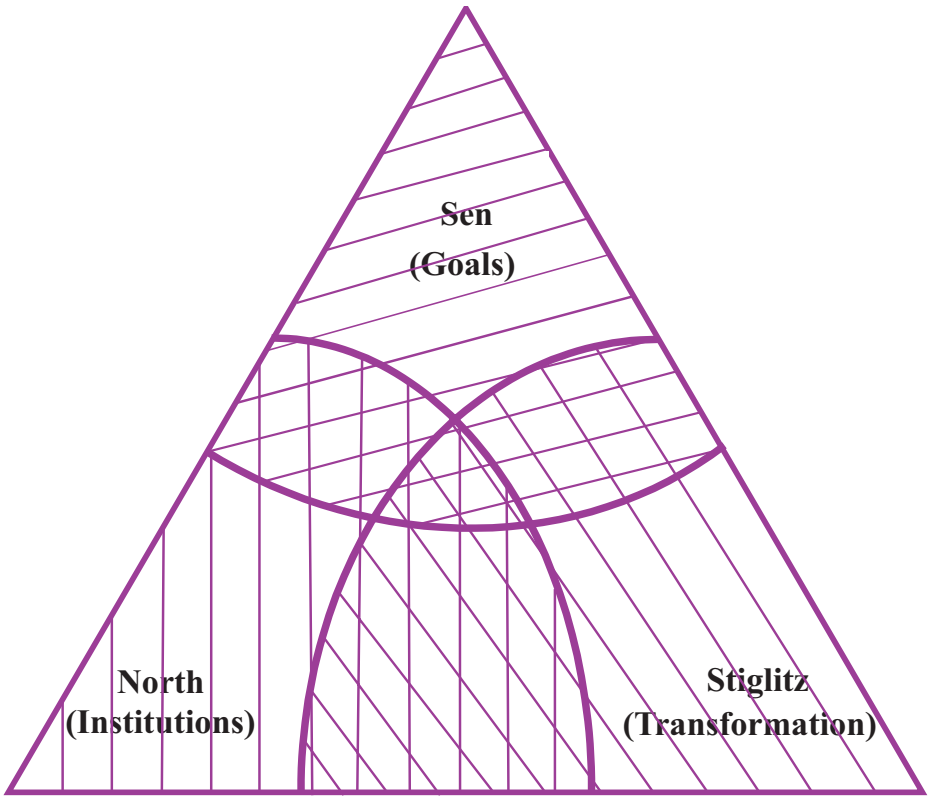
The NPD - views of the trio of Nobel Laureates

I now consider some of the ingredients of the NPD, seen primarily through the lens of the ideas and writings of three Nobel Laureates – Armartya Sen, Joseph Stiglitz and Douglas North.[19] Though, as figure 1 and table 3 show, each economist takes a somewhat different perspective of the development agenda, each is dissatisfied with the contents of the OPD, particularly those parts that reflect the principles of the Washington Consensus and/or take a more utilitarian and unidimensional approach to development. Each thinks of development as a holistic and multi-faceted, yet contextual, concept that embraces a variety of human needs and objectives. To a greater or lesser extent, each is concerned with the dynamics of structural societal transformation. Each emphasizes the importance of institutions, and each regards means and ends as being interwoven and part of the development process.

Looking at the specific contributions of the Laureates, that of Amartya Sen gives most attention to the ways and means of advancing real freedom for people. This, he suggests, is best accomplished by removing the main sources of "unfreedom", e.g. poverty, tyranny, poor economic opportunities, neglect of public facilities and the intolerance of repressive governments, and by the enhancing of the more positive freedoms of choice, opportunity and personal capability (Sen, 1999). In the

[19] Of course, several other economists, e.g. Balasubramanyam, Salisu and Sapsford (1999), Emmerij (1997), Gray (2002), Jenkins (1989), Lall (1993), Buckley and Casson (1991) and Rodrik and Chang (2002) have made contributions to our thinking on the nature and content of economic development in recent years. See too Moran, Graham and Blomstrom (2005) for a recent review of the contribution of FDI to development.

Figure 1. The Sen/Stiglitz/North (Overlapping) Perspectives on the NPD



Source: Author.

pursuance of these goals, Sen also views substantive freedom as a means, as well as an end, of development. In identifying five types of freedom,[20] Sen pays special attention to the upgrading of institutions, which he regards as an essential prerequisite for people to value better and control their lives; to advance their true functional assets and responsibilities; and also to ensure a desirable balance between the tasks and the priorities of the different constituents of the wealth-creating and allocative process. Sen, of course, recognizes the huge difficulties in measuring or evaluating the kind of development he urges, but suggests a start should be made by incorporating better freedom

[20] Viz. political freedom, economic freedom, social freedom, transparency guarantees and protective security. Each may be viewed as a freedom from something undesired or a freedom to achieve certain objectives.

Table 3. The approach of the Nobel Laureates to development

SEN	STIGLITZ	NORTH
Freedom of choice	**Structural transformation of societies**	**Increasing importance of institutions**
Need for a more multi-faceted approach to content and governance of development	**Holistic and dynamic approach**	**Dynamic approach to change**
Wider concept of goals (over and above GNP per capita)	**Emphasis on ownership and participation**	**Incentive structures and enforcement mechanisms**
Development as widening choices and capabilities of stakeholders	**Inclusivity and consensus building**	**Values, perceptions of reality, and belief systems**
Different aspects of freedom	**Partnerships**	**Emphasizes human (cf. physical) environment**
Public goods/social values	**Social capital**	**Focuses on reducing/ counteracting uncertainty.**
Culture/human rights	**Accumulated learning and experience**	**Extension of transaction costs to evaluating institutions.**
Institutions matter	**The responsibilities of freedom**	**"Top-down" and "bottom-up" institutions.**

Source: Author.

and capability related indices into any measure of human well-being.[21]

[21] Such as, for example, the extent and rate of poverty reduction, reduction in abuses of human rights, mortality reduction, health care and longevity, promotion of democracy, protection of the environment, reduction in corporate and government malfeasance, advances in security, safety standards and reduction of poverty. It should be acknowledged that some indices, e.g. *the UN Human Poverty Index*, the *Heritage Index of Freedom* and a *Quintile* Index (which looks at the per capita income and growth of income of the poorest 20% of population in any particular country (Basu, 2001; Yusuf and Stiglitz, 2001) have already made some progress in this direction.

For Joseph Stiglitz, development is primarily concerned with the economic and structural transformation of resources, capabilities and preferences of societies, and that of the mindsets, values and entrepreneurship of its individual and organizational stakeholders. Stiglitz's main criticisms of the OPD – as set out, for example, in Stiglitz (1998) and Yusuf and Stiglitz (2001) – are that it is too narrowly focused; it is incapable of coping with the needs of an uncertain innovating global economy; it tends to be adversarial in its approach; it ignores issues of ownership, sovereignty and participation; it underestimates the role of non-market actors in helping to reduce or counteract the coordinating failures of markets, and to provide collective goods or those that generate externalities or spillovers; it pays little or no heed to the institutional infrastructure, the quality of which (he asserts) is one of the critical determinants to the direction, structure and speed of the transformation process; and it fails to acknowledge the inseparability among the multiple goals of development and, in particular, the interface between efficiency, distribution and cultural identity.

Stiglitz believes that the NPD should be more holistic, more consensual, more socially inclusive, more open, and more participatory in its content than its predecessor. It should better recognize and appreciate the role of partnerships, networks and social capital as contributors to these goals. It should place the learning process, and the willingness and capabilities of individuals and organizations to adjust to economic and social regeneration, centre stage. It should pay more regard to the role of civil society and special interest groups as development enhancing entities. It should be more dynamic in its perspective and accept that the development process involves a continuum of equilibrium situations. It should include a wholesale reappraisal of the objectives and functions of the leading supranational organizations, especially the United Nations, the World Bank, the International Monetary Fund and the World Trade Organization.[22]

Of the three Nobel Laureates, Douglass North is the one who pays the most attention to the role of incentive structure and enforcement systems in affecting the trajectory, structure

[22] As spelled out in more detail in Stiglitz (2002).

and impact of economic development. Such institutions – as he identified in several of his publications[23] – have been all too frequently ignored or discounted in the neo-classical literature. But North, like Sen and Stiglitz, believes the contemporary characteristics of the global economy and the re-evaluation of views by both individuals and organizations about the purpose, content of development, and its determinants are compelling scholars, the business community, civil society and governments to examine more carefully the institutions and institutional infrastructure undergirding economic activity.[24]

Much of North's work in recent years has been to spell out and analyse the ingredients of the incentive systems of different societies and of their constituent stakeholders. More specifically, he defines institutions as the rules of the game that govern the way in which human beings structure their (commercial) interactions. They consist of, first, formal rules, such as constitutions, laws and regulations, which are normally put in place and enforced by political entities, e.g. governments or supranational agencies; second, informal rules, such as ethical norms, conventions, covenants and voluntary codes of conduct that govern much of human behaviour, which may be either imposed on a lower level of governance by a higher level of governance, or spontaneously initiated; and third, enforcement mechanisms, which are made up of (a) voluntary or self-enforced codes of behaviour, (b) the ability of those (adversely) affected to retaliate, and (c) penalties or sanctions (sticks) or tax and other incentives (carrots) imposed by governments (North 1990, 1994, 1999, 2005).

