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Foreign Direct Investment, Strategic Alliances and the International Competitiveness of Nations. With Special Reference on Japan and Germany

Axel Sell

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Axel Sell

1 Introduction

The Asian economic crisis intensified the discussion about the sources of the international competitiveness of nations and the shaping of the national innovations systems. International competitiveness of nations in the concept of PORTER (1990) means the ability of the local firms of a country to use its local-bound resources in a way that will enable them to be competitive in international markets. The strength of those firms is taken as synonymous of the strength of the respective country. The strength of international acting firms, however, must not be identical with the welfare of the home country, and in part this speech is devoted to that question. Foreign Direct Investment (FDI) and Strategic Alliances in the last decades have become the major forms of internationalisation and lead to the emergence of integrated international production of global acting firms and contributed to the genesis of networks for an international exchange and transfer of technology. In the Neo-Schumpeterian terminology this may be considered a mutation of Schumpeter Mark II to Mark II^+ companies and a selection of these entities by the world market in the struggle for survival. This mutation has consequences on the effectiveness of national policy instruments, and on a rational policy shaping. This also changes our view of national innovation systems and the role governments may play to positively influence the well-being of their citizen. National innovation systems in several Asian countries which are mainly directed to support the great conglomerates for the present and even more for the future might overestimate the importance of these enterprises and underestimate the importance of inward FDI for the home economy. We explicitly will ask for the difference between hosting the headquarter of a multinational or hosting affiliates of great multinationals and look for the consequences on wage differences. In the following we first will summarise the discussion on FDI and Strategic Alliances. Then we present some figures to shed light on the significant increase of internationalisation of enterprises.

2 Foreign Direct Investment and Strategic Alliances

Foreign Direct Investment were always a subject of controversial discussion. In the 60s and 70s especially the consequences for the developing countries were discussed. The discussion in part concentrated on the political aspects of the influence or potential influence of foreign dominated multinational enterprises in the host countries. From a more economic point of view effective technology and resource transfer connected with foreign direct investment was highlighted as well as the positive impact on the international division of labour. However, parallel to that a debate in the 60s and 70s focused also on the potential negative foreign direct investment effects on employment in the industrialised home countries of the multinationals. Is FDI a substitute for exports, or a complement, or is FDI neutral, creating additional economic activities in other parts of the world that otherwise would not have happened? The classical answer of the debate was "it depends" (see the famous discussion by HUFBAUER/ADLER 1968, for more recent surveys see AGARWAL 1997, RAMSTETTER 1997, PETRI 1994). However, perhaps the question itself is misshaped. It depends on the conditions at the labour market. Even in situations with problems at the home labour market the outcome of the decision not to invest abroad might have been that other multinational enterprises from an other country would have used the opportunity instead. The effects on the firm's and country's export might even have been worse. Even more jobs might have gone lost due to the foregone opportunity to build up an international effective production network with benefits also for the mother firm by supplying specific parts to the affiliate, by economics of scale effects and by sourcing from the affiliates to reduce costs. By the options to shift production to foreign locations also several other processes will be initiated. The home and host country wage level and structure will be affected, rationalisation will occur, etc. From a macroeconomic view, the terms of trade will change. We have also to be aware that the countries usually experience at the same time inward and outward foreign direct investment. FISCHER in a recent dissertation, after a survey of the relevant literature and his own empirical analysis concluded that FDI and trade are rather twins, they occur together, have common causes and mutual influence each other (FISCHER 2000, p. 341).

