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## **‘CISCOISM’ AND SERVICE INTERNATIONALISATION**

### *OUTLINE OF A RESEARCH PROJECT<sup>1</sup>*

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The purpose of the research project outlined in the following is to establish a link between new international trade-related regulation (especially the GATS and the TRIPS agreements under the WTO) and underlying techno-economic changes in production organisation spawned especially by microelectronics and ICTs.

The project is based on the observation that technological development, deregulation/liberalisation and what is commonly referred to as (economic) ‘globalisation’ has progressed to a stage where broader society-wide institutional transformations are becoming both necessary and feasible: the further development of the emerging ‘information economy’ necessitates new forms of international regulation in order to enable and facilitate new modes of production organisation, in both institutional (network organisational forms) and geographical terms (increased internationalisation and changing divisions of labour).

These processes could be captured in a metaphor of ‘societal reengineering’, akin to ‘business process reengineering’ at the firm level: spurred especially by the diffusion of ICTs, from the early 1990s onwards the ‘business process reengineering movement’ lead to radical restructuring of companies’ internal and external operations, often leading to significant productivity gains. In mature capitalist economic systems with elaborate division of labour, progressed capital accumulation, regulatory co-ordination, formalisation of separate societal spheres, and other features of late modernity, institutional restructuring processes similar to business process reengineering (BPR) have become feasible at a broader societal level.<sup>2</sup>

The extensive and socially delicate BPR projects were usually carried out by external consultants. Similarly is global ‘societal reengineering’ under the relatively autonomous (in the Gramscian sense) and external stewardship of the IMF, the World Bank and the WTO along a course influenced by organisations such as the G8, the OECD, and the WEF.

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<sup>1</sup> Paper prepared for The First Globelics Conference, ‘Innovation Systems and Development Strategies for the Third Millennium’, Rio de Janeiro, Brazil, 2-6 November 2003. This is a suggestive outline of some of the observations, assumptions and preliminary analyses underlying a recently initiated research project.

<sup>2</sup> One likely indicator is the proliferation of public-private partnerships; global compacts; ICT task forces, etc.

An interpretation along these lines is compatible with the view by prominent long wave theorists that the assertion of a new techno-economic paradigm will, with a lag, be accompanied by broader socio-cultural and institutional transformations.<sup>3</sup> Carlotta Perez (2002, 1983) for instance argues that not only will such transformations follow, they are a requirement for the productivity potential of a new paradigm to be unleashed.<sup>4</sup> If we are indeed observing such a process of ‘societal reengineering’ and if it is successful, the predicate ‘postmodern’ (and ‘post-Fordist’) will take on a substantial meaning.<sup>5</sup>

While not having to necessarily adopt a ‘full’ long wave interpretation, the project will explore how changes in techno-economic subsystems are interrelated with changes in both international (trade) regulation and in the institutional configurations of national innovation systems, especially in terms of government-business relationships and economic governance more generally.

Several of the new international regulatory efforts occur under the auspices of the World Trade Organisation (WTO). Being administered by the WTO, they are nominally concerned with ‘trade’. However, whereas trade regulation used to be concerned with *border issues* only, new trade regulations are characterised by also stipulating requirements to and reforms of hitherto *domestic* regulation.

Consequently this has obvious implications for the debate concerning the relative stability and volatility of national institutional systems. It also has important bearing on debates about how most such national systems *change*: a tempting hypotheses would be that, with parallels to Kuhn’s concept of paradigms and scientific revolutions, that in periods of relatively stable growth and development, national institutional systems evolve predominantly through endogenous processes, but in a period of major techno-economic transformations, the primary stimuli for change of national innovation systems are exogenous.

Even though many of the transformations we are alluding to predominantly take place *within* conventional statistical categories such as individual firms, internalised international production networks, industries and nations and are therefore not appropriately reflected in available statistics, the paper will make a first and very cursory quantitative assessment of some of these trends by looking at the development and internationalisation of ‘services’ as it is reflected in available statistics.

## Transformations in Industrial Organisation

Which trends at the level of production are associated with the new international regulatory efforts? The proposition here is that an important trend in production organisation, which triggers a need for revised international regulation, is the one towards *modularisation* (Sturgeon 2002, 2003; Langlois 2002).

‘Globalisation sceptics’ argue (a) that globalisation is not anywhere near as dramatic as some make it out to be and (b) that it is not a new phenomenon – that earlier periods have shown the same or even greater extent of ‘globalisation’.<sup>6</sup> Of course a dismissal of the occurrence of ‘globalisation processes’ does not follow logically from the fact that comparable processes have occurred before in history. It can only logically require the minor rhetorically adjustment of speaking of ‘*a* globalisation period’ rather than ‘*the* globalisation period’.

Looking at a range of contemporary and historical aggregate statistics, there has been and still is good reason to question the extent of globalisation. But, recalling Schumpeter’s observation that

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<sup>3</sup> Hopkins and Wallerstein (1982) attempt to specifically address the implications of growth cycles on the organisation of the world system into cores and peripheries.

<sup>4</sup> Without authoritative action such a transformative period would be likely to become at least as disruptive as the last one: Polanyi (1957) of course brilliantly accounts for the ferocity of the last ‘Great Transformation’; for accounts from the arts, revisit e.g. Dickens’ novels and Fritz Lang’s ‘Metropolis’.

<sup>5</sup> This ‘-ism’ could perhaps be dubbed ‘Ciscoism’ after the leading contemporary organisational innovator Cisco Systems, which as the provider of the majority of Internet backbone hardware is a ‘paradigmatic’ company today as Ford Motor Company was in the early 20th century. Other fanciful labels could be ‘Walmartism’ after one of the first pioneers in BPR, or even ‘2nd Generation Fordism’ since Ford Motor Company along with other major automobile manufacturers eventually also implemented radical BPR projects.

<sup>6</sup> This would refer to the ‘academic’ sceptics. Another sceptic position is the one focussing on the potentially negative aspects of globalisation in terms of ecology, distribution, social cohesion, etc.

aggregate statistics hides as much as it reveals, this may equally much be related to the inadequacy of the conventional statistics for measuring the particular types for transformations occurring under the label of 'globalisation'.