According to North, as a society develops and economies become more complex and specialized, the transaction costs of economic activity rise. By contrast, production costs tend to fall. Globalization and its two main drivers – technological advance and market liberalization – are having a mixed effect on transaction costs. On the one hand, for example, the advent

[23] Notably, North (1990, 1994, 1999, 2005).

[24] Which I simply define as the creation of wealth that involves the use of scarce resources. Under this definition, wealth can comprise any goods and services (including the reduction of "bads") that give satisfaction to those for whom they are intended.

of e-commerce is dramatically reducing the costs of some cross-border communications. On the other, the increased complexity and specialization of our contemporary knowledge-based, dynamic and volatile economy demands new and more flexible incentive structures and enforcement mechanisms to ensure that the transaction costs of the relevant market and non-market activities are kept to a minimum. North contends that such a realignment of institutions and the belief systems undergirding them is necessary at every level and stage of decision taking (from the individual to supranational entities and along value chains) if the development goals articulated by Sen and the transformation and local ownership of resources and capabilities as advocated by Stiglitz are to come to fruition.

There has been a good deal of empirical work to support North's view. Evaluating the determinants of economic growth and social development in 140 countries over the past century, Dani Rodrik, Arvind Subramanian and Francesco Trebbi (2002) conclude that the quality of a nation's institutions and social capital is one of the critical features distinguishing the faster from the slower growers. Furthermore, several recent empirical studies on the determinants of TNC locational strategies surveyed by the Economist Intelligence Unit (EIU, 2003) reveal that various individual measures of institutional development and social capabilities, e.g. market liberalization, reduction of crime, corruption and civil disturbances, entrepreneurship and educational upgrading, improved protection of intellectual property rights, reforms of the banking system, reliability of telecoms networks, less bureaucracy and more active competitiveness enhancing policies, are becoming increasingly critical variables.[25]

[25] For a particularly good recent study of the role of institutions in affecting the location of inbound FDI in Central and Eastern Europe, see Bevan, Estrin and Meyer (2004). For a detailed analysis of the function and content of different institutions see Chang, (2002), Rondinelli (2005). For a recent study of the role of institutions in upgrading the investment climate and human environment of countries see World Bank (2004). For an exhaustive study of the comparative effectiveness of governmental institutions of some 209 countries, see Kaufmann, Kraay and Mastruzzi (2005). For a more cautious view on the decisive role of institutions in determining economic growth see Glaeser, La Porta, Lopez-de-Silanes and Shlerfer (2004).

Before turning to my own interpretation of the NPD, I should make a brief mention of the changing attitudes and perspectives of some of the practitioners and constituents of the development process. These – and particularly those of corporations and national governments – have undoubtedly influenced, and been influenced, by academic scholarship. However, more than anything else, I would assert that governments, particularly those of developing countries, have been and are being activated by the combined effects of globalization itself and their own experiences with the workings of the OPD.

As far as individuals – and to a certain extent civil society as a whole – are concerned, it has been the cognitive factor of "how the other half lives", coupled with an increased appreciation of all aspects of freedom, the concern over the possible abrogation of (national) sovereignty, the imperatives of environmental protection, and a greater sense of social justice towards the "have-nots" that have prompted a reappraisal of their own and internal incentive structures, in pressurizing both corporations and governments to promote and work for a more socially responsible and inclusive form of development.[26]

Corporations, too, though still fairly focused on the traditional objectives of their value adding activities, are increasingly aware of their wider social responsibilities. The environment, an acceptable minimum standard of working conditions, more accountability and transparency (e.g. of their financial viability and employment practices), a growing recognition of the importance of honesty, trust, reciprocity and other forms of relationship capital for successful partnering, a judicious and responsible application of any monopoly power they may possess, and the absence of corporate malfeasance are all avenues that are requiring new and multi-stakeholder institutional structures. These may be either of a *top-down* regulatory or incentive nature (e.g. anti-corruption legislation, the Global Reporting Initiative of the United Nations) or of a

[26] For example, by the action they take in the market place, by ethical investment initiatives, and through the ballot box.

bottom-up voluntary nature (e.g. codes of conduct, actions on the part of civil society) to be a critical component of the NPD.[27]

No less have national governments and supranational entities changed their perceptions of development. In the 1980s and early 1990s, most governments of developing countries, backed by their counterparts in the OECD countries, placed upgrading national competitiveness at the top of their economic agenda. This was in marked contrast to the earlier decade in which the goals of the same administrations had been much influenced by such United Nations initiatives as the New International Order. More recently, there has been some reaction to the less welcome (and often unintended) consequences of liberalized markets (including free cross-border capital markets), and to the increasing integration of national economies into regional or global markets, including the role played by TNCs in this process. More specifically, in the 2000s, partly as a result of the publicity of unacceptable business practices, renewed attention is now being given to both *top-down* and *bottom-up* ways of ensuring that TNCs and their affiliates conduct their affairs in a way consistent with the goals and values of the NPD – as judged appropriate by the particular countries in question.[28]

Of the supranational agencies, perhaps, it is the World Bank that has, over the past decade or so, most obviously widened its agenda on extant approaches to development to incorporate those elements identified by the Nobel Laureates. Indeed, a study of the annual World Development Reports (WDRs) suggests there has been a regular interchange of views, opinions and recommended action between the Bank, its various consultants and academia in general.[29] To give just three

[27] For recent reviews of such top-down and bottom-up initiatives, see, for example, NGLS (2002) and Hooker and Ramsden (2004).

[28] I view the increasingly broad interpretation now being given, for example, by such UN agencies as the United Nations Research Centre on Social Development (UNRISD) to corporate social responsibility (CSR) as a renaissance of the earlier emphasis, placed by some developing countries, on performance requirements of foreign affiliates.

[29] For more details, see two excellent surveys of the themes and contents of the *WDR* between 1978 and 2000/1, by Mawdsley and Rigg (2002 and 2003).

examples: first, in the 2000s, much more attention is being given to the content and quality of the institutions and social capital in developing countries prior to the granting of any aid or loans; second, there is an increasing – though in some cases, a somewhat hesitant – recognition that local ownership of the ingredients of development, including technical and financial assistance provided by the Bank, is a better guarantee of a sensible usage than an insistence on conditions attached to such assistance; and third, the Bank is now acknowledging that non-market organizations – and in particular national governments and civil society – have important roles to play in determining and charting the course of development, and that the quality of their incentive structures and social capital is an essential part of this task.[30]

I do not have the space to review the perceptions of the other United Nations agencies. However, the International Labour Office, which in 2004 published a report on the social dimensions of the developmental impact of globalization, has undoubtedly been one of the foremost of these to adopt a broader perspective on the developmental impact of 20/21 globalization. Finally, at the United Nations itself, mention should be made of the initiative of the Secretary General in launching in 1999 a Global Compact between the United Nations, large corporations, national governments and parts of civil society. Such a compact is based upon three fundamental and widely agreed values, each of which has been agreed by the United Nations and its agencies, and each of which is further broken down into ten principles of corporate conduct, derived from international labour, environmental and human rights law.[31] There is also some suggestion that the United Nations is wishing to encourage a sharing of the responsibility for the protection and promotion of certain values and customs between public (e.g. national governments) and private organizations (e.g. TNCs).[32] In 2003,

[30] Indeed, the 2002 *WDR* addressed these and related issues head on (World Bank, 2002).