The early literature on FDI spend much effort on the question of motives for going abroad. Market oriented, resource (raw material, minerals etc.) oriented, and (cheap) labour oriented direct investment were distinguished. For investment in developed countries, market oriented investment dominate. This shows in the attractiveness of the US-American market for foreign firms, and also cross-country empirical analysis of Japanese FDI support this view (e.g. FORD/STRANGE 1999). About all the discussion about globalization and liberalism in the trade regimes we should not overlook that several of these investment are defensive to circumvent protective measures (VERNON 1992, p. 21), as e.g. is the case for the Japanese automotive industry. Important are also strategic investment to control potential competitors. Therefore, in many industries cross-wise international investment exist. A more recent phenomenon are R&D and know-how-oriented sourcing strategies which led to the foundation of subsidiaries in regions like the Silicon Valley where specific technology and know-how is concentrated. Firms may thus benefit from a shared culture and learning experiences and the local infrastructure (DUNNING 1992, p. 159). The increase in R&D costs for innovations, the motive of burden and risk sharing are main reasons for international strategic alliances. A further advantage for alliances over hierarchies is that they permit faster exploitation of global scale economies in scale activities (STOPFORD 1995, p. 41). The alliances often are based on contracts specifying the concrete obligations and rights of the partners in a specific project, often they take the form of an equity joint venture that may also be classified as FDI from one or even all partners, an example is the joint venture Fujitsu Siemens Computers that 1999 was founded in the Netherlands. As a consequence of the now existing global networks of the multinational enterprises and the supporting net of international strategic alliances between those enterprises, capital and especially technology today is a very mobile factor. Independently of its source of origin it is applied world-wide.

3 Internationalisation of enterprises and economies

Internationalisation of enterprises in the first decades after World War II was dominated by the expansion of trade and the liberalisation and internationalisation of financial markets. Foreign direct investment were still important and mainly of US-American origin. However, in several countries, especially in the developing countries, strong negative attitudes prevailed which manifested in restrictive investment laws which forbid foreign direct investment in strategic sectors and allowed only limited foreign ownership in certain other industries. Public enterprises, state supported monopolies, especially in the regulated industries, and a nationalistic policy which discriminates foreigners were effective barriers of entry for enterprises from abroad. Progress in the GATT negotiation rounds that led to the today WTO which also includes rules for FDI and intellectual property rights, but also regional agreements as the European Union which created a common market and reduced entry barriers for foreign firms, and also a net of bilateral investment agreements (see e.g. PARRA 1995) which are based on non-discrimination and guarantees against expropriation etc., dramatically changed the climate for FDI. The flows of FDI exploded.

The average annual growth rate from 1981-1985 was only 0.8%, the rates increased for the period 1986-1990 to 27.3% and in the first half of the 90th was still above 10% and significantly higher than the growth rates for international trade (-0.1% and 14.3% respectively). For 1997 the growth rate of FDI flows exceeded 25%, and in 1998 estimates are over 36 %. Even the increase of stocks was reported for 1997 and 1998 as being about 10% and 20% respectively (UNCTAD, World Investment Report 1999). These figures have to be seen in the context that GDP at factor costs in 1997 only rose by 1.2%, and exports of goods and non-factor services by 2.9%. Since mid of the 90th the international production of affiliates from multinational enterprises exceeded world export.

The actual interdependencies between the leading economies is even underestimated by these figures. It is a phenomenon of the last decades that international mergers and strategic alliances became more and more important. Common R&D of two or more enterprises, an exchange of knowledge and a pooling of core competence in different fields lead to an uncomplicated and fast transfer of technological competence from one enterprise to another and from country to country. The growing importance of strategic alliances might also have contributed to the increase of royalties and other fees compared to the 70th and early 80th. Average annual growth rates were 21.9% from 1986 to 1990 and 12% from 1991-1996 (UNCTAD, World Investment Report 1999 and earlier editions).

The main agents in the current phase of internationalisation are the great multinational enterprises which also dominate international trade. A large part of world trade today is intra-enterprise trade, estimates for Japan and the United States for the beginning of the 90s were over 50%. Thus, there is an intensive exchange of goods between different affiliates located in different countries, and this will be accompanied by an intensive exchange of knowledge and managerial skills within the net of firms belonging directly or indirectly to the multinational enterprise. Estimates for the early 90s are that some four-fifths of global civilian R&D was undertaken within transnational corporation systems and the world's largest companies account for around half of the world's commercial inventions (UNCTAD, World Investment Report 1995). Therefore, any sophisticated product today is available world-wide at the same time and also production processes will diffuse in short time.

The increase of internationalisation can also be seen at the internationalisation index of the great multinational enterprises (see e.g. IETTO-GILLIES 1998) which is regularly published by UNCTAD in the annual World Investment Reports and calculated as the average of the ratios foreign assets to total assets, foreign sales to total sales and foreign employment to total employment. The world's top 25, ranked by foreign assets, in 1997 in average showed an internationalisation index of 60.9%. The top 25 only 4 years before, in 1993, had an index of 50.1%. The increase is dramatically also if we look at some of the great Japanese and German multinationals. Toyota, for example, in 1990 had an index of only 24.5%, in 1993 of 32.3% and in 1997 the index increased up to 40%. The index for Nissan increased from 33.4% in 1993 to 51.3% in 1997. The German giant Bayer experienced an increase from 60.4% in 1990 to 82.7% in 1997.

