Lammers, Konrad

Working Paper

Subsidization of the shipbuilding industry in the Federal Republic of Germany

Kiel Working Papers, No. 326

Provided in Cooperation with:
Kiel Institute for the World Economy (IfW)

Kieler Arbeitspapiere
Kiel Working Papers

Kiel Working Paper No. 326

Subsidization of the Shipbuilding Industry in the Federal Republic of Germany

by

Konrad Lammers

May 1988

Institut für Weltwirtschaft an der Universität Kiel

The Kiel Institute of World Economics

ISSN 0342-0787

Kiel Institute of World Economics
Düsternbrooker Weg 120
D 2300 Kiel 1
Federal Republic of Germany

Kiel Working Paper No. 326

Subsidization of the Shipbuilding Industry in the Federal Republic of Germany

by

Konrad Lammers

May 1988

ISSN 0342-0787

1. The Story of Subsidization

German shipyards were hit extremely hard during World War II, and then again in the following years when the parts that had not been damaged were disassembled by the Allies. But World War II and its consequences proved to be a blessing in disguise as it opened possibilities for a very prosperous shipbuilding industry in the fifties. That is, the yards were rapidly rebuilt with modern equipment, partly through Marshal-Fund aid. Since many of the refugees from the eastern parts of Germany had settled in the coastal regions of West Germany, a qualified work force was readily available. Relatively high productivity and low wages made German shipyards highly competitive and, as a result, by the mid-fifties, German shipbuilding industry had grown to become number two in Europe after the UK; 17.3 p.c. of vessels completed worldwide in 1956 were built on yards of the Federal Republic (see table 1).

At the beginning of the sixties, however, the German shipbuilding industry lost its competitiveness. It was especially Japan which rapidly captured market shares: whereas in 1960 Japan built 21.9 p.c. of vessels in the world, in 1965 it was already producing 41.5 p.c. To be specific, Japan´s gain within five years was actually higher than the share of every other shipbuilding country (see table 1). Under this constellation the German Federal Government started the First Shipbuilding Assistance Program (Werfthilfeprogramm) in order to strengthen the competitiveness of the domestic shipyards

Table 1 - Production of Seagoing Ships in Selected Countries (p.c. of Production in the World) 1956-1985

Year	Federal Republic of Germany	Den-mark	France	Nether-lands	Nor-way	Sweden	United Kingdom	Spain	Japan	Brazil	South Korea	Taiwan	People's Republic of China
1956	17.3	2.2	4.0	6.3	3.0	7.7	23.1	1.2	24.4	.	.	.	.
1960	13.4	2.6	5.1	8.1	3.0	8.5	15.5	2.1	21.9	.	.	.	.
1961	12.9	2.4	6.7	5.8	4.1	9.1	17.2	1.8	21.3	.	.	.	.
1962	11.8	2.6	5.8	6.4	4.6	10.5	12.4	1.6	25.3	.	.	.	.
1963	11.6	3.3	5.6	5.1	4.1	10.7	12.1	1.3	25.1	.	.	.	.
1964	8.5	2.9	5.5	2.8	3.8	10.6	8.3	2.4	38.7	.	.	.	.
1965	8.8	1.8	4.1	1.3	3.9	10.8	10.9	1.9	41.5	0.2	.	.	.
1966	8.2	3.4	3.1	2.3	3.1	8.0	7.6	2.7	46.1	0.4	0.1	.	.
1967	6.9	2.8	2.8	1.9	3.5	9.0	7.8	2.5	47.6	0.1	0.0	.	.
1968	7.2	3.1	3.7	1.6	3.6	6.5	6.2	2.7	49.6	0.8	0.0	.	.
1969	9.5	3.2	3.7	2.6	3.3	6.7	4.4	3.4	48.9	0.3	0.0	.	.
1970	6.5	2.6	4.2	3.1	3.5	7.6	6.5	3.2	49.7	0.3	0.0	.	.
1971	8.1	3.0	4.5	2.3	3.6	7.6	5.1	3.4	45.7	0.6	0.1	0.4	.
1972	5.2	3.6	3.8	2.8	3.1	7.6	4.5	4.0	48.1	0.8	0.1	0.5	.
1973	6.3	3.3	3.9	2.8	3.2	7.5	3.5	4.3	48.5	0.6	0.0	3.4	.
1974	6.4	3.2	3.1	2.8	2.9	6.5	3.6	4.7	50.4	0.5	0.9	0.4	.
1975	7.3	2.8	3.4	3.0	3.1	6.4	3.4	4.7	49.7	0.9	1.2	0.3	.
1976	5.5	3.1	4.9	1.9	2.2	7.4	4.4	3.9	46.8	1.2	2.4	0.3	.
1977	5.8	2.6	4.0	0.9	2.1	8.4	3.7	6.6	42.5	1.4	2.0	1.1	.
1978	4.6	1.9	2.4	1.7	1.8	7.7	6.2	4.5	34.7	2.4	3.3	2.2	.
1979	3.1	1.8	5.0	1.9	2.6	3.2	4.8	4.4	32.9	4.7	3.5	1.4	.
1980	2.9	1.6	2.2	0.9	1.6	2.7	3.3	3.0	46.5	5.6	4.0	1.8	.
1981	4.1	2.1	3.0	1.0	1.8	2.7	1.3	4.6	49.6	4.3	5.5	1.8	0.2
1982	3.7	2.7	1.6	1.3	2.1	1.7	2.6	3.3	48.5	3.0	8.3	2.7	0.8
1983	5.0	2.8	1.9	1.5	1.1	2.1	3.1	3.1	42.0	1.6	9.7	2.1	1.1
1984	2.8	2.6	1.8	0.8	0.6	1.7	2.4	1.9	53.0	1.5	8.0	4.5	1.8
1985	3.1	2.5	1.1	1.0	0.7	1.1	0.9	3.0	52.3	3.2	14.4	1.5	0.9