So rather than either or, it is a matter of *both*: contemporary transformations, especially network organisational forms, place stress on and challenge established statistics, concepts, vocabularies and even theories. Recognising this, the paradox is resolved – both the globalisation enthusiasts and the globalisation sceptics are right: much remains the same, only in does so in 'a new way'.

During the 1990s, technological development, especially in ICT, biotech, new materials and transport, interacted with regulatory efforts towards liberalisation and deregulation of international trade, investment and finance to produce an (almost) unprecedented scale and speed of change in the structure and composition of economic activities.

A growing formalisation and taylorisation of production chains, increasingly held together by underlying ICT-networks, has allowed for discrete production steps to be delineated and eventually physically moved out of the 'lead' enterprises, as evident in the surge of business process reengineering, outsourcing, and internationally dispersed production networks.

Partly as a consequence of these trends, leading companies today compete less on cost-cutting and routine manufacturing and more on activities lying 'before', 'after', and 'across' manufacturing itself, such as R&D and innovation; marketing, branding, and producer-customer relationships; and new organisational and managerial techniques. These latter and in competitive terms critical activities are typically those associated with the highest value-added, those with the highest barriers to entry, and those which are retained in the home country when companies internationalise. Accordingly, citizens in the countries in the North gradually find themselves inhabiting an "information", "knowledge" or "learning" society.

Along with better and cheaper communication and transportation systems (including ICTs), the trend towards deregulation/liberalisation, the end of the Cold War, stagnation of growth in developed countries, and abundant cheap labour, modularisation is a major factor underpinning accelerated economic globalisation. Increased modularisation of production allows for two things: disintegration of services and increased geographical dispersion of production.

Sturgeon (2002) outlines what he sees as an emergent American model of industrial organisation, the *modular production network*. Lead firms in the modular production network concentrate on the creation, penetration and defence of markets for end products, and increasingly the provision of services to go with them, while manufacturing capacity is shifted out-of-house to globally operating turn-key suppliers. The modular production network relies on codified inter-firm links and the generic manufacturing capacity residing in turn-key suppliers to reduce transaction costs, build large external economies of scale and reduce risk for network actors. According to Sturgeon, the emergence of the modular production network is part of a historical process of industrial transformation in which nationally specific models of industrial organisation co-evolve in intensifying rounds of competition, diffusion and adaptation.

Among the many interesting aspects of the modular production networks discussed by Sturgeon are the requirements they introduce to modify Schumpeter's theory of innovation (Sturgeon 2002): first of all, according to Schumpeter successful innovator firms would get larger over time due to higher profits, which would in turn allow for aggressive capital investment, which would become barriers to entry for new firms and market structure would become more concentrated over time. However, with modular production networks where manufacturing resides with dedicated supply-manufacturers, changes in market share can be organisationally delinked from increases in firm-specific capital investment and as a result barriers to entry based on the holding of productive capacity by leading firms do not necessarily develop. Second, Schumpeter believed that oligopolistic market structures would inevitably be destroyed in ongoing rounds of innovation, competition and new market creation. However, modular production networks make it possible for market shares to change hands without idling or destruction of productive capital and there modifies the 'destructive' aspect of Schumpeter's conception of 'creative destruction': with modular production networks, successful innovation does not necessarily lead to giant corporations.

The disintegration of services, and outsourcing more generally, introduces a need for stronger intellectual property systems to protect the knowledge and information which could previously be kept internal and proprietary but now has to be communicated between the interfaces of individual companies across a public domain space. This points more generally to the transaction cost theory of intellectual property systems (as opposed to the more straightforward ‘incentive theory’).

The parcelling out of distinct and better-delineated production activities with well-defined interfaces to other activities in the total value chain enables geographically dispersed modes of production, subject to the availability of a number of the pull-factors we enumerated above as general factors underlying economic globalisation. Specifically, it appears to be a necessary condition that the costs of transmissions between production sites (of both materials and knowledge/information) are reduced to below a critical threshold (Nordås 2003). This prerequisite is increasingly attained with new global trade regulation.

From this brief account it is tempting to establish a direct correspondence between disintegration of services and geographical dispersion of services, or functional and geographical outsourcing more generally, on the one hand and the advent of the TRIPS and GATS agreements under the WTO (see the later section on regulations) respectively on the other. Furthermore, an increasing need to communicate across firms’ boundaries and at geographical distance can be associated with a corresponding need for more elaborate and more widely adopted technical *standards*.

## From Production to Regulation

Several different but related institutional approaches suggest persuasive ways to establish the link between changes in the organisation of production and regulatory reforms.

Andrew Tylecote’s (1992) analyses the broader political economy of the growth of the world economy over the past two centuries and portrays a series of successive ‘technological styles’ together with a variety of feedback mechanisms (monetary, demographic, polarisation). Borrowing Carlotta Perez’ terminology (see below) the analysis distinguishes between the ‘techno-economic subsystem’ (TES) and the ‘socio-institutional framework’ (SIF). Tylecote argues that the Fordist TES (assembly line methods, taylorist work organisation, structure of corporate governance, mass markets) were well in place in the first quarter of the 20<sup>th</sup> century but was at the time not accompanied by an appropriate SIF, with underconsumption and eventually the Great Depression as results. Specific changes in the SIF during the 1940s and 1950s led to sufficient accordance between the TES and the SIF to realise a long wave upswing: (1) international integration via Pax Americana; (2) political integration with increased influence of the working class at the government level; (3) economic integration with power balances between industry and finance and between labour and capital; and (4) a measure of social integration through stability within the family. Eventually though, a new downswing emerged in the 1970s when the potential of the Fordism was exhausted and a new TES evolved, viz. that of microelectronics and biotechnology. The proposition then is that a new economic upswing will not be released until a symbiotic relationship is established between the technological/organisation (TES) and new appropriate social/political institutions (SIF).