4 Consequences for national economies

4.1 The main fields of national policy

One of the major tasks of the national state is to guaranty an economic order that allow the economic subjects to act in their own responsibility in the frame of a reliable economic and political environment. In this spirit WALTER EUCKEN formulated six constitutional principles for a competitive economic order which are directed on,

1. a functioning monetary system,
2. open markets as a guarantee against restrictions of competition,
3. guarantee of private ownership,
4. right to conclude contracts,
5. full personally liability and
6. a persistent economic policy so that private decisions will not be negatively affected by non-predictable interventions of the state (EUCKEN 1952).

In the frame of such an order competition exists. And competition is considered the means to fulfil not only classical political functions (restriction of the states' power against private subjects and control of private economic power) but also economic competitive functions. The static functions of an competitive order are

- consumer sovereignty and direction of production according to the desires of consumers
- optimal allocation of resources
- income distribution according to performance.

Dynamic functions are

- innovations
- imitations and other adaptations at macroeconomic changes.

The economic functions of a competitive order are considered to lead to a maximisation of welfare in the long run. However, in several situations besides the guarantee of the frame (primary policy) a supplementing secondary policy is considered necessary even from the neo-liberal school. Traditionally the main fields of economic secondary policy in the text books are divided into stabilisation policy (employment, balance of payment problems, price stability, growth policy), allocation policy (anti-trust policy, guarantee of ”public goods”, environment protection), distribution policy (balanced income distribution, development policy etc.) and others, e.g. immigration policy. These ideas basically formed the basis of the so-called social market system in the Federal Republic of Germany after World War II, and with more or less stress laid on secondary policies were also the basis of most western economies after the war.

4.2 National Innovation Systems and Porter's Diamond

With more stress on innovations and technical progress as the machinery for economic growth, the different performance of economies is discussed from Neo-Schumpeterian perspective in the framework of the national innovations system. National innovation systems may be defined as a net of public and private institutions that act together in a complex process in the initiation, modifying and diffusion of new technologies (for a discussion of national differences see WOHLMUTH 1999). Per se in my interpretation the advocates of this approach have a more positive attitude in respect to activities of state agencies than the neo-liberal school based on the ideas of WALTER EUCKEN. National innovation systems from another point of view may be regarded a sequence of Porter's Diamond of International Competitiveness of Nations. In successful countries like Germany, the Benelux states, United Kingdom, etc., favourable conditions as described in Porter's diamond of competitive advantage emerged, and in this sense Porter’s diamond looks more as the description of the results of development processes than as the formulation of pre-conditions for a success story. As a reminder: Responsible for the success of a country (or better the firms of a country) according to PORTER (1990) are the extent and quality and the interaction between four sets of attributes:

- The quantity and quality of demand for goods and services by its domestic consumers,

- the level and composition of its natural resources and created factor capabilities
- the domestic rivalry of wealth-producing agencies, that is, the nature and extent of inter-firm competition
- the extent to which its firms are able to benefit from agglomerate or external economies by being spatially grouped in clusters or related activities.

