

Industrial clustering, development and over capacity - Export competition as a challenge for the European Automotive Industry

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Abstract

Increasingly, developing countries are resorting to a development approach based on industrial clustering to enhance value addition in industrial networks related through input-output linkages. Under this approach, investment promotion measures in select core industries, such as the automotive industry, provide potential for rent. According to the theory of foreign direct investment, this potential economic rent in these countries is of interest to multinational corporations. European automobile manufacturers, in particular, are on the look out for such investment incentives in the course of their globalization efforts.

However, to achieve competitiveness on world markets, production capacities exceeding the market potential of the host countries are built up in the industrial networks, thereby leading to competition and declining prices on export markets. Despite its attractiveness therefore, the industrial cluster-based development approach can lead to unproductive outcomes such as global over capacities and export competition for the developing country and the multinational corporation. These negative external effects of multi-market competition, which offset the advantages of foreign direct investment, are governed by the industrial organization theory.

The negative external effects arising from global over capacities allow us to deduce possible responses for multinational corporations. In the case of the European automotive industry, which is already heavily export oriented, this paper demonstrates that a reduction in substitutability through avoidance of double capacities within the same group and product differentiation vis-à-vis competitors in a multi-market environment is desirable. In addition it is useful to reduce the number of multi-market contacts by avoiding high export obligations and having clear market guidelines within a global group as well as by actively influencing the formation of regional integrations between developing countries to reduce multi-market contacts with important competitors.

Key words: industrial clustering, development, foreign direct investment, over capacity, automotive industry

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Introduction

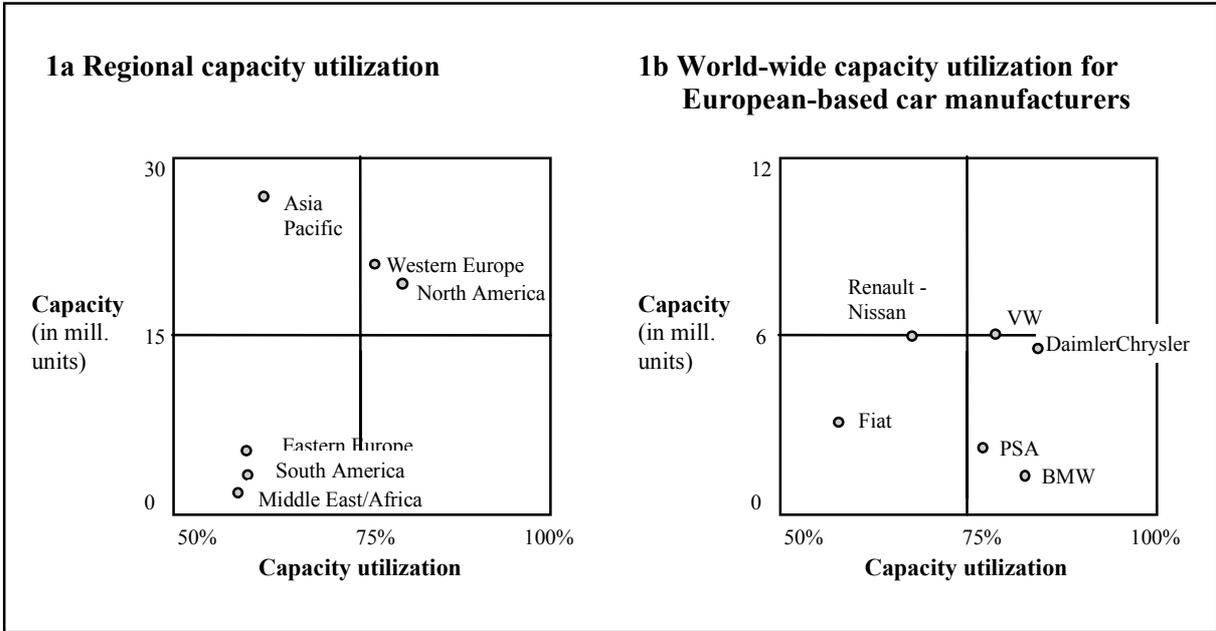
More and more developing countries are turning to increased industrialization to improve the per capita income of their populations and to expand participation in world trade (Brada/Woo 1994 or Hoen/van Leuween 1991)¹. By adopting an industrial cluster-based development approach they hope to enhance value addition in a network with input-output linkages (DeBresson/Hu 1999; Proff H.V. 1998 and Holden 1996)². Massive investment incentives and protection mechanisms are expected to help build up large production capacities in a few industrial sectors, while local content requirements will ensure the establishment of important supplier industries. Given adequate protection and support, investments in these countries appear economically rational both for domestic producers as well as multinational corporations when viewed in isolation with regard to individual investment projects. However, the overall rationality need not similarly increase for a such a corporation. On the contrary, the production capacity for standard products required to achieve international competitiveness will exceed the demand for such products in the host countries. Consequently it becomes necessary to export large quantities of these products to world markets, thereby increasing global supply. In view of the increasing convergence in export market baskets, export competition on world markets for standard goods is steadily rising even in developing countries (e.g. Muscatelli et al 1994, p. 44). In a situation where global demand is growing slowly an expansion in the supply of manufactured goods in excess of global demand can negatively influence world market prices (Gandolfo 1998, p. 278).

Due to the large number of possible linkages with a broad supplier industry and with distribution and marketing services the automotive industry often forms the "cluster" of the industrialization endeavors of developing countries. This is true, e.g. for Malaysia, Indonesia and Thailand which are neighboring East Asian countries and also members of the AFTA (Asian Free Trade Agreement). At the same time the European-based world-wide active car manufacturers, particularly, are characterized by expansive, i.e. sales-oriented foreign direct investment activities (Klodt, Maurer 1996, p. 11-14). The investment incentives offered by developing countries thus fulfill a strong demand for expansion opportunities of the European-based car manufacturers. The result is over capacity and export competition. Export competition is the growing competition in world markets for certain goods (cars) resulting from increased production capacities of these goods in developing countries, regardless of whether these production capacities have been set up by local manufacturers or the subsidiaries of multinational corporations³.

Since the growth in global demand for passenger cars has been quite average – increasing by just 7.1% from 33.9 to 36.4 mill. vehicles between 1991 and 1998 – an expansion in production capacities for the same products in several developing countries has led to global over capacities. In 1998 the figure was about 17.6 mill. vehicles (author's calculations based on press reports, see also Feige, Crooker 1999, p. 43). Korea alone had production capacities for over 3.4 mill. vehicles in 1998, 54% more than in 1991 (2.2 mill., source: Korean Automotive Manufacturing Association, current reports). Global over capacity corresponds to 47% of world-wide production in this industrial sector. Fig. 1a shows that the problem of over capacity as regards passenger cars and commercial vehicles will persist since capacity utilization on an average for the years 1999 to 2005 is not expected to exceed 60% in Asia/Pacific (incl. Japan), Eastern Europe, South America and in the Near East/Africa. Even

in Western Europe only about 80% of production capacities will be fully utilized (AUTOFACTS Group, PricewaterhouseCoopers 2000). The case of the European-based world-wide active car manufacturers further demonstrates that under-utilization or over capacity is clearly higher for manufacturers adopting a cost leadership strategy in the low volume segments (Fiat and Renault) where there is a projected world-wide capacity utilization of approx. 55% to 65%. World-wide capacity utilization of manufacturers adopting differentiation strategies, on the other hand, particularly those serving the upper market segments (DaimlerChrysler and BMW), is expected to be about 85%. The over capacities of companies adopting a mixed strategy of minimal cost differentiation in a broad segment range (VW and PSA) lie somewhere in between with a projected 75% to 80% capacity utilization (Fig. 1b)

Figure 1. Projected capacity utilization in the automotive industry classified according to regions and European-based car manufacturers
(Average figures for passenger cars and commercial vehicles, 1999 to 2005)