Tylecote draws on an older and similar analysis by Carlotta Perez (1983), which she has later expanded to also incorporate more recent economic developments (Perez 1997, 2002) including the burst of the dot-com bubble. Perez follows long wave theory in asserting that technological development is discontinuous and about every 50 years a new ‘technological style’ or ‘paradigm for the most efficient organisation of production’ arises. Through a process driven by the drastic cheapening of a set of key factors of production due to radical innovations the new style causes rapid changes in the ‘techno-economic subsystem’. Capitalist economies are seen as consisting of two subsystems: the techno-economic and a ‘socio-institutional framework’. The two subsystems combined are referred to as a ‘mode of development’, [...] understood as a general pattern of growth, based on a set of accepted social and institutional mechanisms, national and international, influencing the operation and evolution of factor and other markets’ (Perez 1983: 358). If there is a mismatch between the two subsystems

diffusion of a new technological style is blocked, causing a downswing and a crisis. The crisis in turn spawns reforms of the 'framework' so that the two subsystems are brought back into accordance, and fast diffusion of the new style and an upswing follows.

Perez in turn draws on the work of the Régulation School (Boyer 1990; Boyer and Saillard 1995). The Régulation School (RS) is concerned with the socially embedded, socially regularised nature of capitalist economies rather than with pure, self-regulating market phenomena and seeks to incorporate broader politico-economic issues to show how they interact to 'normalise' the capital relation (Jessop 2001). Market forces are regarded as only one of several contributing factors to capitalist expansion; the capitalist economy in its integral sense includes both economic and extra-economic factors. The extra-economic factors include institutions, collective identities, shared visions, common rules, norms, and conventions, networks, procedures, and modes of calculation. All of these have important roles in guiding or 'regularizing' the process of capital accumulation and in combining production and consumption in a virtuous circle of accumulation in what is otherwise seen as an improbable system of capitalist reproduction. The social and economic patterns that enable accumulation to occur in the long term between two structural crises are referred to as a 'regime of accumulation'. The specific configurations of social relations for any given era or geographical location, which socialise the heterogeneous behaviour of economic agents, are referred to as a 'mode of régulation'. Finally, the conjunction of an accumulation regime and a type of *régulation* is referred to as a 'mode of development' (cf. Perez).

## Services as a Temporary Proxy

Towards which quantitative indicators should we look to gauge these trends? Unfortunately, the available indicators tend not to serve us very well for two primary reasons: First there is the general and unfortunate tendency that the most economically interesting phenomena occur as residuals in mainstream economics and are therefore not appropriately covered by indicators. This applies for instance to 'technical change' (a residual in Solow's growth model after labour and capital are accounted for) and to 'services' (a residual in the Fisher-Clark model of economic development (Tomlinson and Ndhlovu 2003)). This is of course a paradox given Solow's own estimate that 80 per cent of U.S. growth 1909-49 had to be attributed to residual 'technical change' (Solow 1957), and given that two thirds of the world economy today is made up of services.<sup>7</sup>

Second globalisation, deregulation, and new managerial and organisational techniques (network organisational form) have come to place discernible stress on established indicators, concepts and even theories. Among the primary heretofore central concepts, which are becoming less applicable or changing their nature are 'nation', 'firm', 'trade', and the service vs. good-distinction – and of course these concepts are at the core of traditional statistical compilations. This introduces a distinct and perhaps temporarily increased need for *qualitative* analyses as well as for a reconsideration of existing systems of statistics.

In terms of available indicators we would expect the trends we are focussing on to inter alia be reflected in an increasing content of knowledge and information intensive activities and a changing structural composition of K&I-intensive activities vis-à-vis other activities and possibly also a changing geographical distribution of such activities. Accordingly we can make a first rough survey of some of these trends by looking at developments in the statistical category of 'services'.<sup>8</sup>

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<sup>7</sup> These issues are of course the subjects of extensive literatures. Especially the work on endogenous growth (Abramowitz, Grossman and Helpman, Romer, Lucas) is a pertinent improvement of growth modelling; and Miozzo and Soete (2001) suggest a more refined accounting method for services (not unlike Pavitt's (1984) refinement of the classification of industries). But our issue here is not to discuss growth modelling or national accounting, rather the intention is to make a first attempt at identifying usable indicators and then apply them for a first rough estimation of the issues of interest.

<sup>8</sup> The statistical category of services include activities such as transport telecommunications, insurance, other financial services, real estate, business services, wholesale and retail trade, hotels and restaurants, and construction.

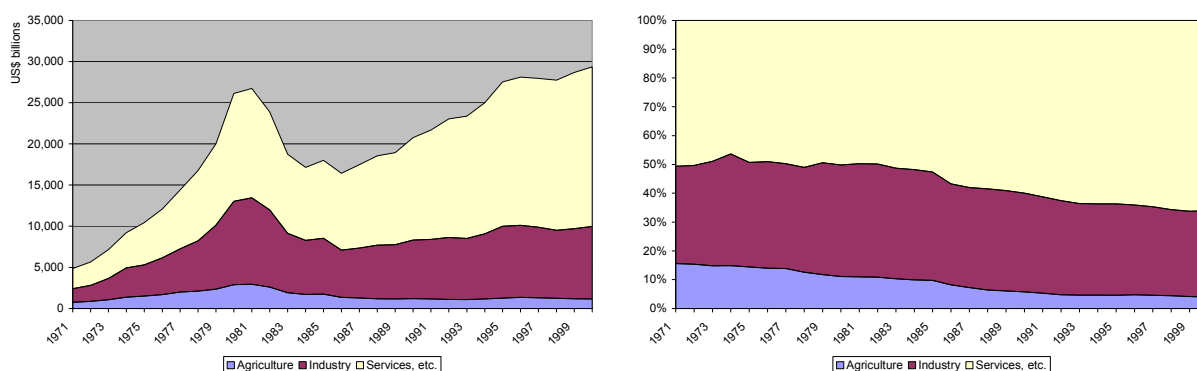
More specifically, we can put forth a set of hypotheses: (1) we generally expect the transformations of production referred to to be reflected in a changing role of ‘services’ in production and patterns of trade and investment; (2) we would expect increasing internationalisation of services due to the push and pull factors referred to earlier fuelling ‘economic globalisation’. Further, (3) we would expect the surge in internationalisation of manufacturing to have led to an increasing need for OECD countries to capitalise more on ‘services’, in turn translating into (a) an increasing trade surplus in services (to compensate for deficit in manufacturing) and (b) increasing income from royalties and fees from patents and licenses. Finally, (4) research shows that there are persistent close and important linkages between service and manufacturing activities and between ‘old’ and ‘new’ industries. The extreme hypothetical scenario were manufacturing and services were completely separated geographically is thus not immediately viable. For this reason, we would expect the surge of FDI in manufacturing to be accompanied by increasing FDI in services.<sup>9</sup>

## Extent of Service Activities

Services are the fastest growing sector of the global economy and account for two thirds of output, a third of global employment and 20 per cent of global trade.