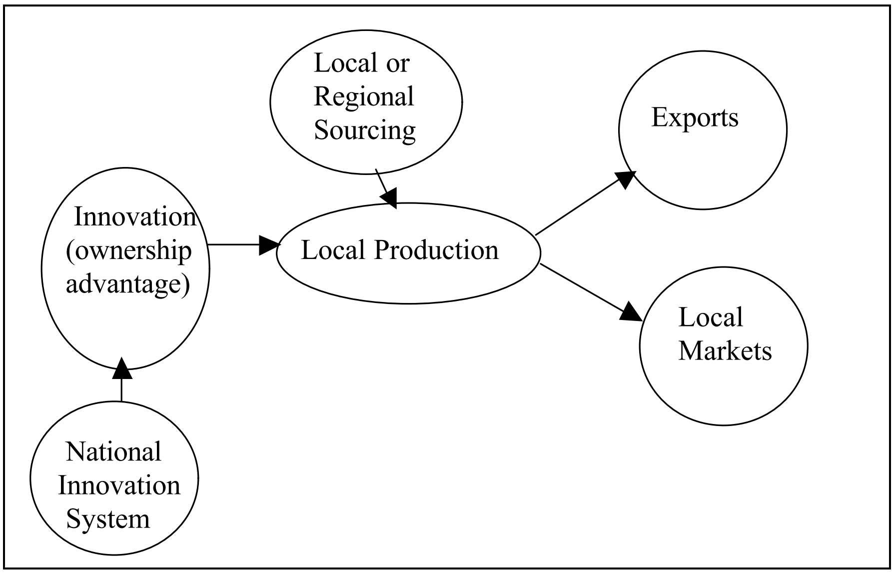
These variables are surrounded and influenced by two others, the role of the Government and chance.

4.3 The Change of National Policy in a Global Economy

4.3.1 Limited political influence on international actors

If we look back in history to the beginning of the industrialisation we will recognise that the growth of firms was connected with the names of great inventors. In Germany e.g. GOTTLIEB DAIMLER, WERNER VON SIEMENS, BOSCH etc. Those entrepreneurs benefited from the general economic frame, economic policy supported the activities by building up the infrastructure including public education, vocational training, foundation of technical Universities, also direct subsidies, etc. On the other hand the invention lead to innovations and economic activities and employment mainly in the region where the invention came up. The internalisation of benefits from the nation's point of view occurred by profits, wages and salaries, creation of innovative social systems for the labour force, etc. At that time the myth e.g. of the Siemens family and other great trusts where the employees identified with their firm, was born. Internalisation of the competence occurred by exports with a great local content. Lean production philosophy was far away, and even in the case of outside resourcing orders were given mainly to local suppliers. The government benefited by direct and indirect tax payments, and, in several cases, also spill overs to the military complex existed.

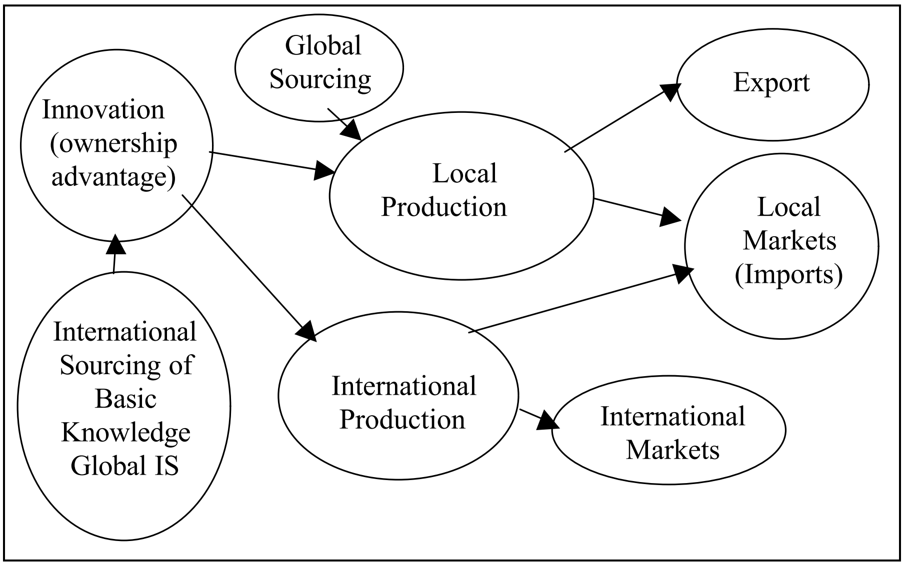
Figure 1: Traditional Innovation System and National Value Added Creation



Due to the increase of factor mobility discussed above this picture changed dramatically. The important factors knowledge, technology and capital are not any longer locked, they emancipated from national control and innovations are exploited world-wide within a short time. Thus, e.g. national tax and distribution policy has to be aware of factor mobility, stabilisation policy in an open economy has to be aware of leakage, for Germany the monetary and foreign exchange policy got out of national control with the introduction of the Euro, and also R&D-policy, traditional regional and sector policy is in conflict with the provision of the Amsterdam Treaty.