Source: Lloyd's Register of Shipping (various issues). - Verband der deutschen Schiffbauindustrie e.V. (various issues).- Own calculations.

(Deutscher Bundestag,1967 and 1970). The program was meant to facilitate the financing of ship exports to Non-EEC-Countries. Nonetheless it could not prevent German shipyards from losing further market shares: They fell from 13.4 p.c. in 1960 to 7.2 p.c. in 1968, while the volume of production remained more or less constant (see table 1 and A1).

As the worldwide demand for large oil tankers and bulk carriers rapidly increased, Japan and Sweden responded but in differing ways. Whereas Japan buildt new yards, Sweden developed and installed new techniques for series production of these types of ships. While investment in shipbuilding in Japan and Sweden was high, it was very low in the Federal Republic and, as a result productivity increased only slowly. The number of employees decreased by 30 thousand from 1960 to 1968 (see table A2). However, such negative developments could be compensated for, since other industries grew very rapidly at the same time, absorbing many of those employees laid off. Thus a regional unemployment problem did not occur.

Economic currents were moretheless changing and the first severe recession after World War II in the Federal Republic occured in 1967.It brougt about unemployment which, in retrospect, appears moderate, but it was concentrated in the mining districts and some coastal regions.Thus for the first time, politicians realized that German shipbuilding had lost market shares in the foregoing years. Studies on the prevailing situation and prospects for the ship-building industry were ordered. They came to the conclusion that especially big yards had lost competitiveness. Small and medium sized ones, on the other hand were judged as fairly competitive. The experts' advice was aimed at enabling the big yards to take part in the growing market for large ships (Arbeitgemeinschaft Werftgutachten, 1970). Politicians responded to these recommendations. The federal government, created a program to support investment in which the four coastal states participated. Under this program yards received subsidized credits, if kinds of investment were undertaken for building big ships, new types of ships, or for new production techniques (series building; see Bundesminister für Wirtschaft, 1968). This program did not remain the only state intervention with regard to investment in the shipbuilding industry. Contrary to their original intention, regional programs, which were basically meant to promote a wide range of activities in specific regions, were used intensively to promote the shipbuilding industry. Furthermore, the federal states of Schleswig-Holstein and of Bremen became joint proprietors of big yards in Kiel, Hamburg and Bremen. This was justified on the grounds that these yards would otherwise not have been able to undertake investments considered necessary by the respective governments (Landeshaushaltsplan Schleswig-Holstein, 1975). But not only investment in the yards was supported, demand for new vessels built in the Federal Republic was stimulated, too. The Shipbuilding Assistance Program (Werfthilfeprogramm), which originally had been limited to exports to Non-EC-Countries, was extended: Beginning in 1971 exports of ships to EC-countries were assisted as well and, since 1973, financial support from this program was extended to orders from German shipping companies (Langer, 1974; Deutscher Bundestag 1973). But despite the extension of the Shipbuilding Assistance Program, German shipping companies increasingly ordered their vessels abroad. Consequently, the Federal Government restricted the Shipowner-Aid (Reederhilfe - financial support to which the shipping companies had been entitled until the beginning of the fifties for every vessel ordered, no matter whether at home or abroad) to ships built on yards in the Federal Republic. In order to utilize the yards' new capacities for building large ships, an additional facility was established to support the demand of oil tankers.