As a very first indication we can look at the shares of value-added and employment of services globally: Over the period 1971 to 2000 the content of services in world output has increased from 50.6 per cent to 66.1 per cent (see Figure 1). From 1990 to 1996 world employment in services increased from 29 per cent of total employment to 37 per cent, primarily at the expense of agriculture (see Table 1).

Figure 1 World value-added by sector, 1971-2000 (current US\$, value and per cent)



Source: Data from World Development Indicators, World Bank.

Table 1 World employment by sector, 1990-1996 (% of total employment)

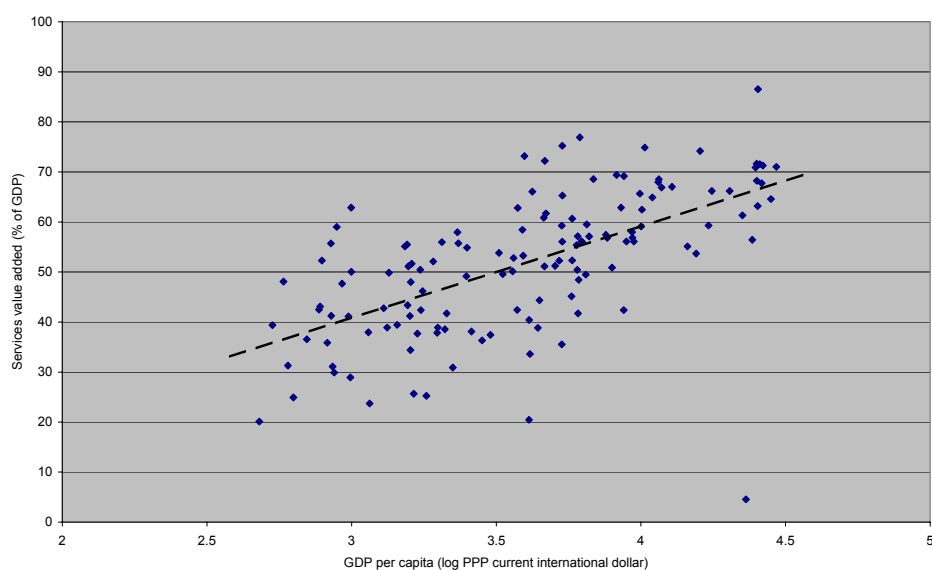
	1990	1991	1992	1993	1994	1995	1996
Services	29.3	30.7	31.4	32.4	31.5	34.0	36.8
Industry	20.9	21.9	21.6	22.0	21.5	21.4	22.9
Agriculture	43.2	40.9	40.7	39.4	40.5	38.5	..
Total	93.4	93.6	93.6	93.8	93.6	93.9	..

Source: Data from World Development Indicators, World Bank.

Generally, the higher the GDP, the higher the share of services in the economy:

<sup>9</sup> When service indicators are used to assess real economic trends one should also be aware that the increasing statistical visibility of services also has to do with increasing outsourcing of services, which makes service activities previously ‘hidden’ within firms turn up in national statistics. There may also be changes in the operationalisation of statistical concepts over time (affects time series from World Development Indicators) and various more extensive revisions of service classification systems are currently ongoing.

Figure 2 Share of services in total value added by GDP per capita, 2001.



Source: Calculation based on data from World Development Indicators.

But as already mentioned, ‘services’ is an extremely diverse category ranging from petty trade to sophisticated financial intermediation services. Further, the extent and character of service activities varies over time and between regions and countries.

Available data does allow us to dig a little deeper by breaking value-added in services down by countries and country groups, cf. Table 2.

Table 2 Value added 2001 in countries and country groups, by sector and gross (per cent and current US\$ billion)

	Agriculture	Industry	Services	Total	Gross value added	
		Total industry	Of which manufacturing		US\$ billion	
World*	4.0	30.0	20.1	66.1	100.0	29,272
OECD*	1.9	28.4	19.6	<b>69.7</b>	100.0	22,868
European Monetary Union	2.5	29.0	21.0	68.5	100.0	5,438
<i>Low &amp; middle income</i>	12.6	36.7	22.8	50.7	100.0	5,566
East Asia & Pacific	15.1	<b>48.1</b>	32.6	36.7	100.0	1,530
Europe & Central Asia	8.8	34.7	..	56.5	100.0	876
Latin America & Caribbean	7.1	30.6	18.5	<b>62.3</b>	100.0	1,748
Middle East & North Africa	..	..	..	..	..	..
South Asia	<b>24.9</b>	25.6	15.2	49.6	100.0	567
Sub-Saharan Africa	<b>20.8</b>	29.7	12.1	49.6	100.0	289
LDCs	<b>32.1</b>	25.4	10.6	42.5	100.0	187
United States*	1.6	24.9	17.2	<b>73.5</b>	100.0	9,119
United Kingdom	1.0	27.4	..	71.6	100.0	1,260
Japan*	1.4	<b>31.8</b>	21.6	66.8	100.0	2,008
China	<b>15.2</b>	<b>51.1</b>	35.4	<b>33.6</b>	100.0	1,044
Hong Kong	0.1	13.4	5.2	<b>86.5</b>	100.0	156
Indonesia	<b>17.0</b>	45.6	25.0	37.5	100.0	138
Denmark	2.8	26.2	17.0	71.0	100.0	139

\* Year 2000 data. Gross value added 2001 estimated by adjusting value added 2000 with yearly GDP growth rate (World: 1.134; OECD: 0.746; USA: 0.300; Japan: -0.579)

Source: Data from World Development Indicators, World Bank.