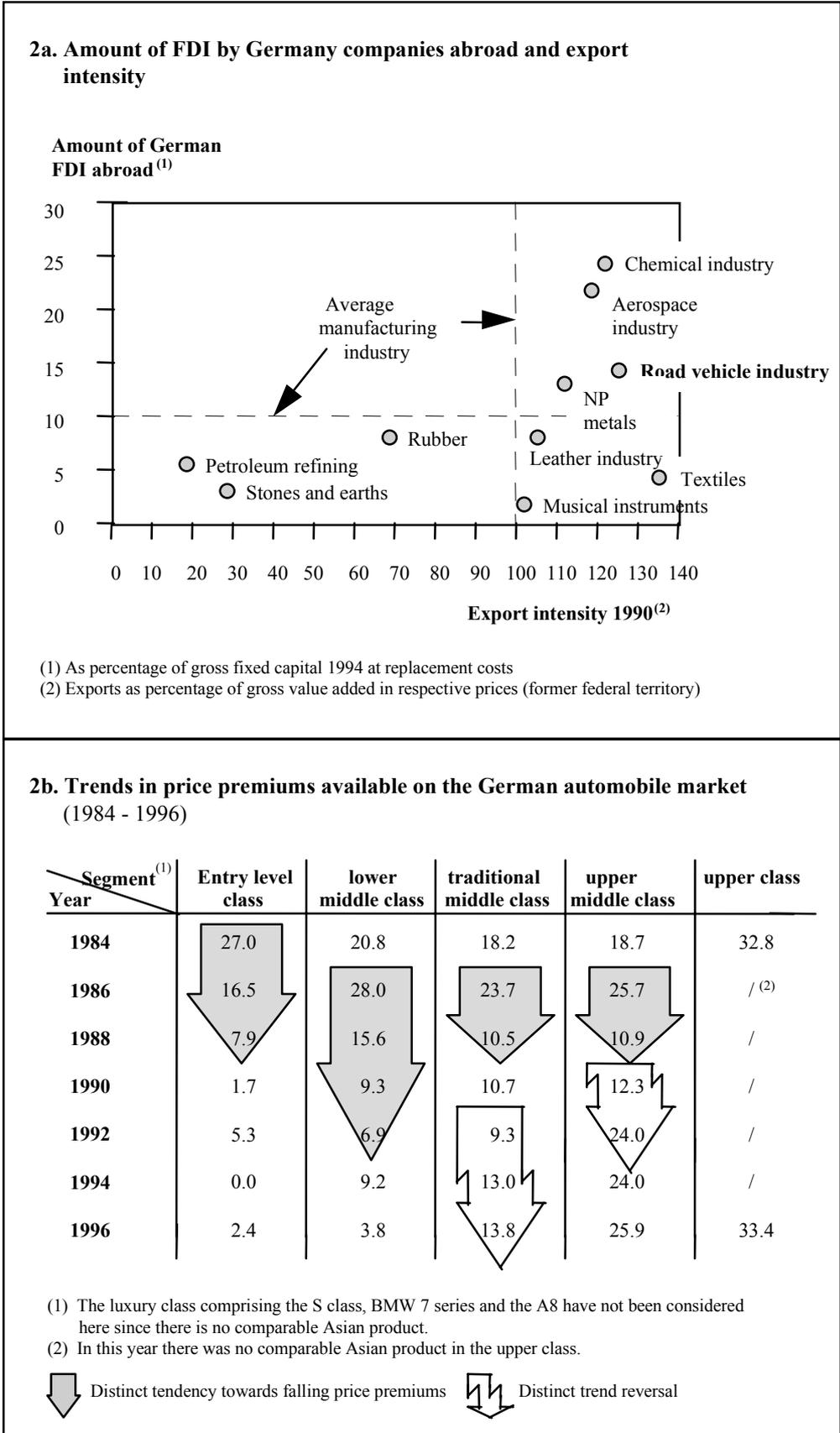


The automotive industry, i.e. the road vehicle industry in Germany, as in Europe, is characterized both by high amounts of direct investment abroad and a high intensity of exports

from Germany (Klodt, Maurer 1996, p. 16). Of course one must take into consideration that much larger direct investments are required in the automotive sector rather than the textile industry, for example. Nevertheless, added foreign direct investments in developing countries and the resulting over capacities and export competition appear to be of special relevance for the German and the European automotive industry (see Fig. 2a).

It is clear from Fig. 1b that the competitive strategy of the automobile manufacturers determines to what extent they are affected by over capacities and export competition. While manufacturers using differentiation strategies in the upper segments are only indirectly affected by the general pressure on prices and can overcome this by product differentiation, it is the present cost leaders who face a much bigger threat. One can therefore expect that new production capacities in developing economies will lead to increased competition especially in the low price segments where price pressure will increase the most (Brada/Woo 1994, p. 41). Similarly in this segment the price premium achievable on the market, i.e. the price above the price for a comparable (price adjusted) standard product with basic standard equipment ("value for money", Proff, H. 2000)⁴, also reduces the maximum. The tendency towards falling price premiums affects all European automobile markets. This will be demonstrated on the basis of the largest market, i.e. Germany, since it is expected that the introduction of the Euro and the internet will lead to a convergence in prices and therefore price premiums in Europe (e.g. Habedank et al 1998). A look at the trends in the announced price premiums for 1996 of passenger car manufacturers producing in Germany using differentiation strategies shows that in comparison to Asian manufacturers who usually offer basic standard equipment at no added price (premium) (see Fig. 2b), the tendency towards falling price premiums has affected different market segments with varying intensity at different points of time since 1984⁵.

Figure 2. Export intensity and foreign direct investment of German enterprises as well as falling price premiums in Germany



While the first Asian competitors distinctly reduced the price premium available through differentiation in the entry level segment from 27% to 7% between 1984 and 1988, it is only since 1986 that this trend is visible in the middle class as well. German manufacturers in the lower middle class segment have had to bear with continuously falling price premiums (from 28% to 3.8%) since 1986 (with the exception of 1994), while in the traditional and upper middle class segments they were able to stabilize and even consolidate price premiums after an initial crash. The upper middle class segment on the German market was thus able to shield the upper and luxury class so well that there were no significant changes in this segment.

Figures 1 and 2 point to a negative multi-market impact that has largely been ignored in the theory of foreign direct investment and consequently in globalization strategies. During the "globalization wave" since the beginning of the 1990s, several European (automobile) manufacturers set up production capacities in the growth markets outside the Triad countries. Their rational expectation was to obtain economic rents for individual projects in countries adopting an industrial cluster-based development strategy (e.g., Beaumont 1987, Krugman, Venables 1995 or McGregor et al 1996). What was not taken into account, however, was that over capacities result when many MNCs simultaneously invest in a few industrial clusters of many developing countries. This leads to export pressure and to pressure on prices in world markets stemming from export competition.

This paper therefore seeks to fill a two-fold research deficit by

- (1) identifying reasons for over capacities and export competition on global markets resulting from industrial clustering using the automotive industry as an example; and
- (2) discussing the potential challenges that over capacities and export competition pose specifically for the European-based car manufacturers. Therefore the arguments offered by

the foreign direct investment and industrial organization theories need to be expanded to include considerations regarding multi-market competition.

The paper concludes with a look at future developments.

Explanations regarding over capacities and export competition resulting from industrial clustering

In this section the paper first examines the structure of over capacities in developing countries using the "economics of the industry", in this case the automotive industry, as a basis. Subsequently it is analyzed why the phenomenon of export competition was till now not considered within the theory of foreign direct investment.