Given the limited control on the local use of national subsidised innovations, even the value of direct R&D-policy on national welfare becomes dubious. From the point of view of the national state a great part of the benefits are external and may lead to value added creation elsewhere, but not in the home country.

Figure 2: Global Innovation System and National Value Added Creation



Therefore, it is questionable whether the empirical findings for the late 80s of a strong relationship between an economy's technological and trade specialisation (MEYER-KRAHMER 1996, p. 369) still hold. We can conclude that the influence of national governments on the international acting economic subjects is reduced. However, also the importance of national policy for these subjects decreased.

4.3.2 Limited importance of the national state for international actors

Given the high degree of world-wide integration of the today developed (OECD) states, the reliance of the enterprises on their home state changed dramatically. In historical perspective the national state has been of great importance e.g. for Nestlé, Bayer, Sony and other great multinationals. Today with internationalisation indices of 93.2%, 82.7% and 62.8% respectively, they have emancipated far from their sole dependence on the national state. In literature the phrase of the dependence on a **double-diamond** was used. "Firms engage in foreign activities both to exploit their existing competitive advantages and to protect, or augment, these advantages" (DUNNING 1996, p. 27). And by these activities not only a flow of resources from the centre to the affiliates exist, but technology, organisational skills and other properties are also transferred from the affiliates back to the investing firm (ibid). A better illustration is the imagination of interlinked national diamonds which are used by the multinationals to generate or protect their comparative advantage.

4.3.3 The effects of FDI and Strategic Alliances in home and host countries

Especially DUNNING discussed in detail the consequences of FDI on the attributes of the national diamonds (1992, p. 143 ff.). Inward FDI often provide a different package of resources and capabilities from that provided by domestic investors. This also holds for Strategic Alliances in respect to the import of technology. By the access to foreign capabilities also the productivity of indigenous resources might be increased. However, the value of indigenous resources and capabilities might be also lowered since existing plants may be replaced. Also the fear that decisions of foreign dominated firms on local resource allocation may often not be in the country' s interest and will differ from those of local firms, exists. Even super powers are not immune in this respect as is shows by the discussion in the USA of recent plans from the German Telekom to engage in the American telecommunication industry.[1] Outward FDI on the one hand may extend the ownership of assets by the investing company beyond the national market and enables domestic resources and capabilities to be used more effectively. On the other hand, finance, capital and technology are transferred, resources which in part might have been used in the domestic market. The costs and benefits depend on the type of investment and the specific conditions of the economies as was discussed above. As was argued above and will be outlined in more detail below, the main effect of

[1] US politician want to hinder principally foreign firms with a state ownership of more than 25% to enter the American market and consider the introduction of new laws. In the moment Telekom is still majority owned by the German Government (Der Spiegel 30/2000, interview with Telekom-chairman SOMMER).

the integration of the developed world by FDI and strategic alliances is seen in eroding factor cost differences, and not in replacing jobs.[2]

4.4 What is the specific contribution of a headquarter for the home country?

Important for our discussion is the fact, that multinationals today use their resources world-wide. That means ownership advantage, from were ever it originates, is a global resource and not bound or locked to the home country. Is there something specific for a country to house the headquarter of a multinational? As was discussed above, in the phase of the early industrialisation most of the value added arose around the home base of the enterprises, today this picture changed fundamentally. For sure, there is some specific employment in the headquarters and qualified jobs in planning departments of the great multinationals even today. The Nestlé concern e.g. occupies about 6,000 persons (from world-wide 226,000) in the home country Switzerland. There will be some tax inflows on incomes earned abroad or on license fees. However, the bulk of taxes are cashed by the host countries of the subsidies, and probably not by Switzerland. In light of the rules of international taxation and the contents of double-taxation agreements we should not be too optimistic from the point of view of the home country. In 1996, e.g. the Chairman of the board from Mercedes proudly let the public know that his firm did not pay any income tax in Germany that year, despite a prospective business year for the trust (DER SPIEGEL 2001). Positive for the home country is the still existing preference to concentrate R&D in the home country (WOHLMUTH 1999, UNCTAD 1999), however, outsourcing of selected R&D activities becomes common (see also KOOPMANN/MÜNNICH 1999). Spill offs from the prestige of a great multinationals to the home economy exists and may be of benefit also for small and medium firms of the home country. There will be positive, however, as discussed above, diminishing impacts by

2 That does not exclude labour market problems and low growth rates in some countries due to neglecting the new rules of the international economic relations. Thus, e.g. Japan's growth rates in the past were accompanied by a great trade surplus that since 1995 reduced significantly. At the same time the outward FDI increased, whereas inward FDI traditionally persists on a low level (Statistisches Bundesamt 1999).