[31] For a review of the current state of the Global Compact, see United Nations (2003a). For a critical review of its provisions and impact on corporate social responsibility and development in general, see Richter (2003).

for example, the United Nations drafted a statement identifying – what it considered to be – the norms of responsibility of TNCs and other business enterprises in partnerships with national governments with regard to human rights (United Nations, 2003b). Such public-private partnerships, if properly organized, together with multi-stakeholder initiatives, may well be expected to play a more important role in addressing specific development tasks and goals and in upgrading the quality of the incentive structures in developing countries; particularly so as each affects the contributions made by foreign direct investors, often in partnership with indigenous firms.

Table 4 sets out a summary of the main contents of the NPD drawn from the sources already identified. In the next section of the paper, I present my own interpretation of the paradigm before proceeding to discuss the extent to which, and the ways in which, I believe it requires international business scholars to reappraise their thinking about the determinants of TNC activity in developing countries.

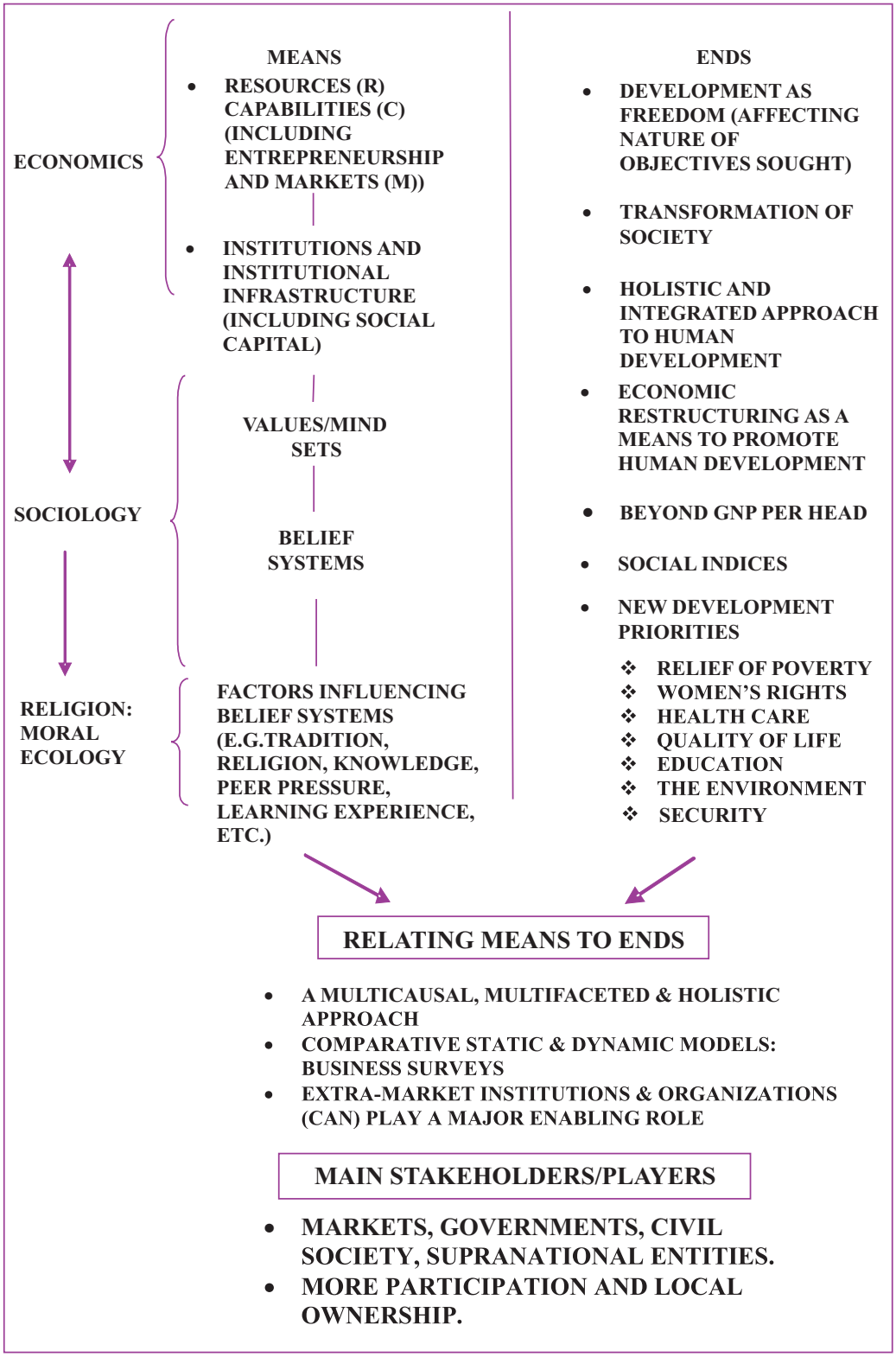
The Dunning model (or version) of the NPD

In Figure 2, I set out my taxonomy of the components of the NPD in the form of a number of sequential steps, or a kind of value-chain of inputs. I start off in stage 1 by identifying the objectives of development. As indicated already, these are likely to be multifaceted and context specific. In addition, they need to be viewed dynamically (viz. over time), and to embrace the (alternative) processes, policies and strategies by which development is achieved.

In stage 2, I identify the determinants of the extent to which these objectives are likely to be met. These will be dependent, first, on the resources (R), capabilities (C) and market opportunities (M) created, accessed or utilized by the main wealth creating organizations in society (See 2A). These may be internally or externally generated or sourced, and by a variety

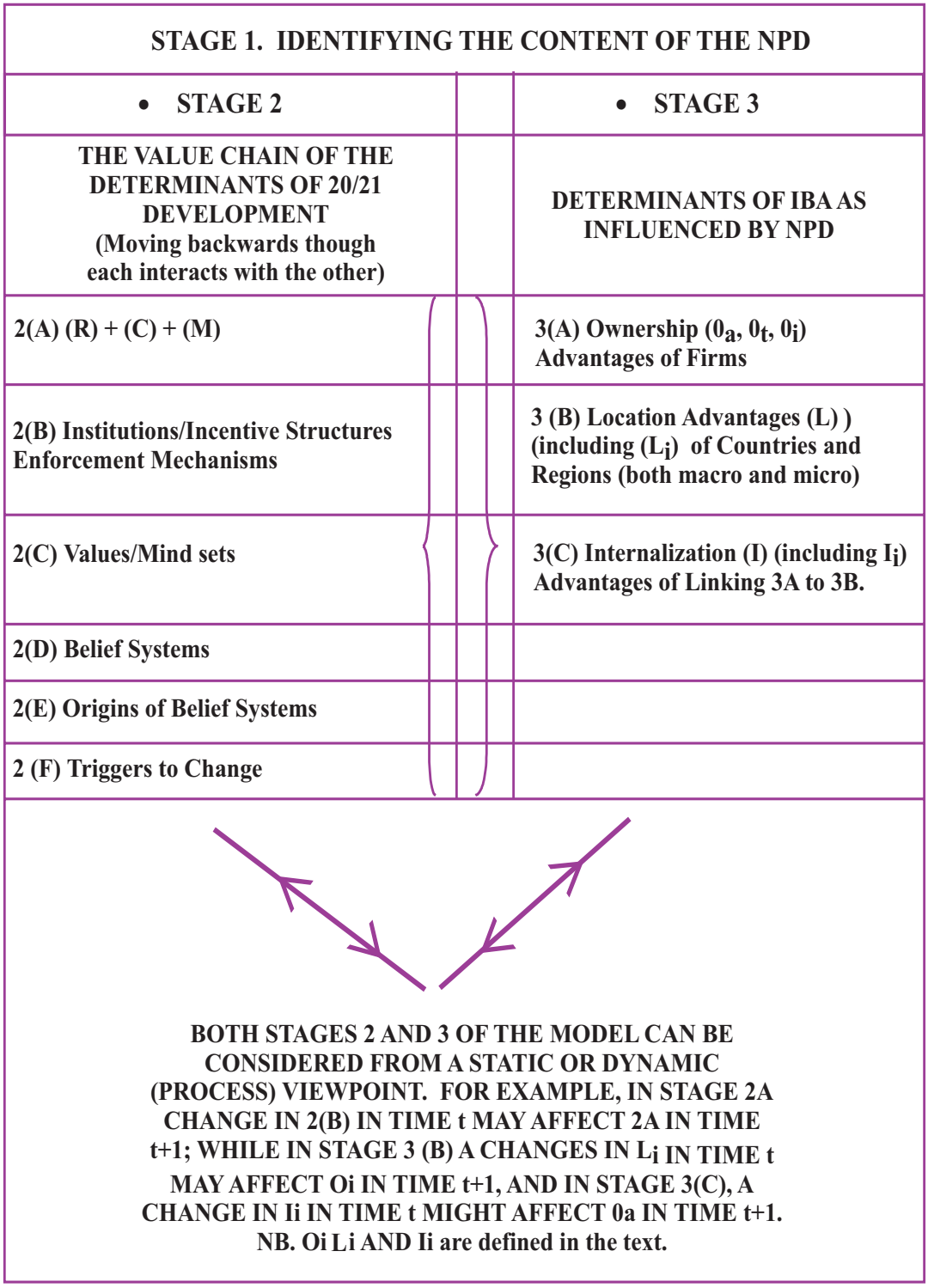
[32] Such as the global framework agreements concluded between TNCs and international trade union organizations.