Building up of production capacities for select standard products in many developing countries under an industrial cluster based development approach

Industrialization as a means of economic development

Increasingly, developing countries are attempting to raise the per capita income of their populations and consequently the welfare of all population groups by adopting export oriented industrialization strategies (e.g. Chow 1987 or Jin 1995). In this paper "development" is understood as structural change in an economy with simultaneously rising participation of the population in the formal economic system, growing industrialization, urbanization and a change in trade structures and consumption habits (Sell 1993, p. 2). Five principal reasons are put forward for industrialization in developing countries (Proff, H. 1995, p. 70):

1. The close correlation between economic growth and industrialization in the development process.
2. The tendency towards declining terms of trade for agricultural products.

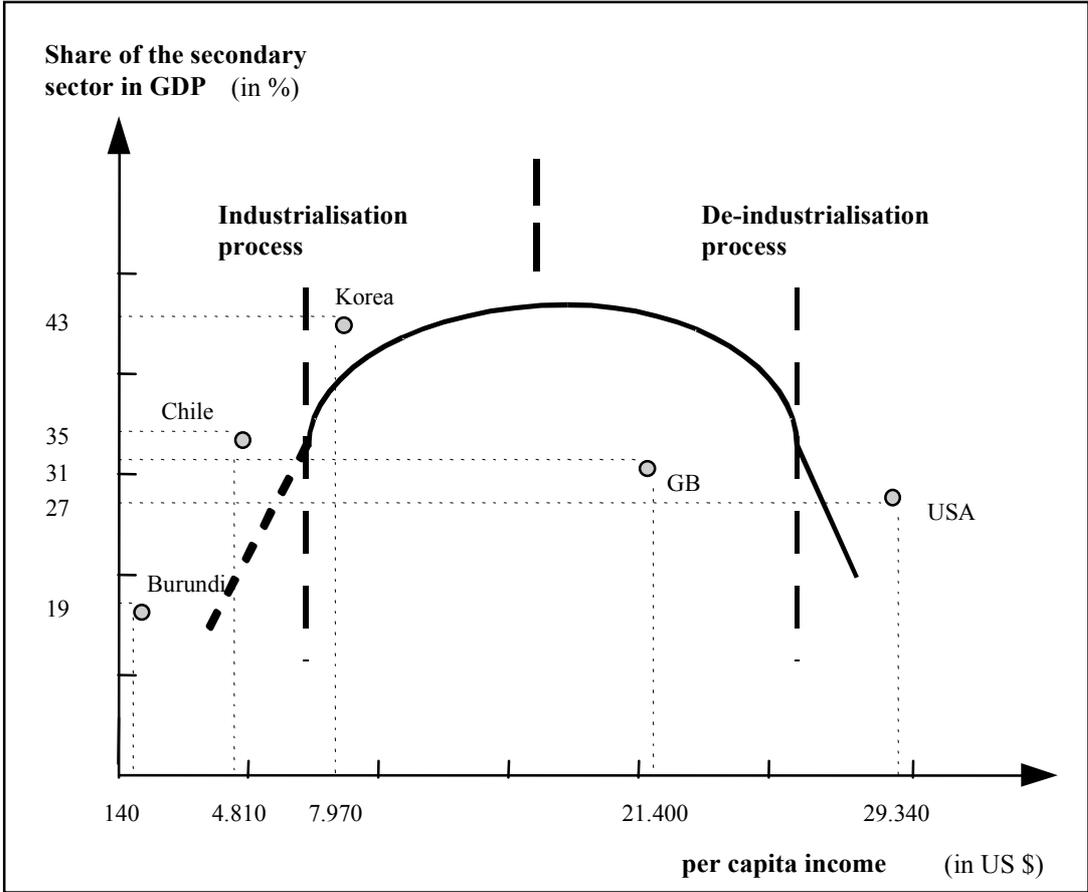
3. The higher development potential of industry as opposed to agriculture since income elasticity of domestic demand is higher for manufactured goods than for basic foodstuffs.
4. Industrialization creates positive employment effects.
5. It provides opportunities for import substitution.

As a development component, industrialization promotes the transition from a subsistence and barter economy to a market economy while simultaneously rationalizing all production processes. In Fig. 3 the ideal development process in highly developed national economies is represented in relation to the share of the secondary sector in GDP (degree of industrialization) (Proff, H.V. 1998 and World Bank 2000). Even if one adopts a conservative approach in deriving inferences from this ideal development scenario, the figure illustrates that an increase in per capita income and consequently in economic development usually takes place as a result of an increase in the degree of industrialisation⁶. A comparison of Burundi, Chile and Korea confirms this development hypothesis. The Fourastié hypothesis of increasing tertiarisation of the economic structure states that the degree of industrialization shows a reverse trend after a GDP share of about 45%, as evidenced by current World Bank data and as has already happened e.g. in the USA and Great Britain.

A successful development strategy therefore requires the creation of an industrial structure with production processes that are knowledge, technology and capital intensive instead of being merely labor intensive (e.g. Poapongsakorn, Fuller 1998; Grundlach, Nunnenkamp 1996 or Körner 1967). The objective must be the building up of competitive "pôles de croissance" (growth poles) or the creation of industrial clusters as put forward by Perroux or Hirschman (Wagner, Kaiser 1995, p. 41), that can spur growth in neighboring regions or upstream or downstream industrial sectors through positive trickle down effects. Such industrial clusters

forming the core of an industrialization strategy can over time develop into a diversified industrial network of linkages between users and suppliers. They thus achieve multiplier effects and create linkages that can be formalized using input-output tables (e.g. Armstrong, Taylor 1985 or Mc-Gregor et al 1996)⁷.

Figure 3. Industrialization as a means of economic development



The suitability of the automotive industry as a cluster in industrialization strategies

The automotive industry is such an industrial sector that creates multiplier effects and can contribute to the industrialization of a country. At the same time it is often the industrial prestige and priority sector which is supposed to demonstrate the industrial maturity of a

country. Many developing countries therefore attempt to develop the automotive industry into an industrial cluster as part of their industrialization strategy⁸.

Figure 4 shows the current linkages in the Malaysian automotive industry. The development of this industrial sector is being promoted as part of the "cluster approach" and a further interlinking of passenger car and commercial vehicle production with its most important suppliers is being targeted for the future (Ministry of Trade and Industry 1996).

Figure 4. Current and targeted linkages in the automotive industry under the Malaysian "cluster approach"

Core industries	Passenger cars	Commercial vehicles	
current	* Passenger cars	* Buses	* Trucks
future	* Passenger cars incl. MPVs	* Different types of comm. vehicles	
Key suppliers	Engines	Electrical systems	Accessories
current	* Cooling system * Engine control	* Battery * Starter motor	* Radio * Airconditioning
future	* Cylinder head * Motor block * Fuel system	* Dynamo * Wiring system * Instrument display	* Other equipment & accessories

Large scale industrialization of automobile manufacturing is to be achieved through regulations regarding the extent of local value addition (local content requirements). A high degree of industrialization in a country (which includes the future production of components and aggregates, e.g. cylinder heads or dynamos, a forging press unit, foundry, final assembly and paint shop in Malaysia) clearly creates significantly greater multiplier effects than a low degree of industrialization (comprising merely final assembly and painting of imported kits in a country). Assembly units usually hire only a few hundred employees from the host country and do not require the establishment of a supplier industry.