"backward linkages". More direct contacts of politicians to the decision makers and possibly an influence on certain decisions by moral suasion or other kind of instruments exist. This influence will differ from country to country and e.g. depends on the size of the country, on the international political weight, and also on the tradition of the relations between state and private sector. Therefore, the bargaining power, e.g. of the American government as the only remaining super power after the end of the cold war will be much greater than the influence of the Japanese or German Government on the enterprises in their countries.

The diminishing role of the location of the headquarter of a multinational for the home country, the importance also of inward FDI for the prospect of the national economy, and the fast diffusion of technologies and capital within the developed world are important for shaping a rational national economic policy. In literature much is said on the bargaining processes to attract foreign direct investment, about a positive investment climate, appealing tax laws, etc., and we may recognise also in Germany a lot of political action in that direction, even very pronounced by the red-green government today. This might also influence national R&D policies in a direction more to promote location-ship-advantages than ownership-advantages of the nations' great multinationals. Thus, in the medium run national economic policy perhaps will concentrate on the primary task discussed by EUCKEN, the granting of a stable frame and a competitive order (in German language "Ordnungspolitik", see e.g. KANTZENBACH/PFISTER 1996), and in addition a policy to promote the attractiveness of the location. This today may include the creation of an investment climate by favourable tax systems to attract foreign direct investment and to hinder the exodus of local firms. These are basically the topics discussed in modern literature under the heading of good governance.[3] In the moment there prevails strong competition between states to attract FDI, with pressure on national tax income. Therefore,

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[3] As was pointed out in the Asian Development Report 1998 "issues of governance are the center of many of the most pressing challenges confronting countries throughout the Asian and Pacific region today", and the need for greater transparency and accountability in regulating the financial sector is considered to be one of the key problems behind the currency turmoil and the related problems. Four pillars of governance are highlighted: accountability, transparency, predictability and participation by external entities (Asian Development Bank 1999, Special Theme Governance in Asia: From Crisis to Opportunity, pp. 15).

there is limited leeway for secondary policy. Policy might only on a global level gain some of its power back, active to design policy also in these fields. This, however, will require concerted international political actions.

4.5 Globalisation and income generation in different countries

One of the results of traditional international trade theory (e.g. the HECKSCHER/OHLIN model) was the prediction of a convergence of international factor prices with the logical consequence of a world-wide more equal income distribution. International trade in this understanding could serve as a substitute for international factor movement. This prediction did not hold on a world-wide level, if we also consider the great number of developing countries. Rather in contrary, the gap between the developed and the developing world even widened. Reasons may be found in different economic and political orders throughout the world, great problems to transfer and absorb technology, a factor neglected in traditional trade theory, and last not least also the existing trade regimes did a lot to restrict free trade, one prerequisite of the Heckscher/Ohlin model. Trade barriers in respect to developing countries still exist, a fact that often is overlooked in the fog of discussion about globalisation. Throughout the developed world, however, trade restriction became less important. And, in contrast to the assumption of traditional trade theory which ignores factor movement, capital and technology today became international mobile factors. For capital and technology international markets with similar conditions exist, the labour market has not yet internationalised as far. However, in view of the international technology and capital transfer within the developed world we should expect also in the labour market a strong convergence of wages. Wages from the point of view of the enterprises are labour costs, and from the point of view of the employees income.[4] A second hypothesis is that it makes no great difference for the work-force whether their country is the home country of great multinationals or not.

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4 The increase of income and thus also of wages therefore should be considered as a benefit and a success of the economic policy. Therefore, the ability of the national policy to guarantee high income per capita might be the best indicator of international competitiveness of nations.

Therefore, there should not be a great wage differential in favour of those countries like the USA, Japan, United Kingdom or Germany compared e.g. with Austria, Denmark, Luxembourg, Norway or other smaller countries.