Table 4. A new development paradigm



Source: Author.

Figure 2. The Dunning Model



Source: Author.

of organizational modalities. Such (R) and (C) may comprise natural assets (land and unskilled labour) and created assets, viz. management capabilities, information, knowledge, organizational skills, financial capital and entrepreneurship. Depending on the level and characteristics of consumer preferences, the market structure, (M), too, may veer towards the natural (e.g. as reflected in endogenous utility functions) or the created (via better information, subsidies, advertising, peer pressure, product innovation, and so on).

For the most part, the OPD – or at least the economists' contribution to our understanding about its determinants – stops at this point of the value chain although, when viewed from a policy perspective and over time, the incentive structures underpinning the behaviour of firms – particularly as they affect the creation of new (R) and (C) and/or (M) – are afforded some attention.[33] However, by contrast, the NPD gives these issues and their methods of implementation pride of place. As I have already indicated, this is mainly because 20/21 globalization shifts in economic ideology, recent advances in technology, and new scholarly insights into the determinants of growth have shown that however *necessary* the extent and quality of (R), (C) and (M) may be for the competitiveness of firms, and to the growth and structural transformations of countries, they may not be a *sufficient* condition. For this to be so, careful and explicit attention needs to be given to the quality, content and origin of institutions, and the instruments and mechanisms by which they are initiated and enforced.

In (2B), I incorporate institutions as a variable that both influences the extent, content and quality of (R), (C) and (M) and is influenced by them. In this article, I shall adapt the Northian interpretation of institutions as "incentive structures that determine the attitudes and behaviour of individuals and organizations owning or accessing (R), (C) and (M), and the ways in which the latter's creation and usage may best meet the

[33] Mostly in the form of regulatory and incentive instruments initiated by governments, including, for example, the legal framework and the conferring and protection of property rights.

objectives and content of development and process of achieving them".[34] From the viewpoint of the individuals and organizations housing and implementing them, they represent the myriad of "top-down" and "bottom-up" incentives and control mechanisms that determine their attitudes and behavioural patterns in the commercial domain. From a societal viewpoint, the totality of such institutions may be considered as the intangible component of its social capital (Fukuyama, 2000; Dasgupta and Serageldin, 2000).

As I have already indicated – and as shown in table 4 – institutions and their enforcement mechanism may take various forms.[35] Their effectiveness is likely to be strongly context specific. It will vary, *inter alia*, between countries, sectors, firms and types of TNC activity, according to the characteristics and performance of the international economy. In today's 20/21 globalization, their content and significance is also likely to be a particularly important determinant of the willingness and capability of firms, civil society and governments to respond to economic and social change and volatility, and to form constructive partnerships with each other.

[34] We accept of course that there are other interpretations of institutions. For a recent review of these, see Williamson (2000), Peng (2001), Scott (2001), Mudambi and Nararro (2002), Weiss (2003) and Maitland and Nicholas (2003).

[35] For a thoughtful analysis of the range and scope of contemporary institutions, see Rondinelli (2005). The author identifies seven kinds of institutions viz. those of economic adjustment and stabilization; those geared towards strengthening economic motivation; those related to private property protection; those promoting freedom of enterprise; those directed to rule setting and societal guidance; those fostering competition; and those promoting social equity and access to opportunity. For an analysis of the comparative advantage of institutions according to varieties of contemporary capitalism, see Amable (2003). For an identification and discussion of the institutions particularly conducive to economic development, see Voigt and Kiwit (1998). Drawing upon some earlier work of Herbert Giersch (1995), the authors focus on four types of morality, which (in Giersch's view) led to the rise of western civilization. These are a morality of property, a morality of contract, a morality of individualism and a morality of republicanism. How far these moralities are sufficient (or indeed appropriate) to foster economic and social development in the age of the 20/21 globalization is perhaps a question open to debate.

Institutions and institutional change may be demand or supply driven. Recent events suggest that each has interfaced with and reinforced the other. Institutions affecting changes in demand include measures to improve information flows, poverty alleviation, income distribution, advertising, monetary and fiscal policies, peer pressure, and the tastes, buying habits and expectations of consumers. Those influencing the supply of goods and services include laws and regulations, intellectual property rights protection, tax incentives, policies towards corporate social responsibility, the ethical and moral ethos of society (and that of its constituent stakeholders) market structures, cultural mores, and the stage and pace of development.

In the OPD, the performance of a country's institutions is primarily evaluated in terms of the efficiency with which markets operate – intermediate or final product, labour or goods or services markets – and the role of national governments in facilitating (or hindering) this process. In the NPD, institutions play a critical role in determining the ethos, attitudes and governance of the organizations responsible for resource and capability creation and utilization. These same organizations (and the individual decision takers within them) react to, and implement, change and the effectiveness of alternative models of governance (e.g. hierarchies of joint ventures and strategic alliances). In the NPD, the nature and feedback of the interface between *bottom-up* and *top-down* incentive structures – as they may influence, for example, the quality of entrepreneurship, human resource development, the extent and pattern of innovation, the ethical imperatives underpinning inter-firm alliances and multi-stakeholder initiatives, the system of property rights, and the content and effectiveness of corporate social responsibility – are themselves part of a society's institutional and social capital infrastructure.[36]

Another feature of the NPD is that it accepts there is no one-size-fits-all optimal development strategy. Inter alia, this

[36] As judged appropriate by the stakeholders of corporations and society to best meet their respective (development) goals.

characteristic has been underscored by the forces of globalization, technical change and the learning experiences of governments. In turn, it has led to an appreciation that not only do the objectives of development and their prioritization differ across countries (according, inter alia, to the inherited cultures and ideologies of their stakeholders), but also the nature and content of the institutions and social capital required to promote the best use of their (R), (C) and (M) may influence these cultures and ideologies.[37] Indeed, as has been pointed out elsewhere (Dunning, 2003), the success of responsible global capitalism rests on the willingness and ability of its constituents to create a set of institutions and institutional constraints that will, at one and the same time, balance the gains resulting from the integration of cross-border markets and production systems with those arising from decentralization of decision-taking relating to the access and use of (R), (C) and (M), which are specific to particular local communities.

However, should the interest and the contribution of economists and business scholars go further and ask what determines a society's incentive structures and enforcement mechanisms? North believes so and, in his latest book, he examines in some detail the content of different belief systems that he believes connects reality and internationality to institutional change (North, 2005). In this article, however, I will do no more than to offer three observations. First, the institutions of society and its decision-taking stakeholders are likely to be strongly culture specific. Second, the age of 20/21 globalization is bringing about a realignment of the content and prioritization of the core values underpinning behavioural mores. Inter alia, such a realignment reflects (a) a new set of consumer-based freedoms, capabilities and expectations arising from liberalized markets and technological advances and (b) a heightened sense of awareness by these same consumers of some

[37] Indeed, there are as many different values placed upon the kind of institutions underpinning the wealth creation process as a country's (R), (C) and (M) – however highly productive these may be – that give rise to the different roles played by the market, governments and civil society in that process (Hall and Soskice, 2001; Amable, 2003).

of the injustices and exclusivities of the cross-border wealth creating and distribution systems. Third, for the most part, the prioritization of the values just described differs considerably across national or regional cultures.

In a recently edited book (Dunning, 2003), a number of contributors explored some of the values and virtues that they believed must undergird socially responsible and democratically inclusive global capitalism. A few of these, they argued, needed to be universally held and practised by all those participating in the wealth-creating process. Thomas Donaldson and Thomas W. Dunfee (1999) refer to these as hypernorms, which they define as moral limits, determined by fundamental human rights, and accepted by all cultures and organizations. Others, however, were considered to be part of moral free space and specific to particular communities, cultures and belief systems. Some were perceived to be based on religious doctrine, long-held traditions and inherited family or community mores. Others reflected the spirit of the age: e.g. the desire by individuals for reputation and status, the role of advertising, moral suasion and peer pressure. To some extent or other, each has helped to fashion the institutions and institutional constraints underpinning contemporary economic activity and development trajectories. The content and character of each of these values, and the extent to which they are harmonized or their differences are respected in the pursuance of global commerce are, I believe, both one of the key components of the NPD, and one of the determinants of the success of future development strategies.