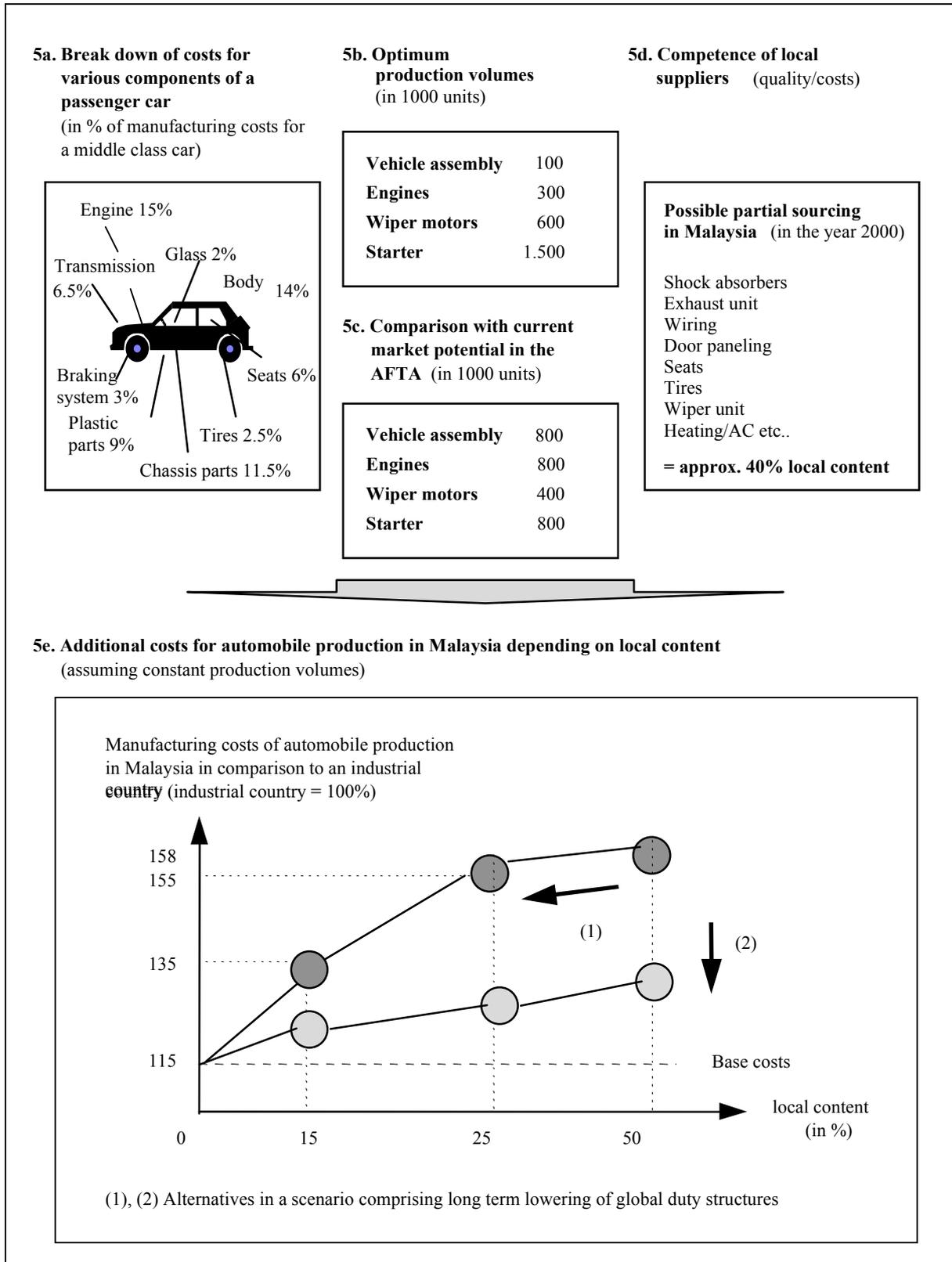
Industrial clustering and rising over capacities

The newly established production capacities in developing countries are usually protected by very high duties. These high duties, however, will be difficult to maintain in the long run given the WTO's moves towards a reduction in global duty structures and also the strong regional integration efforts by many of these countries. Thus the industrialization endeavors of developing countries as also the investment decisions of multinational corporations must – after a suitable (transition) period – strive for international competitiveness and an internationally competitive cost position. This distinguishes the current strategy from the import substitution strategies of many of these countries in the 1970s.

Industrial clusters in developing countries are initially protected by high duties since in most of these countries it would be cheaper to import a complete vehicle from an optimized production plant in an industrialized country rather than assemble it from kits, and more so for production with high value added (see Fig. 5). This is due to the fact that higher logistical costs and double investments in assembly units are incurred for low assembly volumes. When Singapore, for instance, decided in 1980 to do away with protective tariffs on CKD kits, eight manufacturers in the country immediately shut down their assembly units and switched over entirely to importing vehicles.

A closer examination of manufacturing costs for automobile production in Malaysia shows that even if all components are imported, i.e. in extreme cases the local content is 0, the additional manufacturing costs of a small assembly unit are about 15% as compared to optimized production in an industrial country (see the base costs in Fig. 5e).

Figure 5. Industrial clustering and the need for large scale production capacities



Higher local value added increases production costs due to the larger share of locally produced, technology intensive intermediate products with a comparatively higher cost due to the low technological standard and low unit volumes in the country. While cost efficient vehicle assembly is possible even from 100,000 units, the optimum production volume for engines is approx. 300,000 units, while for starter motors it is about 1.5 mill. units (see Fig. 5b). Given a total requirement of just 100,000 vehicles in Malaysia and a maximum of 800,000 vehicles in the AFTA regional market (see Fig. 5c), the optimum unit volumes are not achieved. Suppliers are thus constrained to go in for sub-optimal, low volume and hence more expensive production. Usually the parts that are sourced locally are just enough to make up the percentage of manufacturing costs needed to fulfill local content requirements, e.g. seats or tires (see Figures 5a and 5d). These however, frequently do not fall in the category of key suppliers (Fig. 4) promoted under the industrialization strategy pursued by these countries. Malaysia and several other developing countries therefore specify local content requirements in the form of a points system where the required local content is expressed as a minimum point value and different points are allocated to various intermediate products. Parts from key supplier industries with a high technology content and correspondingly high linkage impacts (as shown in Fig. 4) are given a much higher point value than e.g. seats.

Assuming the production costs in industrial countries to be 100%, the production costs of highly technology intensive intermediate products in sub-optimal volumes for a country like Malaysia are 135% for 15% local content and 155% for 25% local content. For a local content of 50% the costs are as high as 158%, assuming that production volumes remain constant (see Fig. 5e).

One precondition for foreign direct investments in developing countries by multinational corporations therefore is an efficient supplier infrastructure, on the one hand, with enterprises

from the steel, chemical, textiles, glass, tire and electrical sectors being present within the industrial cluster. On the other hand, an investment program offering adequate duty protection exceeding the high manufacturing costs is required for final assembly units and the supplier industry, which does not over compensate for the multiplier effects.

Malaysia provides investors in the target industries with a package of tax and non-tax incentives. Cars assembled from CKD kits attract duties of 42% while duty of up to 222% is levied on imports of complete vehicles.

In a scenario comprising long term lowering of global duty structures, direct investments in developing countries would no longer be competitive due to their high manufacturing costs. MNCs are then left with the option of either reducing local value addition, which the host countries would surely not permit (alternative (1) in Fig. 5e), or increasing production volumes (alternative (2) in Fig. 5e). If production volumes are increased, the minimum assembly costs of 15% for a small market as well as the higher production costs of increasing value addition for individual vehicles would become less significant due to cost degression effects for manufacturers and suppliers.

At the same time, the increased production volumes required to improve international competitiveness cannot be distributed on the domestic markets of developing countries. Though these markets show above average growth rates, in absolute terms they are still very limited. An increase in production volumes therefore leads to over capacities, export competition and a decline in the prices of standard products on global markets.

Over capacities and price pressure are not just phenomena arising from competition between firms, e.g. the setting up of parallel capacities by Volkswagen and Fiat in many developing countries. Even internal competition between subsidiaries of the same group at different

locations resulting in double capacities can intensify as a reaction to the industrialization attempts of many developing countries.