The first hypothesis is tested with data on labour costs in 18 developed countries from 1990 to 1998. The data are given in US-$ and therefore fluctuations in the foreign exchange rates will influence the result. Also we are well aware that labour costs are an artificial statistical construct and that the composition will differ from country to country. Thus, an analysis of the absolute differences between nations might be misleading. Finally, because a lot of other reasons we could not expect a perfect convergence of the wages. However, since we are interested in the existence of the convergence, different measurement concepts of the absolute figures are of no concern and of limited influence in respect to our estimate. The figures in Table 1 demonstrate the enormous absolute increase in labour costs in US-$ (direct and indirect income increase from the point of view of the employees) in all the countries covered.

Table 1: Labour Costs in the Manufacturing Industry in 18 Developed Countries in US-$

	1970	**1980**	**1990**	**1995**	**1997**	**1998**
A	1,50	8,9	17,46	25,71	38,94	39,78
B	2,07	13,63	19,59	26,73	40,00	40,65
D	2,36	12,44	22,09	31,76	43,13	42,69
DK	2,31	11,15	19,15	25,47	40,73	42,55
F	1.71	9.4	15.87	20.26	32.03	33.04
GB	1.54	7.57	13.21	14.63	28.62	31.09
GR	0.73	3.75	6.84	9.01	15.83	15.43
I	1.85	8.18	17.90	17.17	29.96	30.69
IRL	1.27	6.43	12.40	14,39	24.81	24.27
L	2.55	12.10	16.90	23.64	35.07	36.79
NL	2.09	12.21	18.70	24.79	36.63	38.21
S	2.95	13.06	21.45	21.70	39.41	39.45
SF	1.57	8.20	21.31	25.25	38.91	39.74
CH	1.98	11.16	21.33	29.78	42.90	43.93
N	2.51	11.91	22.38	25.78	43.60	43.49

	1970	1980	1990	1995	1997	1998
CDN	3.45	9.25	16.67	16.34	29.20	28.28
J	1.03	5.75	13.26	24.66	34.97	33.16
USA	4.18	9.87	14.91	17.56	31.83	33.34
variance	0.72	7.48	16.71	35.61	53.09	56.66
mean	2.09	9.72	17.30	21.92	34.81	35.37

Source: ILO, own calculation

If a convergence exist, the variance (statistically R^2) should reduce in time. In empirical analysis more often the standard deviation (statistically R or the square root of the variance) is used. However, both, R and R^2 are affected by the multiplicative increase of wages. We therefore calculated the relative labour costs for the different countries in respect to the arithmetic mean and used the resulting distribution as basis for the calculation of the variance and standard deviation. The results are presented in the last line of Table 2 and indicate a significant decline of the standard deviation from 0.51 in 1970 to 0.24 in 1997 and 0,21 in 1998.

The figures again show that difference still exist between nations, however, that there is clear tendency for a reduction of the variation. In 1998 eleven of the 18 countries were classified into the centre class. In respect to the second hypothesis a more intensive analysis is required. Several factors influence the wages, e.g. the change of influence of unions in several countries, in the United States the immigration policy. The green and blue card policy in Germany will also influence wages and wage structure.

Table 2: Labour Costs in the Manufacturing Industry in 18 Developed Countries in US-$ and in Relation to the Average