This data reveals large differences between the content of services in the economies of different countries and regions: in the industrialised countries, which might incidentally better be referred to as

the ‘servivalised’ countries, the content of services in the economy is generally around 70 per cent. At 87 per cent, Hong Kong has the highest service content in the table, which is readily explained by its special status as a regional service hub. The U.S. has the second highest share of services at 73 per cent (year 2000).

Japan has retained a higher share of industrial activities than the OECD average in general and than the U.S. and U.K. in particular. The fact that East Asia has developed into the world’s industrial powerhouse is apparent from the fact that industry contributes as much as 48 per cent of total value added in the low and middle income countries in East Asia & Pacific. This is also reflected by two of the individual countries listed from this country group: China and Indonesia. In China especially, industry accounts for a large share of value added, viz. 51 per cent, well higher than the East Asia & Pacific average of 48 per cent.

The LDCs as a group, the low and middle income country groups, and China and Indonesia all have high shares of agriculture in total value added. With its high shares of agriculture and industry, China has a very low share of services in total value added – the lowest in the table. Compared to the low and middle income country average, Latin America & Caribbean has a relatively high share of services in value added at 62 per cent.

Next we look at the changes over time in the content of services in total value added.

*Table 3* Index of share of services in total value added, by countries and country groups, 1985-2002 (1985=100)

	1985	1990	1995	1999	2000	2001	2002
World	100.0	114.0	121.1	125.8	<b>125.6</b>	..	..
OECD	100.0	102.8	107.5	111.5	111.7	..	..
European Monetary Union	100.0	103.9	110.2	113.6	113.6	114.0	..
<i>Low &amp; middle income</i>	<i>100.0</i>	<i>104.8</i>	<i>116.9</i>	<i>122.7</i>	<i>121.2</i>	<i>120.5</i>	..
East Asia & Pacific	100.0	109.2	108.7	107.0	106.5	107.3	108.7
Europe & Central Asia	..	..	..	..	..	..	..
Latin America & Caribbean	100.0	116.3	126.9	139.0	137.3	<b>134.8</b>	..
Middle East & North Africa	..	..	..	..	..	..	..
South Asia	100.0	102.7	108.9	116.3	117.7	119.7	123.8
Sub-Saharan Africa	100.0	106.7	115.0	<b>116.6</b>	114.1	113.4	111.3
LDCs*	..	100.0	100.0	97.1	96.3	<b>98.0</b>	..
United States	100.0	104.9	108.0	110.1	<b>110.1</b>	..	..
United Kingdom	100.0	107.7	113.2	120.2	120.2	122.6	..
Japan	100.0	101.5	111.2	115.5	116.2	..	..
China	100.0	109.9	107.6	115.5	116.6	117.9	119.2
Hong Kong	100.0	107.0	120.5	122.7	123.3	<b>124.5</b>	..
Indonesia	100.0	101.3	100.3	90.4	89.5	91.5	<b>93.0</b>
Denmark	100.0	103.3	105.6	107.0	105.0	106.4	..

\* Base year 1990.

Source: Calculations based on data from World Development Indicators, World Bank.

The table shows that the *share* of services in total global value added has increased by 25.6 per cent from 1985 to 2000. With a few exceptions, the share of services has grown for all countries and country groups but at very different pace. One obvious reason for this is that the growth rate for countries, which already have high shares of services, will tend to be lower.

As a group, low and middle income countries have had a fast growth in the share of services in value added even though the group of LDCs actually have *lower* shares of services in total value added over time (as has Indonesia). Low and middle income countries in Latin America and the Caribbean have had the highest growth in share of services in value added even though the share has been



receding over the period 1999-2001. In Sub-Saharan Africa the share of services grew until 1999 but has declined since.

Hong Kong has had the second highest growth in the table from what was already a high share in 1985. The share of services in the Japanese economy has grown faster over the period than in the U.S. but remains at a significantly lower level as we saw in the preceding table. Even though we saw that China still has a very low share of services in total value added the share of services has grown steadily throughout the period and faster than the average of low and middle income countries in the region. Part of the reason for the low share of services in China is likely to be the particular division of labour in the region involving especially Hong Kong but also Taiwan.

## Internationalisation of services

After having looked at the content of services in different economies and its development over time, we will next try to assess the extent and character of *internationalisation* of services, i.e. changes in the geography of production and delivery of services. We can do this by looking at two issues: *trade* in services and *foreign direct investment* in services respectively to the extent available statistics allows us.

### Trade in Services

We can assess trends in trade in services by looking at net trade in services over time for different countries and regions. In addition to trade, another way to capitalise on knowledge and information intensive activities is by selling patents and licenses: increasing income from royalties and fees can also be considered an instance of 'internationalisation of knowledge and information intensive activities'. Table 4 shows net trade in goods, net trade in services, and net receipt of royalties and fees as percentage of GDP for different time periods and countries/country groups.

In the OECD countries as a group there is a slightly increasing deficit in trade in goods and a slight and steady surplus in trade in services. There is a small and constant surplus in royalties and fees throughout the period. In the European Monetary Union there is a slightly increasing surplus in trade in goods and a slightly increasing deficit in trade in services. There is a deficit in royalties and fees throughout the period and the deficit appears to be increasing.

Thus, these observations do not immediately appear to confirm the hypotheses we put forward above, viz. that a need in OECD countries to capitalise more on services would translate into increasing trade surplus in services and increasing income and royalties and fees.

The table does however show some other clear and interesting trends: the surplus in trade in goods in East Asia & Pacific comes out very clearly and Middle East and North Africa too has a significant increase in goods trade. Both regions have a deficit in service trade; a deficit which is increasing in East Asia & Pacific but declining in Middle East and North Africa.

All low and middle income country groups have a deficit in royalties and fees and the deficit is increasing. This trend is only likely to be amplified as more tight international intellectual property systems are put into effect.

The U.S. has a considerable and increasing deficit in goods trade. Even though it has a surplus in both service trade and royalties and fees it not of a magnitude to compensate for the goods deficit. The U.K. shows a pattern similar to that of the U.S.