In the following section, I shall consider the impact of some of the specific attributes of the NPD on our theorizing about the (economic) determinants of international business (IB) activity. In doing so, I shall focus on the ways in which the explicit addition of institutions into the extant explanations of such activity may affect (and have affected) our thinking. However, I shall not stray further down the chain of determinants, i.e. beyond (2B) of development set out in diagram 2. This, indeed, is the subject for another article(s)!

The determinants of international business activity: revising and extending the OLI paradigm

In what ways, then, has the reconfiguration of the objectives of development, and the means by which these objectives might be achieved, affected our understanding of the determinants of the competitive or ownership (O) advantages of firms? How far has it caused a reappraisal of the attractions of alternative locations for accessing or adding value to these advantages (i.e. the L advantages of countries) and, to what extent has it required us to reconsider the mode of choice of firms in exploiting or adding to their O advantages, e.g. by internalizing the cross-border markets for them (I advantages) or by selling them or the rights to their use to other firms?

I shall suggest in the following paragraphs that such a reconfiguration is desirable. At the same time, I accept that the explicit incorporation of institutions into received theory poses a number of difficulties and challenges. Some are related to their intrinsic characteristics, compared with those of other (more tangible or easily measurable) advantages of firms and countries, and of organizational forms. Some have to do with the extent of their cross-border transferability, and some with the closer interface of their origin, form and implementation between firms and the economic and social environment(s) of which they are part. Some have to do with the dynamics of institutional change, compared with that of (R), (C) and (M), and some with the difficulty of separating the content and value of institutions from that of the (R), (C) and (M) with which they interface.

Following my previous writings, I will consider the role of institutions in international business activity by incorporating them into the eclectic or OLI paradigm, and I shall deal with each of these three elements of the paradigm in turn.[38] I will then take a more dynamic look at the paradigm to examine the institutional interface between firms and the location of their

[38] For an earlier and exploratory attempt to incorporate a cultural component into the paradigm, and some hypothesizing about how this might affect the ownership and internalization advantages of firms, and their response to the L characteristics of countries, see Dunning and Bansal (1997).

value-adding activities in developing countries, and the ways this interface influences and is influenced by the transformation process of those countries, as identified earlier by the NPD and our three Nobel Laureates.

Ownership specific (O) advantages

In addition to the O_a and O_t[39] specific advantages of a TNC, or potential TNC, identified by the eclectic paradigm, we might now add a third, institutionally related competitive advantages (O_i). Such advantages comprise the structure of incentives, which is specific to a particular firm, and which motivates and influences the extent to which, and the ways in which, (R), (C) and (M) are created, deployed or accessed. At any given moment of time, such an institutional matrix comprises a galaxy of both internally generated and externally imposed incentives, regulations and norms (and the response of the firm to them). Each of those may affect most areas of managerial decision-taking and the attitudes and behaviour of the firm's stakeholders, and also how each relates to those of other economic and political actors in the wealth-creating process.[40] Such an institutional matrix may be formal or informal (in the Northian sense) and backed up by a firm's own or external enforcement mechanisms.

By the specific incorporation of O_i into the eclectic paradigm – and particularly when considering it as part of the response of firms to the NPD – I acknowledge it to be an increasingly important attribute of the income generating assets of firms. As with the resource based theory of the firm, for O_i to yield a net competitive advantage (as compared with the O_i of rival firms), it must be scarce, unique, (to some extent at least)

[39] O_a refers to the advantages arising from the possession of or exclusive access to particular assets – e.g. the stock of (R), (C) and (M) – while O_t embraces the ability of the firm to coordinate efficiently these assets (or their usage) both at home and abroad, both within the firm, and with those of other firms.

[40] So-called "relational" capital of the firm as examined, for example, in Dunning and Narula (2004), Dunning (2002b), Dyer and Singh (1998) and Kale, Singh and Perlmutter (2002).

non-imitable and sustainable. At the same time, I also appreciate that it is the totality of the O specific advantages of a firm (i.e. its O_a, O_t and O_i) that define its willingness and ability to engage in new, or to increase its existing, foreign value-adding activities.

While I would accept that the ingredients of O_i – as, for example, recently documented by Rondinelli (2005) – have long been recognized, I believe that 20/21 globalization and related technological and organizational changes are compelling scholars to identify and evaluate more carefully their contribution to the value-adding process, both relative to the O_i of competitive firms, and to other forms of O specific assets. To what extent, for example, are the following institutional changes likely to impinge on the (C) and (M) of corporations?:

- the *Global Compact* of the United Nations:
- a spontaneous or enforced upgrading of corporate social responsibility;
- an extension of intellectual property rights;
- a revision of the patent laws;
- the impact of globalization on the institutional advantages of nation states;
- a new form of cooperative agreement to speed up the innovation process;
- more effective legislation to reduce corporate malfeasance and corrupt practices;
- more focused lobbying of governments and/or alliances with non-governmental organizations (NGOs) to enhance environmentally friendly growth and ethical consumerism.

Which particular forms of incentive structure are more likely to achieve any particular behavioural goal? These are questions – and many others like them – that I can only ask in this article, but I am suggesting that, to understand better the current determinants and effectiveness of TNC activity in developing countries within the framework of the NPD, they do deserve more serious attention.

The composition and strength of O_i advantages of firms is likely to be strongly contextual. In particular, it is likely to reflect

the character of the macro-institutional infrastructure of the country or countries in which they operate. The extent and ways in which the internal incentive structures of TNCs of a particular nationality take on board these institutions and adapt them to their own particular requirements are likely to be important ingredients of the quality of the former's unique and sustainable resources and capabilities. For example, an ethnocentric approach to the institutional management of a TNC's foreign affiliates that are located in very different cultural or political regimes from that of their home countries is less likely to transfer or generate a different set of O_i advantages than that of a geocentric approach that externalizes that part of the distinctive incentive structures of a TNC's global portfolio most useful for organizing the (R), (C) and (M) in the particular regions and countries in which it operates.[41]

The institutional portfolio of TNCs is also likely to vary according to the kind of value activities carried out by them and their affiliates, and their *raison d'être*. Thus, the "rules of the game" and enforcement mechanisms to stimulate cost-effective innovatory activities – particularly where the latter are jointly undertaken with another firm – are likely to be very different from those underpinning the conduct of both home and foreign based personnel managers in their human resource strategies, or those of purchasing managers in setting standards for the employment practices and safety procedures of their subcontractor, or those of marketing managers in ensuring acceptable quality control procedures from their local distributors.

With respect to the motives for TNC activity, it seems likely that some kinds of strategic asset-seeking FDI are designed to gain access not only to foreign (R), (C) and (M), but also to firm or country specific institutions. Particularly,

[41] This idea extends the thoughts of Doz, Santos and Williamson (2001) in respect of the kind of O advantages derived by being a meta-multinational. For a recent discussion of some ways in which the transfer of O_i by foreign TNCs may help to remodel the L_i of host countries, in this case Japan, see Ozawa (2005, Chapter 9).

this is likely to be the case where the business and social culture in the host country is thought to be more competitiveness enhancing than that of the home country. Adaptations to the home based O_i assets of *market-seeking* TNCs – and particularly of those with the least experience of foreign markets[42] – may also need to take account of differences in consumer preferences and behaviour; while the incentive structures underpinning *efficiency-seeking* FDI – particularly in (and between) low labour cost developing countries – may require modifying because of the different expectations, requirements and belief systems of individual workers and/or labour unions. Lastly, the reconciliation of country-specific institutional differences is likely to play a less significant role in the case of natural resource- or capital-intensive TNCs that involve relatively few and fairly straightforward transactions than in that of knowledge-intensive TNCs that operate a complex global network of diversified activities.