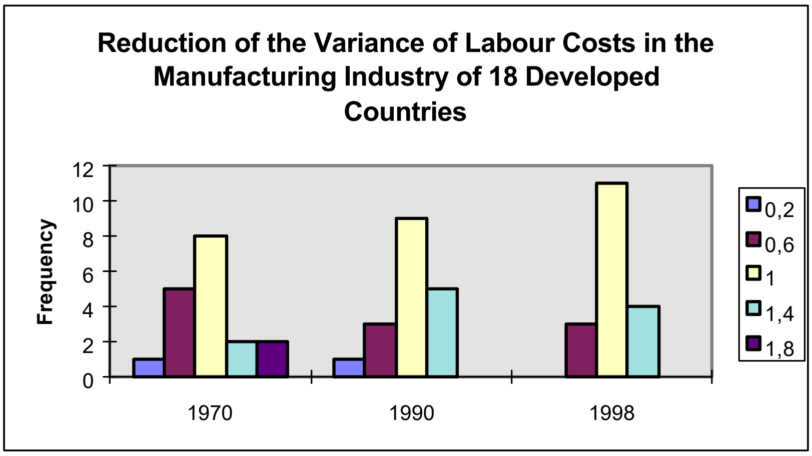
	1970	**Relative position**	**1990**	**Relative position**	**1998**	**Relative position**
A	1.5	0.72	17.46	1.01	39.78	1.12
B	2.07	0.99	19.59	1.13	40.65	1.15
D	2.36	1.13	22.09	1.28	42.69	1.21
DK	2.31	1.10	19.15	1.11	42.55	1.20
F	1.71	0.82	15.87	0.92	33.04	0.93
GB	1.54	0.74	13.21	0.76	31.09	0.88
GR	0.73	0.35	6.84	0.40	15.43	0.44
I	1.85	0.88	17.9	1.03	30.69	0.87
IRL	1.27	0.61	12.4	0.72	24.27	0.69
L	2.55	1.22	16.9	0.98	36.79	1.04
NL	2.09	1.00	18.7	1.08	38.21	1.08
S	2.95	1.41	21.45	1.24	39.45	1.12
SF	1.57	0.75	21.31	1.23	39.74	1.12
CH	1.98	0.95	21.33	1.23	43.93	1.24
N	2.51	1.20	22.38	1.29	43.49	1.23
CDN	3.45	1.65	16.67	0.96	28.28	0.80
J	1.03	0.49	13.26	0.77	33.16	0.94
USA	4.18	2.00	14.91	0.86	33.34	0.94
variance	0.72	0.16	16.71	0.06	56.66	0.05
mean	2.09	1.00	17.30	1.00	35.37	1.00
standard deviation	0.85	**0.41**	4.09	**0.24**	7.53	**0.21**

Source: ILO, own calculations

The empirical findings, however, do not support the hypothesis that the labour force benefits much from being the home country of the great multinationals and the centre of R&D. In the United States quite the contrary development exists with by far the highest wages in 1970 (2.0 or 200%) and in 1998 wages below average (0.94 or 94%). In Japan, on the other hand, the tendency is positive, approaching from a rather low level of 49% in 1970 nearly the average of the 18 countries (94%). The relative position of the different countries may be seen in Table 2 presenting the data base for Figure 3.

To better visualise the effect, in Figure 3 histograms for the years 1970, 1990 and 1998 are presented. The data are standardised in such a way that the mean is given by unity. The centre class includes observations with deviation from +/- 20% from the mean (or the range from 0.8 to 1.2 with mean 1.0), etc.

Figure 3: Variance of Labour Costs in 18 Developed Countries



Source: Own Calculation

The convergence of wages is shown in Figure 3 by the decrease of the span and the number of classes from five to three.

5 Conclusions

In Neo-Schumpeterian literature much effort is undertaken to outline the shape of national innovation systems and to find out the specific strengthes and weaknesses. Such systems have to be adopted to fundamental changes in the world economy, and the intense integration of the developed world by FDI of multinational enterprises and strategic alliances is such a fundamental change. Capital and technology today have become international mobile factors. Technological competence of the great multinational enterprises are exploited world-wide and, with some exceptions, are not controlled by the home countries. The enterprises emancipate more and more from their home base and use several national innovation systems to preserve and strengthen their firms' specific capabilities. From theoretical considerations the consequence should be a convergence of factor prices, and thus also for wages. And this indeed is the empirical evidence. It is supposed, that several countries have not yet adopted their national policy to the new rules of globalization, and low performance in growth rates and at the labour market may be traced back also to this fact. Therefore, more analysis to find out the effect of different kinds of national R&D policy on ownership advantage of different firms and on locationship advantage of the country is suggested. The national policy should be aware of the fact that several of the traditional instruments have external effects and are of limited use to strengthen the locationship advantage of a country. According to the principle of subsidiarity in the case of international external effects an international co-ordinated policy would be required, and traditional R&D policy that is directed to strengthen ownership advantage of the multinational enterprises becomes dubious. Given the scarce of public resources such support has to be weighed carefully against alternatives to strengthen locational attractiveness by investing in the local infrastructure, to invest in education and human resource development etc.

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