China has an increasing surplus in goods trade but an increasing deficit in both service trade and royalties and fees. Indonesia has the largest deficit in service trade among the countries and regions listed. The country's very high surplus in goods trade is likely to be caused by the rising cost of imports due to currency depreciation and the contraction in GDP following the financial crisis and the lingering unrest.

Table 4 Net trade in goods and services and net receipt of royalties/fees by countries and regions, 1985-2001 (% of GDP)

	Net trade in goods				Net trade in services				Net receipt of royalties and fees			
	1985-89	1990-99	1999	2001	1985-89	1990-99	1999	2001	1985-89	1990-99	1999	2001
World	0.05%	0.19%	0.03%	-0.13%	-0.08%	0.02%	0.08%	0.04%	0.01%	0.01%	0.00%	-0.01%
OECD	-0.17%	0.21%	-0.35%	-0.78%	0.14%	0.19%	0.20%	0.17%	0.02%	0.02%	0.02%	0.02%
European Monetary Union	1.06%	1.29%	1.56%	1.77%	0.69%	0.19%	-0.04%	-0.09%	-0.11%	-0.15%	-0.21%	-0.23%
<i>Low &amp; middle income</i>												
East Asia & Pacific	-0.39%	2.20%	6.56%	5.15%	-0.44%	-1.02%	-1.19%	-1.40%	-0.02%	-0.07%	-0.12%	-0.21%
Europe & Central Asia			-1.09%	1.31%			1.29%	0.94%		-0.03%	-0.12%	-0.13%
Latin America & Caribbean	0.84%	-0.29%	-0.60%	-0.43%	-0.20%	-0.83%	-0.88%	-1.03%	-0.02%	-0.08%	-0.14%	-0.13%
Middle East & North Africa	-1.48%	1.81%	2.60%	5.66%	-5.91%	-4.27%	-1.59%	-0.78%	-0.01%	-0.05%	-0.08%	-0.08%
South Asia	-3.96%	-3.64%	-4.19%	-2.87%	0.08%	0.07%	0.61%	0.38%	-0.02%	-0.03%	-0.05%	0.00%
Sub-Saharan Africa	4.06%	2.81%	2.16%		-2.82%	-3.50%	-3.25%		-0.06%	-0.05%	-0.06%	-0.05%
LDCs	-3.86%	-4.77%	-4.42%		-2.07%	-2.52%	-1.88%		0.00%	0.01%	0.00%	0.01%
United States	-2.82%	-2.36%	-3.73%	-4.21%	0.21%	0.92%	0.88%	0.66%	0.17%	0.28%	0.26%	0.22%
United Kingdom	-3.44%	-2.16%	-3.04%	-3.38%	1.26%	1.14%	1.31%	1.14%	0.02%	0.05%	0.11%	0.15%
Japan	3.48%	2.69%	2.74%	1.70%	-0.93%	-1.18%	-1.21%	-1.06%		-0.07%	-0.04%	-0.02%
China	-2.30%	2.87%	3.63%	2.93%	0.39%	-0.25%	-0.54%	-0.51%	0.00%		-0.07%	-0.16%
Hong Kong	0.33%	-6.46%	-1.97%	-5.12%	9.41%	8.38%	7.63%	10.51%			-0.13%	
Indonesia	5.83%	5.94%	14.75%	16.07%	-4.12%	-4.09%	-4.98%	-7.35%	0.00%			
Denmark	0.70%	3.89%	3.68%	4.20%	0.78%	1.12%	0.90%	2.12%	0.00%	0.00%		

Source: Calculations based on data from World Development Indicators Online.

## FDI in Services

Unfortunately, FDI statistics at a sectoral level is not readily available for all countries. Sectoral data is available for the OECD countries however and this at least allows us to assess FDI outflows from the OECD even though we cannot determine exactly where those flows are going.

What FDI *inflows* is concerned, in year 2001, global FDI inflows totalled US\$725.2 billion dollars (see Table 5).

Table 5 Inward FDI flows by industry, 2001

	Developed countries		Developing countries	
	US\$ billions	Per cent	US\$ billions	Per cent
Primary sector	55.9	10.2%	13.0	7.7%
Secondary sector	91.4	16.6%	56.0	33.0%
Tertiary sector	357.4	64.9%	99.1	58.4%
Trade	27.1	4.9%	12.9	7.6%
Transport, storage, communications	52.9	9.6%	20.1	11.8%
Finance	111.0	20.2%	28.9	17.0%
Business activities	113.8	20.7%	16.9	10.0%
Private buying and selling of property	0.5	0.1%		
Unspecified	45.3	8.2%	1.7	1.0%
Total	550.5	100.0%	169.8	100.0%

Source: World Investment Report 2003, UNCTAD.

FDI *outflows* (a better indicator of structural transformations of the investing economy) in services have also been increasing fast, especially in the 2<sup>nd</sup> half of the 1990s, though they experienced a setback in 2001. An increasing *share* of FDI outflows is within services.

Table 6 FDI outflows by sector for selected OECD countries\*, 1985-2001 (% of GDP and % of FDI outflows in all sectors)

	1985		1990		1995		1999		2000		2001	
	% of GDP	% of FDI outflows	% of GDP	% of FDI outflows	% of GDP	% of FDI outflows	% of GDP	% of FDI outflows	% of GDP	% of FDI outflows	% of GDP	% of FDI outflows
Primary sector	0.05%	9.1%	0.07%	5.8%	0.04%	3.0%	0.10%	2.1%	0.24%	4.1%	0.20%	9.5%
Industry	0.19%	34.6%	0.48%	39.7%	0.55%	41.4%	1.75%	37.2%	0.91%	15.6%	0.43%	20.4%
Services	0.31%	56.4%	0.66%	54.6%	0.74%	55.6%	2.85%	60.6%	4.70%	80.3%	1.48%	70.1%
Total	0.55%	100.0%	1.21%	100.0%	1.33%	100.0%	4.70%	100.0%	5.85%	100.0%	2.11%	100.00%

\* The countries included are the ten largest OECD economies plus the Scandinavian countries: Canada, Denmark, France, Germany, Italy, Japan, Korea, Netherlands, Norway, Spain, Sweden, United Kingdom, and the United States.