Finally, what of the origin of O_i specific assets of firms?[43] In some cases, such assets (which, in principle, *could* be of negative value) might be imposed by home or host governments or by supranational entities. Examples include patent protection, banking regulations, transparency in laws relating to bribery and corruption, and safety procedures. Others may reflect the response of firms to the incentive structures offered or imposed by the industry of which they are part but, in my judgement, an increasing proportion of O_i is being internally generated by TNCs. Indeed, one might predict that the more – and the greater cultural diversity of – countries in which a firm produces, the more likely it is to accumulate and assimilate new O_is, particularly if it engages in a metanational strategy towards its foreign operations (Doz, Santos and Williamson, 2001) and, encourages subsidiarity in creative value-adding activities (Birkinshaw and Hood, 1998; Birkinshaw, Hood and Jonsson, 1998; Pearce, 1998, 1999).

[42] Notably some first time small and medium sized foreign investors.

[43] In other words, of firms of one nationality of ownership compared to those of another.

The L advantages of countries

An examination of the literature of the 1970s and 1980s on the attractiveness of particular locations[44] – be they countries or regions within countries – to both domestic and foreign corporations, reveals that most emphasis was placed on (a) the costs and quality of particular factor endowments (R) and (C); (b) the size, character and growth of domestic markets (M); and (c) the policies of host governments, e.g. taxes and fiscal incentives that might affect (a) and (b). Although, in part, (c) contained institutionally related variables, e.g. social capital, these were rarely spelled out or treated holistically.[45]

Since the advent of globalization – and particularly as a result of the transition of several Central and Eastern European and the Chinese economies from communism to market-based economic systems – much more attention has been paid to the quality of the country-specific incentive structures and enforcement mechanisms affecting inbound FDI. Table 5 presents a taxonomy I used in a chapter in a recent World Bank study (Dunning, 2004a), which is an adaptation of a chart that was originally published in the World Investment Report 1998 (UNCTAD, 1998).

The general proposition that this taxonomy throws up is that the more these institutional arrangements favour a particular location, the more TNCs will choose to create or add value to their global O specific advantages in that location. The implication of reclassifying and/or extending the variables to incorporate more explicitly a range of incentive structures and enforcement mechanisms is that the higher the quality and the transaction cost effectiveness of host country institutions, as they affect the (R), (C) and (M) of TNCs, the more the latter will have the ability and motivation to engage in FDI

[44] As summarized, for example, in Dunning (1993).

[45] An exception includes some of the reports of the United Nations Centre on Transnational Corporations (UNCTC). See, for example, UN (1978, 1983).

Table 5. Some host country determinants of FDI

Host country determinants	Type of FDI	Principal economic determinants in host countries
I. Policy framework for FDI • Economic, political and social stability • Rules regarding entry and operations • Standards of treatment of foreign affiliates • **Policies on functioning and structure of markets (especially competition and M&A policies)** • **Bilateral international agreements on FDI** • **Privatization and price reform policies** • Trade policy (tariffs and NTBs) and stable exchange rates • Taxation policy (including tax credits) • **Industrial/regional policies**	**A. Market-seeking**	• Market size and per capita income • Market growth • **Access to regional and global markets** • Country specific consumer preferences • Structure of markets • Psychic/Institutional distance
	B. Resource-seeking	• Land and building costs: rents and rates • Cost and quality of raw materials, components, parts • Low cost unskilled labour • **Availability, quality & cost of skilled labour**
II. Economic determinants **III. Business facilitation** • Encouragement of entrepreneurship • **Investment incentives and promotion schemes.** • **Form and quality of legal property system** • **Protection of intellectual property rights.** • Social amenities (bilingual schools, housing, quality of life, etc.) • Pre- and post-investment services (e.g. one stop shopping) • **Good institutional infrastructure and support e.g. banking, legal, accountancy, services.** • **Social capital** • **Region-based cluster and network enhancement** • **Legislation/policies designed to reduce Corruption, corporate malfeasance etc.**	**C. Efficiency-seeking** **D. Asset-seeking**	• Cost of resources and capabilities listed under B adjusted for productivity of labour inputs • Other input costs, e.g. transport and communication costs to, from and within, host economy • **Membership of a regional integration agreement conducive to promoting a more cost-effective inter-country division of labour** • **Quality of market enabling institutions/enforcement mechanisms.** • **Quality of technological, managerial, relational and other created assets** • **Physical infrastructure (ports, roads, power, telecommunications).** • **Contents of macro-innovatory, entrepreneurial & competitive enhancing educational institutions.** • **Mindsets, institutions and policies towards economic growth/development.**

Source: Adapted from UNCTAD (1998) and Dunning (2004a).

Those determinants marked in bold print represent those which, in the authors' opinion (based on recent research), have become more important over the last decade or so.

Let me now consider the reconfiguration of L advantages demanded by the NPD. As shown above, this differs in a number of important ways from the OPD in respect of both the objectives of development and the content and means of achieving these objectives. Once these characteristics have been identified, the next task of national governments is to ensure that the institutions the societal and its constituent wealth creating entities[46] are best able to create, organize effectively and utilize the (R), (C) and (M) available to them. To take advantage of being part of a global economy, this also embraces the provision of the specific institutions necessary to supplement the (R), (C) and (M) of foreign investors, which, when jointly used with those of indigenous firms, might create a structure of value-adding activities consistent with the recipient country's long-term economic and social goals. For this to be possible, the recipient country must be prepared to offer the institutions and institutional support that tempt foreign firms to engage in that kind of production – and to do so in an effective and timely manner.

There is a wide continuum of location bound institutions (L_i). At the one end, foreign investors may be influenced by the investment promotion policies of host governments and by the content of international financial instruments (IFIs)[47] and bilateral investment agreements concluded by them. At the other, there are a host of policy options, regulations and incentives directed to influencing the entry, performance and exit conditions imposed on foreign investors (UNCTAD 1999, 2003c). The institutional profile of a country's organizations, particularly as it affects FDI, is strongly contextual. It has, for example, undergone quite significant shifts over the past four decades, as the evaluation of governments about the costs and benefits of FDI has fluctuated. However, I believe that 20/21 globalization and the NPD are demanding the most radical scrutiny of all of their incentive structures. This is because the increasing cross-border connectivity of economic transactions and the new

[46] Some of these are identified by Gray (2002) and by Rondinelli (2005).
[47] These include fiscal incentives and capital account controls.

emphasis being placed on the human goals of development are challenging the willingness and capacity of individuals and organizations, which previously had little to do with each other, to work together effectively.

At all levels of national (and subnational) economic and social life, established institutions influencing and cushioning behavioural patterns are being questioned. Sometimes, these relate to the business practices of firms; sometimes to the policies of governments or regional authorities; sometimes to the activism of NGOs and special interest groups, e.g. churches and philanthropic organizations; and sometimes to the perceptions and actions of supranational agencies. Part of the questioning relates to that of long-held and respected belief systems or traditions. Globalization is compelling a re-examination of the moral ecology of the stakeholders in different home and host economies, not least because its form and content is becoming an L advantage (or disadvantage) in its own right.

Like the O_i of firms, the L_i (and changes in L_i) are likely to be highly situational. In this present context, I would hypothesize that they would differ very considerably both between developed and developing countries and among developing countries. As an example of the latter, over most of the 1970s, 1980s and early 1990s, the incentive structures of most East Asian countries were much more conducive to promoting the creation and usage of their (R), (C) and (M) and to advancing their development goals than those of most Latin American and virtually all sub-Saharan African countries. Without a reconfiguration of the institutions and social capital of China, its impressive growth path over the past 15-20 years would not have been possible. The very recent upsurge of FDI in India is due less to an upgrading of its indigenous resources and capabilities as to a realignment of its policy instruments towards promoting a more open economy. The failure of some developing economies (e.g. Egypt, Peru, the Philippines) to devise a universally accessible property rights system (de Soto, 2000) has most certainly lessened their attractions to foreign investors. Institutional inadequacy, failures and mismanagement,

both on the part of the stakeholders (including governments) of several East Asian economies and that of the leading organizations of the richer industrialized countries (including the World Bank and the IMF), explained much of the crisis in the former economies in the mid-1980s.

Finally, the balance between *top-down* and *bottom-up* incentive structures, and that between obligatory and voluntary enforcement mechanisms, is likely to be a strongly culture specific L variable. As I have already contended, without cultural sensitivity and understanding on the part of TNCs, these may well add to the "psychic" distance between home and host countries.[48]

There are many other country specific characteristics determining the content of L. These include the openness of an economy and the extent to which it is ready to assimilate the institutional practices of other economies (Singapore vs. Ghana); the extent to which it is multicultural and tolerant of different belief systems (Malaysia vs. the Islamic Republic of Iran); its stage of economic and social development, which may affect the quality of its supportive institutional infrastructure (Pakistan vs. the Republic of Korea); the institutional demands of its particular industrial structure (Saudi Arabia vs. Hong Kong, China); its size (Sri Lanka vs. Indonesia); its culture towards wealth creation and entrepreneurship (Taiwan Province of China vs. the People's Democratic Republic of Korea); the extent and seriousness of its social unrest or dysfunction (Colombia vs. Chile); and, perhaps most important of all, the extent of democracy and freedom of action allowed to the main wealth creators in society (the contemporary situation in Viet Nam and Cambodia vs. that of the 1980s, or Zimbabwe vs. Botswana in 2004).