Explanations of foreign direct investment offer a skewed assessment of investment incentives

In view of over capacities, export competition and pressure on prices, direct investments of standard products in developing countries are usually of limited rationality from the perspective of the overall corporation. However, viewed in terms of an individual investment project they appear very rational. Foreign direct investments provide companies operating internationally with the opportunity to utilize profit opportunities existing in international markets (e.g. Broll, Gilroy 1989, p. 163). Profit opportunities are as diverse as the definitions of direct investment in the theory of foreign direct investment (see an overview in Macharzina 1982, and also e.g. Welge, Holtbrügge 1998, Ch. 2.1.2 or Perlitz 2000, Ch. II.6). They are usually categorized according to the different points of focus (direct investment and the theory of international trade, direct investment and the location theory, direct investment and the capital market theory, direct investment and the industrial organization theory as well as direct investment and the theory of enterprise (e.g. Jahrreiß 1984, Bea 1995 or Stein 1998). These theories essentially use partial analyses and are monocausal in nature (Welge, Holtbrügge 1998, p. 79). The only attempt to integrate these theories by Dunning (1979, 1981 and 1988) has also been criticized as an assortment of several variables not fitted into any framework (e.g. Perlitz 2000, p. 129).

Thus so far no comprehensive theory of foreign direct investment has been postulated. Oesterle (1999) however, does not consider a comprehensive theory of foreign direct investment to be useful in the current context since although it would lead to greater

formalization and a narrowing down in the scope of this field of research, it would then also lose relevance.

Despite the present lack of conclusiveness in the theory of foreign direct investment, discussions along the individual points of focus can be used to infer advantages for direct investments that would support MNCs in their investment decisions.

Investment incentives in industrialization strategies are primarily considered under the "foreign direct investment and industrial organization theory", since the restrictions on market entry due to duties, as in Malaysia, create market imperfections (Stein 1998, p. 48). Approaches based on the "direct investment and industrial organization theory" use this to explain the conduct of the oligopolistic automotive industry, which wishes to use foreign direct investment to realize its plans of world-wide expansion (Klodt, Maurer 1996, p. 7)⁹.

The theory of foreign direct investment is primarily focused towards the advantages of direct investments in general while the point of focus relevant here, specifically focuses on the utilization of investment incentives in imperfect markets. The theory of foreign direct investment does not discuss the limitation of these advantages due to the phenomenon of over capacities and export competition, which after the "cash crops" have now affected manufactured standard products with large linkage networks. Discussions within the point of focus "foreign direct investment and the industrial organization theory" therefore take into account only a part of the vast research on industrial organization (e.g. Stead et al 1996 or Tirole 1995), i.e. the basic models of oligopolistic competition as understood by Dixit (1979), which are restricted to duopoly models.

Multi-market competition is disregarded, although the industrial organization theory takes cognizance of this phenomenon and explains negative external (spillover) effects (e.g. Baum, Korn 1996, p. 256 and van Wegberg, van Witteloostuijn 1991, p. 98).

In the following section, therefore, this paper presents these approaches to multi-market competition and extends the explanations of "direct investment and the industrial organization theory" to include the challenges posed to MNCs by over capacities and export competition for standard products on world markets and to infer possible responses.

The challenge of over capacities and export competition for European automobile manufacturers

European automobile manufacturers have been strong net exporters on global markets for a long time. They are thus particularly challenged by over capacities and export competition resulting from industrial clustering in developing countries. In order to suggest potential responses for the European automotive industry to these challenges one first needs to extend the theory of foreign direct investment to include the negative external effects of multi-market competition as established in industrial economics research.

Extending the theories of foreign direct investment to include the negative external effects resulting from multi-market competition

The advantages of international direct investments as stated in the traditional theory of foreign direct investment are offset by disadvantages resulting from over capacities and export competition, which till now have been largely ignored. This theory of foreign direct investment focuses primarily on isolated market entries, competitors' reactions to these market entries or on competition within markets. Interactions between markets in multi-market competition (e.g. van Wegberg, van Witteloostuijn 1992, p. 441 and 1991, p. 96) are absent from previous discussions of "foreign direct investment and the industrial organization

theory". These however need to be included to be able to take into account the negative external effects of export competition. Interactions between markets are not necessarily negative. From an industrial economic perspective regarding multi-market supply, positive image (brand identity) transfers, for example, can be established between different national markets (e.g. Coca Cola being regarded as a typical American product on world markets) or between product markets (e.g. between Boss clothing and aftershaves)¹⁰. Over capacities and export competition for standard products, however, cause a global decline in prices and are therefore examples of negative interactions or external (spillover) effects.

It would exceed the scope of this paper to provide an analytical description of multi-market competition, which in its simplest form is based on a Cournot model with two firms in a market and a monopoly in further market (e.g. Bulov et al 1985)¹¹. From a business perspective then, the factors influencing the level of negative multi-market or spillover effects need to be examined.

In the discussion on multi-market competition within the framework of the industrial organization theory (e.g. Baum, Korn 1996, p. 256; van Wegberg, van Witteloostuijn 1991, p. 98 and Bulov et al 1985, p. 450), two factors influencing the extent of negative external (spillover) effects can be deduced from analytical models:

- (1) the substitutability or the similarity of goods on the market
- (2) the number of multi-market contacts.

Ad (1): The first factor influencing the level of negative external effects is the similarity of supplied products, i.e. their substitutability. The cross elasticity of price is a good indicator of substitutability. It indicates by how many percent the sales of product 1 would vary if the price of product 2 changes by 1% (Simon 1992, p. 93). For the unit to be meaningful it must pertain

to comparable goods in the same market segment. As a rule, the substitutability of both products, e.g. an Opel Astra and a VW Golf, increases with an increase in the cross elasticity of price. This implies that the greater the negative externalities of multi-market competition, the more easily products of important competitors or subsidiaries of a group can be substituted in a market segment. This would be applicable at least in those cases where for the sake of simplicity one assumes a constant cross elasticity of price for all supplied countries.

Extrapolating this to over capacities and export competition, one can infer that if product substitution by competitors or subsidiaries on global markets can be reduced in a market segment, over capacities and export competition will also fall.

Ad (2): The second factor influencing the extent of negative external effects is the number of multi-market contacts, i.e. the frequency with which firms meet as competing suppliers in different markets. The number of multi-market contacts can be measured by means of the total difference in turnover share of the relevant products of suppliers in various national markets at a global level. Naturally, here too a specific market segment needs to be considered. In the automotive industry this would mean, for instance, that within the lower middle class segments the significance of individual national markets is compared at a global level for the Opel Astra and the VW Golf. The argument of mutual forbearance which anticipates lower competition intensity during multi-market contacts as a result of informal arrangements (Hughes, Oughton 1993) is irrelevant for standard products in view of over capacities and the tendency towards declining price premiums as demonstrated in Fig. 2b, particularly for the lower market segments in global markets. Instead, negative external effects can be shown to occur when there is an increase in competition due to a rising number of multi-market contacts in a market segment.

This means that over capacities and export competition between firms or subsidiaries of the same group will be lower the more the multi-market contacts in a market segment can be reduced.

Both these factors influencing the level of negative external effects resulting from over capacities and export competition (i.e. substitutability of products and the number of multi-market contacts) must be regarded jointly. What emerges is that over capacities and export competition are more pronounced, i.e. enough to outweigh the advantages of direct investment, the greater the overlap between products and markets of competitors or subsidiaries of the same group in a market segment.

A lowering in product substitutability and a reduction in multi-market contacts therefore provide approaches for lowering the negative external effects of over capacities and export competition. The response of the European car manufacturer must be along these lines.

Possible responses of the European automobile manufacturers to increasing export competition

Although the largely stagnating global demand for standard products cannot be influenced, there are nevertheless opportunities to avoid the negative external effects of increasing over capacities and export competition. One can distinguish among these according to the approach that is adopted to reduce the negative external effects of export competition and according to the competitive environment, i.e. on whether the exports are taking place between or within multinational corporations. This distinction according to the competitive environment is necessary since a large portion of world trade – an estimated 25% to 35% – takes place within MNCs (Stein 1998, p. 35). The possible responses of European automobile manufacturers to increasing over capacities and export competition have been presented in Fig. 6 in the form of

a matrix with both the axes (approaches to reduce negative external effects and the competitive environment).