\*\* For the purposes of the simple calculation here, if FDI outflows is missing for a specific country, sector and year, FDI outflows/GDP for all countries for that sector and year is estimated as the share for the remaining countries.

Source: Calculations based on data from SourceOECD.

The statistics available from the OECD does allow for some further breakdown on FDI in different types of services but time has not allowed a review of this data here.

Table 7 FDI outflows in services and industry by country, 1985-2001 (% of GDP)

		1985-89	1990-94	1995-99	2000	2001
Canada	Industry	0.09%	0.12%	0.20%	..	..
	Services	0.51%	0.31%	2.13%	4.34%	3.21%
Denmark	Industry	0.23%	0.57%	0.74%	0.68%	0.93%
	Services	0.59%	0.89%	2.09%	14.27%	4.42%
France	Industry	0.43%	0.51%	0.64%	1.37%	0.86%
	Services	0.47%	0.64%	2.51%	11.67%	5.03%
Germany	Industry	0.37%	0.42%	1.28%	0.98%	-0.04%
	Services	0.27%	0.49%	1.48%	1.52%	2.28%
Italy	Industry	0.06%	0.13%	0.04%	0.32%	0.43%
	Services	0.31%	0.41%	0.45%	0.60%	0.68%
Japan	Industry	0.34%	0.33%	0.50%	0.25%	0.35%
	Services	1.04%	0.75%	0.61%	0.77%	0.42%
Korea	Industry	0.08%	0.23%	0.37%	0.21%	0.32%
	Services	0.03%	0.14%	0.29%	0.53%	0.10%
Netherlands	Industry	1.48%	1.87%	3.10%	6.12%	1.71%
	Services	1.15%	2.12%	4.82%	12.67%	8.18%
Norway	Industry	..	..	0.59%	..	-0.57%
	Services	..	..	1.26%	..	2.05%
Spain	Industry	0.06%	0.08%	0.91%	0.74%	0.99%
	Services	0.25%	0.50%	1.83%	8.91%	3.44%
Sweden	Industry	..	0.93%	2.02%	3.72%	..
	Services	..	1.12%	1.45%	9.58%	..
United Kingdom	Industry	1.81%	0.99%	2.19%	1.59%	0.90%
	Services	1.36%	0.88%	3.39%	14.65%	0.92%
United States	Industry	0.20%	0.28%	0.38%	..	0.36%
	Services	0.30%	0.46%	0.78%	..	0.99%

Note: Period averages are calculated as the simple average of the individual years.

Note: If more than two years are missing in a five-year period, 'not available' is reported in the table, otherwise the average of the remaining years is used.

Source: Calculations based on data from World Development Indicators (GDP) and SourceOECD (FDI in local currency, exchange rates).

In addition to looking at FDI outflows, we can also approach internationalisation from another angle by looking at trends in FDI inward stocks in services compared to manufacturing, see the table below. The table shows that services surpass manufacturing in global FDI inward stocks in 1999 and has also grown faster during 1988-99. Industrial countries have a significantly higher share of FDI inward stock in services than in manufacturing in 1999 but for developing countries the opposite is the case. However, and importantly, even though FDI inward stocks in industrial countries have grown faster in services than in manufacturing during 1988-99, FDI inward stocks in services have grown much faster in developing countries than they have in industrialised countries, as have FDI inward stocks in both sectors.

Table 8 FDI inwards stocks in services and manufacturing, 1988-99 (growth rate and shares in US\$)

	Growth rate, 1988-99 (per cent change per year)	Share, 1999 (per cent)
<b>World</b>		
Total FDI	12.3	
Manufacturing	12.2	41.6
Services	13.8	50.3
<b>Industrial countries</b>		
Total FDI	9.9	
Manufacturing	9.1	36.4
Services	11.6	55.5
<b>Developing countries</b>		
Total FDI	21.5	
Manufacturing	19.6	54.5
Services	28.2	37.3

Note: Second column data for France are from 1998, and second column data for Japan are from 1994.

Source: Global Economic Prospects 2003, World Bank, in turn based on World Investment Report 2001, UNCTAD.

## Which Regulation?

If our initial characterisation of contemporary economic transformations is correct we would consequently expect to see the emergence of new and important pieces of regulation related to ICTs and to intellectual properties. A proper analysis pending this section will be confined to a brief outline of the primary pieces of new international regulation we are concerned with. In the research project from which this paper reports, these regulations will be analysed in the context of the case of the software industry.

*GATS*: The increasing “tradability” of services (trade in services grows much faster than trade in goods) has created a need for new multilateral regulation. The GATS defines four ways in which a service can be traded, referred to as “modes of supply”. Mode 1 (“cross-border supply”) are services supplied from one country to another. Mode 2 (“consumption abroad”) covers consumers from one country making use of a service in another country. Mode 3 (“commercial presence”) refers to a company from one country setting up subsidiaries or branches to provide services in another country. Finally, mode 4 (“movement of natural persons”) is individuals travelling from their own country to supply services in another. These modes are dealt with in the GATS in two parts: the framework agreement containing the general rules and disciplines; and the national “schedules” which list individual countries’ specific commitments on access to their domestic markets by foreign suppliers. Members themselves choose in which service sectors or subsectors they will make commitments. The MFN is under the general rules and applies to all service sectors;<sup>10</sup> the market access and national treatment rules apply only to the specific commitments and exceptions may be specified in the schedules.

*TRIPS*: The TRIPS agreement establishes an international intellectual property rights regime and requires member-states to amend their own laws in conformity with the agreement within a given time frame.<sup>11</sup> It incorporates provisions from a number of separate treaties into a single framework and introduces new or higher obligations than these conventions.<sup>12</sup> For the TRIPS, MFN and “national

<sup>10</sup> However, it is recognized that MFN treatment may not be possible for every service activity and, therefore, it is envisaged that parties may indicate specific MFN exemptions.

<sup>11</sup> The TRIPS defines “intellectual property rights” as copyright and related rights, trademarks, geographical indications, industrial designs, patents, integrated circuit layout-designs and protection of undisclosed information (trade secrets).