Indeed, shipbuilding production on German yards grew: in 1975 it was twice as high as 1968. But increasing production was based more on the fact that worldwide demand, especially for large ships, exceeded the shipbuilding capacities in other countries than on real competitive advantage. Then even with far-reaching state assistance, the German shipbuilding industry continued to lose further market shares (see table 1). Nevertheless the large yards earned high profits in the mid seventies. The state owned yards were partly released from profit distribution, so that these yards were able to accumulate high reserves. In 1976, capacity utilization of German yards declined sharply. Orders of oil tankers and bulk carriers had already dropped as a result of the first oil crisis and the world recession in 1974. Especially those yards were hit that followed the politicians' advice and had just recently specialized in these types of ships. The decreased demand for vessels on world markets soon revealed that the shipbuilding industry in the Federal Republic, as well as in other traditional shipbuilding countries, had lost international competitiveness. New shipbuilding countries - especially South-Korea - gained market shares rapidly (see table 1). Politicians looked for new possibilities to compensate for the decline in production and they proved successful. Since vessels exported to developing countries are entitled to a higher subsidy rate than usual exports, the Shipbuilding Assistance Program was therefore mainly used to finance ships declared as developing projects. According to OECD-guidelines, ship exports to developing countries are accepted as developing projects if the grant element exceeds 25 p.c. of building costs (Kreditanstalt für Wiederaufbau, 1981)[1]. Furthermore, the Federal Ministry of Research and Technology set up several R & D- programs in favour of the yards. In no other industry did support for research and development increase so rapidly as in shipbuilding between 1973/74 and 1979/80/81 (Jüttemeier, 1984). Furthermore the Ministry of Defence ordered new ships earlier than originally planned and in deference to the employment problems of the large yards it accepted substantial financial disadvantages (Matthöfer, 1977). But the decline of production and of orders could not be stopped and yards reduced their

1 For normal ship-orders the grant element can amount to about 7 p.c. of building costs (Verband der Deutschen Schiffbauindustrie, 1982).

work-force: The number of employees shrank from 73 thousand in 1975 to 59 thousand in 1979. During this period, the large yards tried to regain those segments of the shipbuilding market (special ships) which they had given up at the end of the sixties and on which medium and small sized yards had been fairly successful in the meantime. The above mentioned large reserves of state-owned yards (i.e. no profit distribution) enabled some of them to offer prices that did not even cover their costs.

In order to avoid high regional unemployment, which the Federal Government and the governments of the coastal states would have to face if yards had to dismiss workers on a large scale, a direct building subsidy program (Auftragshilfeprogramm) was operated during 1979 to 1981. Only the construction of special vessels was subsidized, oil tankers and bulk carriers were excluded (Deutscher Bundestag, 1979). The support from this program enabled the large yards to continue their efforts in gaining back markets lost to medium and small-sized yards. When the Federal Government refused to participate in financing a second direct building subsidy program, the coastal states decided to run such a program on their own. But all these government interventions in favour of the shipbuilding industry could not prevent large yards from running into severe difficulties. AG-Weser at Bremen closed down at the end of 1983 and the remaining yards at Bremen were merged with substantial financial support of the State of Bremen. The federal state of Schleswig-Holstein covered losses of Howaldtswerke Deutsche-Werft AG, the biggest German shipyard, located in Kiel and Hamburg; capacities for the building of new ships were closed at Hamburg and reduced at Kiel. Indeed, those yards were hit hardest which in particular had been subject to state intervention at the beginning of the seventies. The number of employees on large yards shrank by 45 p.c. within a period of ten years (from 1975 to 1985). The medium and small-sized yards reduced their work-force, too, but much more moderately (by 17 p.c.; see Rother, 1985).