Figure 6. Possible responses of the European automotive industry to over capacities and export competition

App- roach- es to reducing negative External effects	Compet. environ- ment	Within an European automobile manufacturer	Between different automobile manufacturers
Lowering product substitutability		Option 1: * Reducing double capacities * Focusing one model at one location	Option 3: * Differentiation of products vis-à-vis competitors * Acquisition and cooperation
Reducing multi-market contacts		Option 2: * Arrangements and guidelines regarding market servicing * Focusing on one model at one location	Option 4: * Servicing of smaller markets (geographical differentiation) * Influence on regional integration efforts * Acquisition and cooperation

Over capacities and export competition within a European automobile manufacturer can be reduced if product substitutability resulting from internal competition is minimized i.e. double capacities for the same product at different locations are eliminated or the manufacture of specific (niche) models is concentrated at specific locations (Option 1). Within the Fiat concern for example, the Palio Combi is manufactured only in Brazil and can be exported to global markets from there (Waelbroek 1998, p. 334). Although this strategy may not be successful for upper class vehicles due to lack of image of the production locations, image considerations would play only a subordinate role in the case of the Fiat Palio since the

sensitivity for this aspect is lower in the lower market segments. In Fig. 2b it was demonstrated that the phenomenon of over capacities and export competition is restricted to the entry level segments.

Multi-market competition between products of the same group at different locations can also be reduced if attempts are made to optimize the global production network rather than optimizing production volumes in one country. Clear arrangements or guidelines regarding the markets to be supplied can reduce the multi-market contacts between subsidiaries of the same group (Option 2). Of course a precondition for such a strategy is that the problem of reimports can be avoided through harmonious pricing and that excessive export obligations are not entered into at individual locations. The latter, however, will inevitably come into conflict with the industrialization strategies of the host countries. European automobile manufacturers must be prepared for this. In any case they are often not heeded, as the many unmeetable export obligations in India, for instance, show. DaimlerChrysler in particular, was left sitting on its "made in India" Mercedes.

Over capacities and export competition between several multinational corporations can similarly be reduced by a reduction in the substitutability of competing products (Option 3). This can be achieved if, for example, while planning the production of individual models at only one location, attempts are made to differentiate the product or goods vis-à-vis the most important competitor. DaimlerChrysler's strategy of using its shareholding in Hyundai to place a "z car" in the entry level segment of Asian markets (Melfi, Rother 2000) thus makes little sense in the above context. Over capacities and export competition can also provide the impetus for take-overs or cooperation with competitors since export planning under Option 1 and 2 can then be structured accordingly.

A reduction in export competition can also be achieved by lowering multi-market contacts with important competitors (Option 4). In addition, European automobile manufacturers can more strongly attempt to supply small markets that have been ignored by competitors. This would help in achieving geographical differentiation as regards competitors. Suzuki has been using this strategy for some time. A precondition for supplying to smaller markets is the development of suitable marketing strategies for such markets – a competence that is difficult to acquire and is not present in many large concerns. If this is not possible, European automobile manufacturers can under Option 4 also try to positively influence the integration efforts of member countries of regional integrations since they would then encounter their competitors in a much bigger regional market rather than several small domestic markets. This would reduce the number of multi-market contacts. Under Option 4, acquisition or cooperation as justified under Option 3, is also possible.

Conclusion and future perspectives

The present paper has attempted to examine the problem of increasing over capacities resulting from an industrial cluster-based development approach, a problem that has received scant attention in existing literature. It was possible to demonstrate that European automobile manufacturers need to be warned about overly optimistic export planning within the framework of industrialization strategies. However, realistic possibilities do exist for the European automotive industry to reduce rising export competition on global markets. These include the concentration of individual models at one location, clear guidelines for supplying markets, avoidance of export obligations, clear differentiation with regard to competitors, supplying to smaller markets, influencing the efforts to build new regional integration areas and acquisition or cooperation. However, since markets can only be "distributed" once, the

production facilities being established in developing countries will in the medium term replace a part of the exports from the Triad countries, although they may at present be purely market oriented direct investments by European automobile manufacturers or planned as public sector production enterprises for manufacturing a 'mass car' for the domestic market.

The prevalent line of argument that sales-oriented foreign direct investment does not lead to any negative impacts in Europe (Klodt, Maurer 1996, p. 12) can no longer be sustained in a situation where the setting up of over capacities results in export competition and price pressure. In this scenario, which the automotive industry is presently experiencing, a reduction in capacities in Europe is as conceivable as a de-internationalisation (Oesterle 1999). Countries that are attempting to develop using industrial cluster-based strategies must therefore make timely adjustments to their development path. Instead of promoting traditional input-output linkages, they should attempt to provide more support to knowledge transfers in an industrial network.

Notes

- 1 See Hemmer (1988, p. 509-521) or Marin (1992) for the significance of industrialization within the framework of export-oriented industrialization strategies.
- 2 In the literature there are various definitions of the term "industrial cluster". In geography a "cluster" is for example defined as a geographic and sectoral agglomeration of enterprises (cf., Schmitz 1992 or McCormick 1999). In this paper the economic definition of a cluster as an agglomeration of industrial activities is used (Venables 1999, p. 509), because for the analysis of over capacity issues the impacts of (large) industrial clusters on economies of scales, wages, investments and input-output linkages (cf., Krugman, Venables 1995) are more important than the geographic proximity of small basic manufacturing activities. This does not mean that the geographic definition of industrial cluster is not also of paramount importance in the development process. It is, however, more suitable to analyze basic metal works or clothing activities (McCormick 1999) than the large scale automotive industry.
- 3 Empirical studies (e.g. Athukorala et al 1995) have demonstrated that industry structure and the regulatory environment influence export activities more than the nationality of the firm.
- 4 This definition is termed as price premium in the broader sense and is well established in literature Klein/Leffer (1981, p. 624). A price increase due to differentiation without equivalent performance (e.g. B. Rao/Monroe 1996) on the other hand is termed as a price premium in the restricted sense.
- 5 Author's calculation. The current issues of the "Auto Catalogue" of the specialist journal Auto Motor Sport were used as database. There was no point in going back further in time since most Asian manufacturers entered the market only in the 1980s.
- 6 An alternative development process results from development strategies without significant industrialization efforts. Instead of capital intensive industrial production, small and medium sized enterprises or services are viewed as the cause of an increase in per capita income (Turq 1995, p. 35). This paper does not pursue this type of development process for two reasons:

- (1) A development strategy concentrating on services overlooks the fact that even in industrial countries transaction services have and in fact require a direct link to the manufacturing sector (Wallis, North 1986). During the further development of economic structures based on the division of labor more and more services were and are procured externally by manufacturing enterprises instead of providing them internally. Thus without the industrial base, there would have been no requirement for these services.
- (2) Small and medium sized enterprises generate only a small number of linkages and, more importantly, do not bring about further technological development which could lead to cost savings via economies of scale.
- 7 Input-output tables record all transactions between various sectors. This enables an analysis of inter-dependencies between sectors by means of which it is possible to simulate the impact of structural changes through industrial policy interventions, changes in demand or changes in production capacities.
- 8 In fact, the initiative for automobile assembly or production did not originate so much from the governments of these countries as from individual, globally operating automobile manufacturers (from industrial countries). Their decision to locate in countries with a particularly strong purchasing power like Brazil was influenced more by increased market potentials rather than low wages. In addition to the fact that local manufacturing costs were in any case usually higher than those in industrial countries, the share of production wages in manufacturing costs has been constantly decreasing. In 1970 25% of the cost of an automobile went towards wages and salaries, while the share in the year 2000 will be approx. 15% (O'Brian, Karmokolias 1994, p. 22).
- 9 Industrial organization theory has come a long way since Hymer (1960, published 1977) put forward "internal operations of national firms" as the reason for foreign direct investment and not the international exchange of capital as had been previously assumed. With this he attempted to establish the theoretical foundations of foreign direct investment in industrial organization theory. This theory attempts to explain industrial market processes through the economic output of a firm within an industry taking into account sector and firm specific determinants. Market performance can be derived from market conduct and this in turn from the market structure ("structure-conduct-performance" paradigm), where market conduct is characterized by the market form, entry barriers and demand (e.g. Stein 1998, p. 42-43). After Jahrreiß (1984), the most significant among the various discussions on "foreign direct investment and the industrial organization theory" is the "monopolistic theory of foreign direct investment" as propounded by Hymer (1960/1977 and Kindleberger 1969), who justify direct investments in imperfect markets on the basis of monopolistic advantages that exist vis-à-vis domestic competitors despite market entry barriers. Such quasi monopolistic profits result from advantages gained in home markets, e.g. the control over raw material sources. Stein (1998, p. 51 - 55) has also emphasized the significance of the further theoretical developments of Johnson (1970) and Caves (1971) regarding monopolistic advantages arising from commercially exploitable knowledge, and of Aliber (1970) regarding the advantages for firms from hard currency countries in international capital markets. In addition to these variations on the "monopolistic theory of foreign direct investment", Knickerbocker (1973) and Graham (1978) developed the theory of oligopolistic parallel conduct within the framework of the industrial organization theory. This theory examines the bundling of direct investments in individual foreign markets, particularly as a reaction to investment decisions of competitors (from industrial countries) to prevent their comparative advantages from becoming too large ("follow-the-leader investments"). The entry of a competitor to one's market can be countered by investments in his local market ("cross investments"). This reaction can also be understood through oligopolistic parallel conduct. Such cross investments, however, would only be relevant with regard to competition between suppliers from industrial countries.
- An industrial cluster-based development approach with investment incentives in developing countries provides MNCs with the opportunity to exploit monopolistic advantages gained in their home market in the host country as well, or to initiate oligopolistic reactions to direct investments by competitors from industrial nations in these countries. Other motives such as life cycle considerations, utilization of locational advantages, utilization of organizational learning processes or the reduction of transaction and coordination costs in global production networks may unquestionably also influence direct investment decisions in these countries. However, they cannot be influenced by the initiatives of the host country and are therefore not as relevant for our study of growing export competition.
- 10 Image and brand transfer strategies can be used to expand or transfer brand image and the recognizability factor of established brands to other product groups (e.g. Bruhn 1995, Sp. 1449). Such strategies assume an adequate transfer potential, e.g. brand image, brand strength and innovation power (Hätty 1994).
- 11 Moreover a conclusive solution in this regard is not available to date. For this reason industrial economic research frequently distinguishes between the conditions and types of multi-market competition (Hughes, Oughton 1993, p.204-208). These distinctions are also meaningful in discussions on over capacities and export competition since negative spillover effects in multi-market competition only play a role for multinational corporations if they nullify or exceed the advantages of direct investment.

References

- Aliber, R.Z. 1970. A theory of direct investment. In C.P. Kindleberger, editor, *The international corporation*. Cambridge/Mass., London 1970.
- Armstrong, H. & Taylor, J. 1985. *Regional Economics & Policy*. Hempstead.
- Athukorala, P., Jayasuriya, S. & Oczkowski, E. 1995. Multinational firms and export performance in developing countries: Some analytical issues and new empirical evidence. *Journal of Development Economics*, 46: 120-136.
- AUTOFACTS Group, PricewaterhouseCoopers, editor. 2000. *Global excess capacity*, informations on: <http://www.autofacts.com>. 2000.
- Baum, J.A.C. & Korn, H.J. 1996. Competitive dynamics of interfirm rivalry. *Academy of Management Journal*, 39: 255-291.
- Bea, S. 1995. *Direktinvestitionen in Entwicklungsländern: Auswirkungen von Stabilisierungsmaßnahmen und Strukturreform in Mexiko*. Frankfurt/M.: Lang.
- Beaumont, J.R. 1987. Location-allocation models and central place theory. In A. Gosh & G. Rushton, editors, *Spatial and location-allocation models*. New York.
- Brada, J.C. & Woo, Y. 1994. Export competition between centrally planned economies and Korea. *Journal of Economic Integration*, 9: 29-44.
- Broll, U. & Gilroy, B. 1989. *Außenwirtschaftstheorie: Einführung und Neuere Ansätze*. München, Wien: Oldenbourg.
- Bruhn, M. 1995. Markenstrategien. In B. Tietz, editor, *Handwörterbuch des Marketing*, 2. ed., Stuttgart. (= Enzyklopädie der Betriebswirtschaftslehre, Bd. 4).
- Bulov, J.I., Geanakoplos, J.D. & Klemperer, P.D. 1985. Multimarket oligopoly: Strategic substitutes and complements. *Journal of Political Economy*, 93: 488-511.
- Caves, R.E. 1971. Industrial economics of foreign direct investment. *Journal of World Trade Law*, 5: 303-321.
- Chow, P.C.Y. 1989. Causality between export growth and industrial development – reply. *Journal of Development Economics*, 31: 414-417.
- DeBresson, V. & Hu, X. 1999. Identifying clusters of innovative activity: A new approach and a tool-Box. In OECD, editor, *Boosting innovation: The cluster approach*. Paris: OECD proceedings.
- Dixit, A. 1979. A model of duopoly suggesting a theory of entry barriers. *The Bell Journal of Economics*, 10: 20-32.
- Dunning, J.H. 1979. Explaining changing patterns of international production: In defence of the eclectic theory. *Oxford Bulletin of Economics and Statistics*, 41: 269-295.
- Dunning, J.H. 1981. Explaining the international direct investment position of countries: Towards a dynamic or developmental approach. *Weltwirtschaftliches Archiv*, 117: 30-64.
- Dunning, J.H. 1988. The eclectic paradigm of international production: A restatement and some possible extensions. *Journal of International Business Studies*, 19: 1-31.
- Feige, A. & Crooker, R. 1999. Die Erfolgsfaktoren im Produktentstehungsprozeß des 21. Jahrhunderts: Innovation und Engineering Execution. In H. Wolters, R.H. Landmann, W. Bernhart, H. Karsten, Arthur D. Little, Inc., editors, *Die Zukunft der Automobilindustrie: Herausforderungen und Lösungsansätze für das 21. Jahrhundert*. Wiesbaden: Gabler.
- Gandolfo, G. 1998. *International trade theory and policy*. Berlin u.a.: Springer.
- Graham, E.M. 1978. Transatlantic investment by multinational firms. A rivalistic phenomenon? *Journal of Post Keynesian Economics*, 1: 82-99.
- Gundlach, E. & Nunnenkamp, P. 1996. *Falling behind or catching up: Developing countries in the era of globalization*. Kiel: Kieler Diskussionsbeiträge.
- Habedank, C., Reinhardt, N. & Urlichs, R. 1998. Veränderte Vertriebsstrategien in der Automobilindu-