<sup>12</sup> These agreements are the Paris Convention (on industrial property), the Berne Convention (on copyright), the Treaty on Intellectual Property in Respect of Integrated Circuits (IPIC Treaty), and the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations (the Rome Convention).

treatment” applies from the date the agreement came into effect. Some scholars regard the agreement on TRIPS as the most serious concern for developing countries. It has been argued that the TRIPS agreement is likely to strengthen existing trade monopolies and adversely affect technology transfer to developing countries (May 2000; Dhar and Rao 1996). Others argue that the new patent regime will result in rising the costs of industrial development in technology importing countries, due to higher royalty payments to patent holders and increased prices of products manufactured under licence (UNCTAD 2001a; World Bank 2002). TRIPS specifies that computer programmes are protected as literary works under the Berne Convention (copyright) and outlines how databases are protected.

*TRIMS:* The Agreement on Trade-Related Investment Measures (TRIMS) is not, as the name might lead one to think, an agreement governing international investment. TRIMS, which is one of the Multilateral Agreements on Trade in Goods (GATT), prohibits trade-related investment measures, such as local content requirements, that are inconsistent with basic provisions of GATT 1994. Investment in *services* is not governed by the TRIMS but by GATS Mode 3. Under the TRIMS, local content policies, trade balancing requirements, and quantitative import/export restrictions are not allowed; whereas TRIMS does not cover export incentives, export performance requirements, and technology transfer agreements.<sup>13</sup> During the Uruguay Round negotiations, the United States in particular argued for prohibiting or restricting the use by member states of policies that in their view were biased against foreign investment such as local-content rules, export performance requirements, etc. It was argued that such measures restricted or distorted international trade. Many developing countries, on the other hand, saw such measures as essential elements of their industrial development strategies. They also regarded TRIMS as necessary for restraining transnational corporations from indulging in restrictive business practices (Dicken 1998). In Doha least-developed countries requested extension of the seven-year transition period given to them under the TRIMS Agreement to eliminate inconsistent TRIMS.

*Technical Barriers to Trade:* The WTO agreement on Technical Barriers to Trade (TBT) agreement is an extension of a previous plurilateral GATT agreement, “the Standards Code”, which laid down the rules for preparation, adoption and application of technical regulations (mandatory), standards (voluntary) and conformity assessment procedures. The stated purpose is to ensure that technical negotiations and standards, as well as testing and certification procedures, do not create obstacles to trade. With respect to safeguard of human, animal and plant life and health, the agreement encourages countries to use international standards where these are appropriate, but it does not outright require them to change their levels of protection as a result of standardisation.

*Information Technology Agreement:* The Information Technology Agreement (ITA) was originally signed in 1997 by 29 countries or customs territories. It is a plurilateral trade agreement that requires participants to eliminate tariffs on a specific list of information technology (IT) products. These products include computer hardware and peripherals, telecommunications equipment, computer software (on media, including floppy and optical discs), semiconductor manufacturing equipment, analytical instruments, and semiconductors and other electronic components. The agreement covers approximately 95 per cent of world trade in defined information technology products, which is currently estimated to exceed US\$1 trillion. The ITA now has 57 signatories. Computer software is included in the ITA. To ensure that only computer software, and not recorded movies or music, are accorded duty-free treatment, most ITA signatories use a strict definition of computer software, developed by the World Customs Organisation, in their tariff schedules. Software imports are duty-free in many countries but VAT and other taxes are often applied.

*Basic Telecommunications Agreement:* After the conclusion of the Uruguay Round in 1994, some member states felt that not enough progress had been made in the area of telecommunications services. After three years of extended negotiation on market access for basic telecommunications services,<sup>14</sup> 69

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<sup>13</sup> For instance, GATS Article XIX specifically provides that developing countries may attach conditions to their market opening commitments regarding the transfer of technology in order to increase their participation in services trade.

<sup>14</sup> Telecommunications services can be divided into two categories: basic telecommunications, which is the simple relay of voice or data from sender to receiver; and value-added services, which add a value to the customer’s information. Examples of the former are voice telephone services, facsimile services, telegraph services, and packet- or circuit-switched data transmission services. Value-added services are telecommunications for which suppliers “add value”

governments committed to schedules, which were annexed to the GATS. The markets of the participants accounted for more than 91 percent of global telecommunications revenues in 1995.

*1998 moratorium on e-commerce:* A final piece of international regulation with bearing on the present project is the WTO moratorium from 1998 on not charging customs duties on electronic transmissions. A statement in the Ministerial Declaration adopted by WTO members at Doha in November 2001 declares that members shall maintain the current practice of not imposing customs duties on electronic transmissions. Calculations indicate that the economic loss resulting from this exemption is negligible (UNCTAD 2001b; UNCTAD 2000; Mattoo et al. 1999).

Other related regulations are the international accounting rate system (ITU) and various international and domestic standards.

## Conclusions

We put forth a set of four hypotheses pertaining the role of services in general and to functional and geographical outsourcing of knowledge and information intensive activities in specific. The increasing importance of knowledge and information intensive activities, as well as the organisational trend towards outsourcing, was reflected in the fact that services constitute an increasing share of the economy in both developed and developing countries.

In terms of internationalisation of services, among the most interesting trends were that FDI *inward* stocks grew much faster in developing countries than in developed ones. What *outward* FDI is concerned, throughout the period 1985-2001, outward FDI in services from OECD countries have constituted a greater share of total FDI than FDI in manufacturing. Furthermore, there has been a pronounced increase in the share of services and FDI in services has accelerated in the latter half of the 1990s. We saw that for the OECD countries as a group the hypothesis that the surplus in service trade in royalties and fees would increase over the period was not confirmed by the data presented here.

A trend towards increasing service internationalisation was clearly visible but so far internationalisation predominantly takes the form of FDI rather than trade in services or sales of patents or licenses.

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to the customer's information by enhancing its form or content or by providing for its storage and retrieval, such as on-line data processing, on-line data base storage and retrieval, electronic data interchange, e-mail or voice mail. Such services were not formally part of the extended negotiations.

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