In 1985 it became obvious that the market for special ships was too narrow for both small and medium sized yards plus the remaining large yards, the latter having been highly subsidized in the years before. In addition, new orders for ships declined further. This was partly due to the fact that, at the end of 1984, extensive write-off possibilities for individual investors placing their money in loss making areas, like ship-owning, had been cut. Though a favourable exemption was made for investment in ships, money spent for shipping activities declined sharply. Many yards began to establish ship-owning companies, thus building vessels on their accounts. The governments of the coastal states, especially that of Schleswig-Holstein, sanctioned the yards' procedure by giving guarantees to the capital which yards spent on these ships. At the beginning of 1986, it became obvious that real demand did not exist for these vessels. As a consequence, the yards now have to write off the ships they have built and governments are faced with claims to pay for the yards' losses if their bankruptcy is to be avoided.

The governments of the four coastal states ordered a study on the situation and prospects of the shipbuilding industry and on what governments should do. The experts recommended a 30 p.c. reduction of merchant shipbuilding capacities. In order to manage the process of capacity reduction and to solve the current liquidity problems they support additional financial assistance on a large scale. Existing programs - Shipowner Aid and Shipbuilding Assistance Program - should be endowed with more favourable conditions and a new direct shipbuilding program should be introduced to ensure the utilization of the remaining 70 p.c. of merchant shipbuilding capacities (Institut für Seeverkehrswirtschaft und -logistik, Treuarbeit, 1986). As it seems governments are willing to follow these recommendations. They are running the risk of getting deeper into the jungle of subsidies than ever before. Thus the story of shipbuilding's subsidization will continue for sure.

2. The Extent of Protection

Quantifying the degree of protection is difficult because information on all relevant measures is lacking or because the subsidy element of some kinds of intervention cannot be defined. More or less complete information is available with regard to the financial support given through specific programs like Shipbuilding Assistance Programs, Shipowner-Aids, Direct Building Subsidy Program and Investment-Aid Programs. From 1966 to 1985, the Federal Government and the coastal states supported the shipbuilding industry out of these programs with nearly eight billion D-Mark and the volume of subsidies increased in the course of time (see table 2). The coastal states seem to have been engaged only to a relatively small extent; during the whole period, only 7 p.c. of all subsidies were financed by them. But financial assistance granted by the coastal states has gained in importance with time: From 1966 to 1970, their share was just to 2.2 p.c. but during the last five years, it ran up to 12.5 p.c. and a further increase of coastal-states' engagement can be expected against the background of the current developments in shipbuilding policy.

In addition to the subsidies out of specific programs, the yards have received support from non-industry specific programs, as well. As table 3 shows, above all, financial aids

Table 2 - Sectoral Subsidies for the Shipbuilding Industry 1966-1985

	1966-1970		1971-1975		1976-1980		1981-1985		1966-1985	
	Million D-Mark	p.c.	Million D-Mark	p.c.	Million D-Mark	p.c.	Million D-Mark	p.c.	Million D-Mark	p.c.
Financial Assistance by the Federal Government	1 002.1	97.8	1 362.6	97.3	2 361.7	95.3	2 697.6	87.5	7 424.0	93.0
Financial Assistance by the Four Coastal States	22.1	2.2	38.3	2.7	116.5	4.7	385.2	12.5	562.1	7.0
Schleswig-Holstein	6.3	0.6	13.0	0.9	56.0	2.3	178.6	5.8	253.9	3.2
Hamburg	10.6	1.0	2.4	0.2	11.6	0.5	21.7	0.7	46.3	0.6
Lower Saxony	2.1	0.2	3.3	0.2	18.5	0.7	24.9	0.8	48.8	0.6
Bremen	3.1	0.3	19.6	1.4	30.4	1.2	160.0	5.2	213.1	2.7
Total	1 024.2	100.0	1 400.9	100.0	2 478.2	100.0	3 082.8	100.0	7 986.1	100.0

Source: Deutscher Bundestag (various issues). - Bundeshaushaltsplan (various issues). - Haushaltsplan Schleswig-Holstein (various issues). - Haushaltsplan Hamburg (various issues). - Haushaltsplan Lower Saxony (various issues). - Haushaltsplan Bremen (various issues). - Own calculations and estimates.

out of regional and R&D-Programs are relevant. In principle, such programs should have no discriminatory effects among industries because their purpose is to support regions in general or economic activities in R&D respectively. But in fact these programs have been handled to benefit the shipbuilding industry more than others. This is true in the case of regional programs in the first half of the seventies and in the case of R&D-support in the early seventies and the beginning of the eighties (Lammers, 1984 a).