[48] This could have interesting implications not only for the location of FDI, but also for the mode of foreign economic involvement for exports. The theory here, which dates back to the seminal contribution of Seev Hirsch (1976), is that if the costs of reconciling different incentive structures associated with the production of a particular product in a foreign country exceed those of exporting the same product from the home country, then exports will be the preferred route of servicing the foreign market.

If nothing else, these examples show both how important the L_i component is to a country's or region's unique competitive assets and comparative advantage[49] and how sophisticated and complex the composition and quality of its various components are; and how much, and why, institutional distance may vary between particular home and host countries.

In summary, the goals and contents of the NPD and the impact of 20/21 globalization suggest that L-based institutions and institutional infrastructure should be central to any study of the determinants of international business activity. If North (1990, 1994, 2005) is right in asserting that differences in the belief systems and incentive structures between countries are a critical explanation of their differential growth rates and development paths, and that these in turn are important determinants of FDI, it follows that the extent, content and quality of a country's institutions and their upgrading, as they affect each and every individual and organization involved in the wealth creating process, are likely to impact seriously on the quantity and form of inbound – and for that matter outbound – TNC activity. There is already much evidence that this has been so in the case of the economies in transition.[50] There is urgent need for similar empirical work to be undertaken on the changing location bound attractions of developing countries.[51]

[49] For a discussion of the concept of comparative institutional advantages, see Amable (2003). For a review of the institutional incentives offered at a regional or sub-national level, and particularly those to do with exploiting the benefits of clustering of related activities see Phelps and Alden (1999), Phelps (2000) and McCann, Arita and Gordon (2002). The last reference contains a particularly interesting example of the impact of institutional variables on the clustering of semiconductor plants by Toshiba and Texas Instruments.

[50] See particularly Bevan, Estrin and Meyer (2004), Holland, Sass, Benacek and Gronicki (2000) and Meyer (2002).

[51] The World Bank is in fact currently undertaking some major research into this very question. However, in this and other research, there is a real problem in operationalizing different incentive structures compared with the organizations or social capital housing such structures.

The I advantages of firms

Lastly, what of the implications of 20/21 globalization and the NPD for the modality by which TNCs acquire, gain access to or exploit their unique competitive advantages (and particularly their O_i assets) in foreign countries? What are the relative costs and benefits of internalizing (the market) for the creation or use of these assets, or the rights to their use? To what extent is it possible to license or otherwise contract out these functions?

In explaining the organizational choice of deployment of the O_a and O_t assets of a firm in a foreign location, scholars such as Peter Buckley, Mark Casson, Alan Rugman and Jean Francois Hennart have turned to transaction cost theory. In the case of O_a, the choice between adding value to a particular proprietary right (e.g. a patent) by way of a wholly-owned affiliate rather than, say, a non-equity licensing or franchising arrangement rests on balancing the benefits of hierarchical control, such as eliminating or inhibiting opportunism, moral hazard, a loss of reputation, and lack of quality control, with those of reduced (or no) capital investment (and the risk attached to this), coupled with the access to added knowledge that a cooperative arrangement might offer. In the case of O_t, almost by definition, there is no market for such assets apart from their use with O_a; therefore, they have to be internalized.[52]

What of the use made of O_i? I will illustrate by considering two scenarios. The first is where the corporate and societal institutions effecting the creation and use of (R), (C) and (M) in the investing and recipient countries is fundamentally the same (e.g. as between such liberal market economies as Canada and the United States). Then, only to the extent to which there are O_i advantages of the investing firm additional to those of the (possible partner) firms in the host country, would the question of the appropriate governance of the cross-border transfer of the assets (or their rights) arise. However, in so far as O_i

[52] These characteristics are explored in several of my previous writings. See, especially, Dunning (2002a, 2002b).

advantages have to be deployed with O_a or O_t specific advantages, then perforce they have to be under the governance of the same firm.

However, the particularly interesting feature of globalization and the NPD is that institutions are likely to differ significantly between investing and recipient countries. This applies no less to South/North and South/South FDI as to North/South FDI. This brings us to the second, viz. that of the relative merits of adapting existing incentive structures and trans-border organizational forms. At the one extreme (e.g. in some kinds of asset augmenting FDI), the incentive structures of the investing company or country may be totally inappropriate for it to impose on its foreign affiliate(s). Then the choice is either to modify its home-based (or global) incentive structures or to engage in some kind of partnership with a local firm so that the (other) O advantages transferred and combined with the (R), (C) and (M) of the partner firm may be effectively deployed. Such latter organizational forms are likely to be most prevalent between countries with very different business cultures and/or belief systems (e.g. the Islamic Republic of Iran and Germany) or between those at different stages of development (e.g. Australia and Sri Lanka).

At the same time, if the incentive structures of the investing firms reflect those that are likely to be eventually embraced by the host countries (as now seems to be happening in the case of United Kingdom and German FDI in the Baltic States and in Croatia and Slovenia), then the O_i advantages of a firm, at least in the initial stages of its FDI in an unfamiliar country, are more likely to be internalized.

However, as with any form of foreign involvement, much will depend on the host government's attitude and policies towards the non-resident ownership of its indigenous assets. On the one hand, the liberalization of markets in the 1990s and the increasing integration of many developing countries into the global economy (e.g. via efficiency-seeking FDI) are leading to a harmonization of intra-firm incentive structures. On the other hand, the increasing attention now being paid to all aspects

of corporate social responsibility has encouraged some developing countries to renew their earlier attempts to ensure that the conduct and performance of foreign affiliates in their midst promotes their localized economic and social needs and objectives; to abide by their formal and informal institutional mores; and to respect their cultures, traditions and belief systems. The response of many TNCs is to prefer to conclude non-equity business relationships: e.g. the sub-contracting of the early stage manufacturing process in the electronics and textile industries and the transference of call centres from several developed to developing countries (UNCTAD, 2004).

As with O_i and L_i advantages, the character and significance of those concerned with the organizational mode of exploiting or augmenting the institutional assets of the investing company[53] are likely to be activity and/or function specific. In the case of those activities or functions involving culturally sensitive production processes or outputs, or of first time investors seeking to supply markets in unexplored territories, one might predict that institutionally related transaction costs of a firm might be lower if it concluded a partnership with a local producer, rather than pursue a "go it alone" mode of operation. However, global firms with (successful) affiliates in countries with similar incentive structures and those over which they have only a marginal impact on the creation and use of (R), (C) and (M) might well prefer 100% ownership of their foreign affiliates, provided that this was the most suitable vehicle for accessing or exploiting their other O specific assets.

Exogenous to their internal incentive structures, the last two decades has seen the modality of accessing or exploiting the O_i of TNCs being increasingly influenced by extra-market stakeholders, notably NGOs, local and national governments and supranational agencies. Among the variables favouring a cross-border joint venture or non-equity cooperative agreement are the extent of regulatory restrictions or other governmental restrictions on foreign ownership (Brouthers, 2002), and a

[53] Both from its home based and foreign based operations.

supporting infrastructure for inter-firm learning and clustering (Saxeman, 1994; Porter, 1996; Dunning and Wallace, 2000; Enright, 2000). The extent of corruption (Habib and Zurawicki, 2002) and the unethical conduct of indigenous organizations (Giersch, 1995, 1996) are also shown to have a negative impact on FDI. More generally, however, the trend towards alliance capitalism (Dunning, 1997) is fostering a more multi-faceted and partnership-based institutional upgrading, though some of the recent pronouncements and practices of both NGOs and some national governments would seem to belie this. At a supranational level, too, there are several serious, albeit halting and not always wise, attempts to encourage the various wealth creating organizations throughout the world – and those that influence the behaviour of these organizations by setting the rules of the game – to accept a series of common or universal institutions. Examples include the *Global Compact*, the *Global Reporting Initiative* and the *Norms of Responsibilities of Transnational Corporations and Other Business Enterprises* to which I have already referred. Others include the OECD *Guidelines* to *Multinational Enterprises* and a bevy of bilateral investment agreements.[54]

Each of these affects not only the level and pattern of TNC-related activity in developing countries, but also the modality of this activity. It does so by harmonizing and, for the most part, lowering the coordinating costs of the institutions underpinning value-adding activity throughout the world. Sometimes, along with advances in communication (e.g. the Internet), this makes for more FDI. In others, by reducing the transaction costs of market exchanges, it encourages TNCs to disinternalize their foreign-based activities, and engage in more contractual outsourcing and other non-equity operations.