- strie angesichts von Euro und Internet als Herausforderung für die Industriepolitik. In H. Proff & H.V. Proff, editors, *Strategien für die Automobilindustrie: Ansatzpunkte im strategischen Management und in der Industriepolitik*. Wiesbaden: Gabler.
- Hätty, H. 1994. Markentransferstrategien. In M. Bruhn, editor, *Handbuch Markenartikel: Anforderungen an die Markenpolitik aus Sicht von Wissenschaft und Praxis*. Bd. I: Markenbegriffe – Markentheorien - Markeninformationen - Markenstrategien, Stuttgart.
- Hemmer, H.R. 1988. *Wirtschaftsprobleme der Entwicklungsländer*, München: Vahlen.
- Hoen, H.W. & van Leeuwen, E. 1991. Upgrading and relative competitiveness in manufacturing trade:
Eastern Europe versus the newly industrializing economy. *Weltwirtschaftliches Archiv*, 127: 368-379.
- Holden, M. 1996. *Economic integration and trade liberalization in Southern Africa*. Washington D.C.: World Bank Discussion Paper 342.
- Hughes, K., Oughton, C. 1993. Diversification, multi-market contact and profitability. *Economica*, 60: 203-224.
- Hymer, S.H. 1977. *The international operations of national firms*. 2. ed., Cambridge/Mass., London. (= Publication of a dissertation finished in 1960).
- Jahrreiß, W. 1984. *Zur Theorie der Direktinvestitionen im Ausland: Versuch einer Bestandsaufnahme, Weiterführung und Integration partialanalytischer Forschungsansätze*. Berlin: Duncker & Humblot.
- Jin, J.C. 1995. Export-led growth and the four little dragons. *Journal of International Trade & Economic Development*, 4: 203-215.
- Johnson, H.G. 1970. The efficiency and welfare implications of the international corporation. In C. Kindleberger & R.E. Caves, R.E., editors, *The international corporation*. Cambridge/Mass., London.
- Kindleberger, C.P. 1969. *American business abroad*. New Haven, London.
- Klein, B. & Leffer, K. B. 1981. The role of market forces in assuring contractual performance. *Journal Of Political Economy*, 89: 615-641.
- Klodt, H., Maurer, R. 1996. *Internationale Direktinvestitionen: Determinanten und Konsequenzen für den Standort Deutschland*. Kiel: Institut für Weltwirtschaft. (=Kieler Discussion Papers 284).
- Knickerbocker, F.T. 1973. *Oligopolitic reaction and multinational enterprise*. Boston.
- Körner, H. 1967. Industrielle Entwicklungspole als Instrument der Regionalpolitik in Entwicklungsländern, *Kyklos*, 20: 684-708.
- Krugman, P.R. & Venables, A.J. 1995. Globalization and the inequalities of nations. *Quarterly Journal of Economics*, 111: 857-881.
- Macharzina, K. 1982. Theorie der internationalen Unternehmenstätigkeit: Kritik und Ansätze einer integrierten Modellbildung. In W. Lück, W. & Trommsdorf, V., editors, *Internationalisierung der Unternehmen als Problem der Betriebswirtschaftslehre*. Berlin.
- Marin, D. 1992. Is the export-led growth hypothesis valid for industrialized countries? *Review of Economics and Statistics*, 74: 678-688.
- McCormick, D. 1999. African enterprise clusters and industrialization: Theory and reality. *World Development*, 27: 1531-1551.
- McGregor, P., Swales, K. & Ping Yin, Y. 1996. A long run interpretation of regional input-output analysis. *Journal of Regional Science*, 36: 479-501.
- Melfi, T. & Rother, F. 2000. Kampf an allen Fronten. *Wirtschaftswoche*, 31: 46-53.
- Ministry of Trade and Industry (MITI), editor, 1996. *Industrial master plan (Malaysia 2020)*. Kuala Lumpur.
- Muscattelli, V.A., Stevenson, A.A. & Montagna, C. 1994. Intra-NIE competition in export of manufacturers. *Journal of International Economics*, 27: 42-63.
- O'Brien, P. & Karmokolias, Y. 1994. *Radical reforms in the automotive industry*. Washington D.C.: IFC Discussion Paper 21.

- Oesterle, M.-J. 1999. Fiktionen der Internationalisierungsforschung: Stand und Perspektiven einer realitätsorientierten Theoriebildung. In J. Engelhard & W. Oechsler, editors, *Internationales Management: Auswirkungen globaler Veränderungen auf Wettbewerb, Unternehmensstrategie und Märkte*. Wiesbaden: Gabler. (= Klaus Macharzina zum 60. Geburtstag).
- Oxelheim, L., editor, 1993. *The global race for foreign direct investments: Prospects for the future*. Berlin u.a.: Springer-Verlag.
- Perlitz, M. 2000. *Internationales Management*. 4. ed., Stuttgart: Lucius und Lucius.
- Poapongsakorn, N. & Fuller, B. 1998. The role of foreign direct investment and production networks in the development of Thai auto and electronic industries. In Institute of Developing Economics, editor, *Can Asia recover its vitality*. Tokio.
- Proff, H. 1995. Strukturanpassungsprogramme und Industrialisierung in Schwarzafrika. *Internationales Afrikaforum*, 31: 69-83.
- Proff, H. 2000. Hybrid strategies as strategic challenge - The case of the German automotive industry. *Omega. The International Journal of Management Science*, 28: 541-553.
- Proff, H. & Proff, H.V. 1996. Effects of AFTA as a world market oriented regional integration on the industrial development of the participating countries. *Indonesian Quarterly*, 24: 391-404.
- Proff, H.V. 1998. *Modelling a framework for industrial cores during industrialisation and deindustrialisation*. Darmstadt: Working paper 94, Institute of Economics, Technical University.
- Rao, A. & Monroe, K.B. 1996. Causes and consequences of price premiums. *Journal of Business*, 69: 511-533.
- Rother, F.W. 1999. Wem die Stunde schlägt. *Wirtschaftswoche*, 3: 36-40.
- Schmitz, H. 1992. On the clustering of small firms. *IDS Bulletin*, 23: 64-49.
- Sell, F.L. 1993. *Ökonomik der Entwicklungsländer*. Frankfurt/M.
- Simon, H. 1992. *Preismanagement: Analyse - Strategie - Umsetzung*. 2. ed, Wiesbaden: Gabler.
- Stead, R., Curwen, P. & Lawer, K. 1996. *Industrial economics: Theory, application and policy*. London.
- Stein, I. 1994. Die Theorien der Multinationalen Unternehmung. In S. Schoppe, editor, *Kompendium der Internationalen Betriebswirtschaftslehre*. 4. ed., München, Wien: Oldenbourg.
- Tichy, G. 1994. *Konjunktur*. Berlin.
- Tirole, J. 1995. *Industrieökonomik*. München: Vahlen. (= The theory of industrial organization 1995).
- Turq, D. 1995. The global impact of Non-Japan Asia. *Long Range Planning*, 28: 31-40.
- Venables, A.J. 1999. The international division of industries: clustering and comparative advantage in a multi-industry model. *Scandinavian Journal of Economics*, 101: 495-513.
- von Stackelberg, K. 1991. *Internationale Wettbewerbsfähigkeit bei zunehmenden intra-industriellen Handelsbeziehungen mit Schwellenländern*. Berlin.
- Waelbroeck, J. 1998. Half a century of development economics: A review based on the Handbook of Development Economics. *World Bank Economic Review*, 12: 323-352.
- Wagner, N. & Kaiser, M. 1995. *Ökonomie der Entwicklungsländer: Eine Einführung*, 3. ed., Stuttgart, Jena: G. Fischer.
- Wallis, J.J. & North, D.C. 1986. Measuring the Transaction Sector in the American Economy, 1870-1970. In S.L. Engerman & R.E. Gallman, editors, *Long term Factors in American Economic Growth*. Chicago.
- Wegberg, M. van & Witteloostuijn, A. van. 1991. Multimarket competition: Entry strategies and entry deterrence when the entrant has a home market. In J. Thépot & R.-A. Thiétart, editors, *Microeconomic contributions to strategic management*. Amsterdam.
- Wegberg, M. van & Witteloostuijn, A. van. 1992. Credible entry threats into contestable markets: A symmetric multi-market model of contestability. *Economica*, 59: 437-452.
- Welge, M.K. & Holtbrügge, D. 1998. *Internationales Management*. Landsberg/Lech: mi Verl. Moderne Industrie.
- Weltbank, editor, 1999. *Weltentwicklungsbericht 1998/1999*. Washington D.C. (= World development report).