Table 3 - Subsidies for the Shipbuilding Industrie Classified by Purpose of Promotion 1981-1985

Purpose of Promotion	Million D-Mark	p.c.
Sectoral Purpose	3 082.8	84.1
Non-Sectoral Purposes	582.7	
R&D Promotion	291.9	8.0
Regional Promotion	281.9	7.7
Environment Protection	1.9	0.1
Energy Conservation	1.0	0.0
General Economic Stimulation	6.0	0.2
All Purposes	3 665.5	100.0

Source: Table 2. - Jüttemeier, 1984. - Own calculations and estimates.

The volume of subsidies presented so far shows only part of the shipbuilding industry's protection: government participation in yards, releases on profit distributions of yards partly owned by governments, guarantees and governmental purchases of ships are not included. Quantifying their subsidy elements causes large problems because information on these measures is incomplete and thus requiring questionable assumptions to be made. Surely the protection element of some of these measures is substantial. This should be kept in mind, considering the amounts presented in Table 2 and 3. Nevertheless, the available figures already show that the shipbuilding industry is protected to an extraordinary extent.

In 1973 and 1974, the shipbuilding industry received 3300 D-Mark subsidies per employed person yearly and during the period 1979 to 1982: 9660 D-Mark per person were paid each year. The degree of subsidization (subsidies as percentage of net value added minus subsidies) amounts to 12.2 p.c. in 1973/74 and 29.5 p.c. in the period from 1979 to 1982 (Jüttemeier,1986). Assuming that the subsidies granted to the shipbuilding industry remained in this sector, which seems very likely in view of the demand and supply conditions of the relevant output- and input-markets, a subsidization degree of 29.5 p.c. indicates that payment rates for labour and capital could be higher by this rate as compared to a situation without subsidies. With regard to the construction of individual ships, an even higher degree of subsidization was possible. This can be demonstrated with the conditions of the different programs: The financial aid out of the Shipbuilding Assistance

Program can reach 7 p.c. of building costs[1] (Verband der Deutschen Schiffbauindustrie, 1982); the Ship-Owner Aid, which has to be regarded as a subsidy favouring shipbuilding only, amounts to 12.5 p.c. of building costs and the Direct Building Subsidy operated during 1979 to 1981 could add up to 20 p.c. of building costs. As cumulation of these financial aids was allowed, theoretically 40 p.c. of building costs could be financed out of public funds. To revail the effective rate of subsidization, the financial aids have to be related to the contribution which is provided by the yard itself (value added) and not to total building costs. Assuming an intermediate input rate of 60 p.c.[2] and assuming that building costs were (only) subsidized by 30 p.c. this would mean that 75 p.c. of the payment for labour and capital, involved in the building of respective ships, is financed by the taxpayer. If governments endow the existing programs or introduce new ones - as seems to be the case - the contribution of the tax payer will still be higher.

3. Impact of Subsidization

It is hardly possible to quantify exactly the degree of protection and the impacts of the numerous protective measures. But economic logic and the situation on relevant product- and

---

1 For "normal" exports; ships declared as "developing projects" are subsidized by 25 p.c. of building costs at least (see page 5).

2 The input-rate of shipbuilding industry as a whole accounts for 60 p.c. at the end of the seventies.

factor-markets suggest that the impact is as follows:

- with regard to the production of ships: The different programs have enabled the yards to offer ships at prices and financial conditions which, from the customers' point of view, appeared competitive. To this extent production of ships on German yards was surely higher than without subsidies; but even increasing subsidization of shipbuilding could not prevent the decline of production and the loss of world-market shares.

- with regard to profits and investment: Since 1962, the shipbuilding industry made profits only in the years 1967, 1972 - 1977 and 1983. Apart from 1975, the return on investment was far below that of total manufacturing (see Table A2). Even with subsidies, capital owners were not able to obtain a return on investment comparable to investment in other activities. Thus the owners of the yards can hardly be regarded as the beneficiaries of subsidization policy. Nevertheless, investment in shipbuilding has been undertaken up through today. Such an attitude can hardly be based on rational motives of private capital owners. Instead, it can be considered as the result of continuing state interference. This led capital owners to believe that politicians will take the responsibility for the shipbuilding industry's welfare.