The past decade – and particularly the late 1990s – has been a period of intense cross-border merger and acquisition activity. While this has primarily involved firms in the developed

[54] As, for example, documented in the annual *World Investment Report* of UNCTAD (especially, UNCTAD, 2003), various publications of the UNRISD (especially UNRISD, 2004) and Hooker and Madsen (2004).

Table 6. Incorporating institutional assets into the eclectic paradigm

INSTITUTIONS	0	L	I
	Corporate governance	**Social Capital**	**Organizational/relational**
FORMAL	• External legislation/regulations • Discipline of economic markets • Corporate goals, internal command systems and incentive structures	• Laws/regulations • Discipline of political markets • Rules-based incentives/standards • Cross-border investment agreements	• Contracts (e.g. inter-firm) • Contracts (e.g. intra-firm)
INFORMAL	• Codes/norms/conventions • Country/corporate cultures • Moral ecology/mindsets (particularly of decision takers) • Pressures from competitors and special interest groups	• Inherited social customs, traditions • Foreign organizations as institution reshapers • Motivating institutions (e.g. re innovation, entrepreneurship), competitiveness. • Attitudes toward change and uncertainty	• Covenants, codes, trust-based relations (both inter and intra firm). • Institution-building through networks/clusters of firms • Extent/form of institutional/cultural distance
ENFORCEMENT/EMPOWERMENT MECHANISMS			
FORMAL	• Sanctions/penalties (both external & internal to firms) • Stakeholder action (consumers, investors, labour unions, civil society)	• Sanctions, penalties, policies • Quality of public organizations (e.g. re protection of property rights; rule setting, legal system). • Collective learning (in shaping and implementing institutions)	• Penalties for breaking contracts • Strikes, lock-outs, high labour turnover • Education/training
INFORMAL	• Moral suasion • Loss, or gain, of status/recognition • Retaliatory options • Build up/decline of relational assets (e.g. trust, reciprocity, etc) • Blackballing	• Belief systems • Tradition (e.g. pride/shame) • Demonstrations, active participation in policy making organizations (*Bottom-up influence*) • Societal guidance/ moral suasion (*Top-down influence* on institutions, organizations and individuals) • Social safety nets	• No repeat transactions • Guilt, shame • External economies arising from networks/alliances, e.g. learning benefits • Blackballing
INSTITUTIONAL DYSFUNCTION	• Dishonest accounting practices, fraud and other corporate malfeasance • Lack of transparency • Inadequate institutional framework	• Crime, corruption, flaws in justice system, breakdown in communities/personal relations • Inability to cope with technological or institutional change	• Lack of good intra or inter-corporate relations. Failure of alliances, codes, lack of transparency/honesty etc.

Source: Adapted from UNCTAD (1998) and Dunning (2004a).

world, the share of cross-border purchases of corporations in developing countries rose from 9.1% in the period 1998-2000 to 13.7% in the period 2001-2003 (United Nations, 2004). I would suggest that part of the reason for this is not only to buy into the institutional assets of the acquired company, but also – and this is likely to be particularly the case where the buyer is contemplating expansion or restructuring the product or process portfolio of the acquired firm – to appreciate better the institutional capabilities of other organizations (including the government of the host country).

In short, I foresee no real difficulty in applying received internalization theory to explaining the mode of creating and using the O_i assets of a TNC or potential TNC in a particular host country. There is, however, a caveat to this endorsement. That is that internalization theory needs to be widened to include issues relating to the *process* of development and to embrace not just transactions involving the purchase or sale of products, but also the governance of all kinds of value-adding activities. For I believe that nowhere is the significance of incentive structures – or rather the *right* incentive structures – more important in influencing the behaviour of firms than in the creation and use of their (R), (C) and (M).

Conclusions

The readers of this article will quickly realize that I have put together a kaleidoscope of ideas and implicit propositions about both the NPD and how it affects the determinants of international business activity. Apart from the selective references and some casual empiricism, I have made no attempt to test some of the concepts and views put forward, nor indeed formulate formal hypotheses. That has not been my objective.

Rather, I have focused on what I consider to be a topic that though by no means ignored in the international business literature, has not, perhaps, been given the attention it warrants. I have argued that 20/21 globalization and the emerging approach to understanding the goals and challenges of development is

compelling business scholars to give institutions a centre stage treatment. This also requires that both micro and macro incentive systems be integrated more explicitly into the mainstream paradigms and theories of international business activity. A hint of the way this can be done is contained in recent contributions by Dennis A. Rondinelli and Jack N. Behrman (2000), Ram Mudambi and Pietro Navarra (2002), Deepak Sethi, Stephen Guisinger, David L. Ford and Steven E. Phelan (2002), Elizabeth Maitland and Stephen Nicholas (2003), and Rondinelli (2005). My own thoughts are encapsulated in table 6.

In this article, I have outlined the kind of institutionally related variables that need to be incorporated into the eclectic paradigm of international production and to the more specific economic and business theories it embraces (Dunning, 2000), and also how these may affect the level and pattern of FDI and TNC activity. I have suggested, for example, that as a result of globalization and the NPD, the content and quality of institutions are becoming more important components of both the competitive advantages of firms and the locational attractions of countries. How much this is the case and what forms of incentive structure are likely to be the most conducive to upgrading the quantity and quality of the (R), (C) and (M) of firms and countries is, however, likely to be strongly contextual. For example, in some cases, the O_i advantages of firms of one nationality can be comfortably transferred to their affiliates in another country. In others, cross-country cultural and ideological differences may demand that TNCs should engage in foreign production only by means of a joint venture or on a contractual basis.

More generally, my reasoning suggests that the modality by which firms augment or create their O specific advantages outside their home countries is increasingly influenced by the extent to which they can tap into and/or integrate different institutional structures across the globe. In this respect, 20/21 globalization and the NPD add a new challenge to TNCs, governments and supranational entities. Its essence is to balance the advantages of cross-border product and process integration and the harmonization or coordination of country specific

institutional mores, with those of retaining the "dignity of difference" between the economic, political and cultural composition of those same institutions, and the values and belief systems underpinning them.

In clarifying and suggesting responses to this challenge, I believe international business scholars have a unique and critical contribution to make.[55] Indeed, new and rich agenda of research topics are opening up. To what extent, for example, does the diversity of the institutional structures of countries[56] affect both their comparative dynamic advantages and the global competitiveness of their TNCs? Which of the galaxy of institutional advantages of firms are the most important in influencing the extent and pattern of their foreign operations? When does institutional upgrading lead to more FDI and when is it a consequence of FDI? What are the costs and benefits of reconfiguring the incentive structures of host countries to attract more inbound FDI?[57] How far does the optimal institutional matrix for firms and countries vary according to the kind of international business activity pursued by the former, and the stages of development of the latter? How can the extant theories of the TNC be broadened to encompass the determinants and process of institutional change? What is the role of different external or internal incentive structures and enforcement mechanisms on the performance of TNCs of different nationalities? These are just a few of the questions worthy of consideration by international business scholars over the next decade or so. ■

[55] A view echoed by Meyer (2004) and Ramamurti (2004) in one of the more recent issues of the *Journal of International Business Studies*.

[56] As, for example, identified and analysed by Amable (2003).

[57] Here the words of Hu-Joon Chang (2002) are very apposite. He writes "There is need….to explore exactly which institutions are necessary or beneficial for what types of countries, given their stages of development and specific economic, political, social and even cultural conditions. Particular care has to be taken not to demand an excessively rapid upgrading of institutions by developing countries…given that establishing and running new institutions is very costly."

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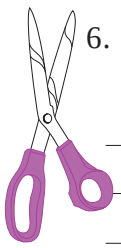

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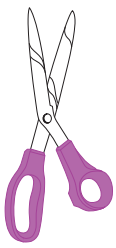

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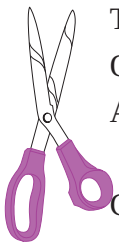

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