- with regard to the number of persons employed and to wages: To the extent that the production of ships was higher than it would have been without subsidies, the number of persons employed was also higher than otherwise would has been the case. But subsidization could not prevent world-wide demand for ships from going down and the German yards from losing international competitiveness. Therefore a reduction in employment was unavoidable. Although the shipbuilding industry has reduced its work-force since 1960 by 52 p.c., wages have risen more than wages in total manufacturing (see Table A2). Adjustment in the remuneration of labour reflecting the real competitive conditions has not taken place. This indicates that, presumably, subsidies have rested on wages to a large extent[1].

- with regard to small and medium sized yards on the one hand and large yards on the other hand: As was pointed out before important protection measures were introduced in favour of large yards. At the end of the sixties/beginning of the seventies, some large yards were supported to provide facilities for the building of large ships; when it became obvious that large shipbuilding was an obsolete activity in Germany governments assisted in the rediversification of big yards to those segments of the market in which the medium and small sized yards had been fairly successful at that time. Thus governments distorted competition within the shipbuilding industry in favour of large yards and at the expense of smaller ones.

---

1 For example, in Schleswig-Holstein there are only two other industries (mineral oil, printing and copying), which pay higher wages than shipbuilding.

- with regard to the development of regions: As far as subsidization has caused high wages in the shipbuilding industry it has obstructed the adjustment process of those regions where yards are located, because other economic activities had to compete with these high labor costs. Thus, the opening of new businesses, the expansion of existing ones as well as the establishment of firms from other regions were all hampered[1]. The subsidization of the yards more than compensated the financial assistance from regional programs which other firms could claim if they were to undertake investment in regions subject to regional policy schemes[2]. Thus in assisted regions, where the shipbuilding industry is relatively important for the labour-market, the desired effect of regional policy was more than offset by the subsidies given to shipbuilding.

- with regard to other industries: As the intersectoral pattern of subsidization shows, there are only a few sectors (agriculture, mining, aerospace, railways, housing, private-non-profit-institutions) which are protected to a higher degree than shipbuilding (Jüttemeier, 1986.). Especially

---

1 Distortions in competition between large and other yards caused by state interventions are indicated for example by the fact, that in 1984 the direct labour cost per hour could be calculated with 75,-- to 80,-- Deutsche Mark on Howaldtswerke-Deutsche Werft AG against 45,-- to 50,-- Deutsche Mark on small and medium sized yards (Unabhängige Sachverständigenkommission, 1984).

2 The shipbuilding industry received more financial aid out of specific programs than all other industries in the four coastal states out of regional programs (Lammers, 1984 b).

compared with other industries in the manufacturing sector, subsidization policy provided a competitiveness that was only artificial: In shipbuilding factor payments for labor and capital could be 29.5 p.c. higher than without subsidies compared with 2.5 p.c. in the manufacturing sector as a whole.

4. Concluding Remarks

What can be learned from protection of the shipbuilding industry in the Federal Republic? There are several lessons. First: Governments do not seem able to solve the adjustment problems of an industry, simply because politicians cannot predict the future better than individual firms can. On the contrary, the problems of the shipbuilding industry were worsened by state interventions. Second: Governments misunderstand the character of structural change. Many interventions in favour of the yards were stated as facilitating the structural adjustment process. But the need for structural adjustment exist not only within an industry, but also between industries. Therefore governments have hampered structural change even if they supported the rationalization or reorganization of the yards. This is true all the more as these interventions have generally led to an increase in capacity. Third: Any one subsidy generates its successor. In supporting the yards especially with interventions that influenced investment decisions, governments have become extortable for further subsidies. Whenever supply or demand conditions took another development than governments had expected, as in fact was the rule, representatives of the shipbuilding industry could refer to former governmental statements and state interventions with good arguments.

It is frequently argued that the German shipbuilding industry needs subsidies because shipbuilding markets are heavily distorted by subsidies which other countries grant their shipbuilding industries[1]. No doubt other countries support their yards to a very high extent, too; possibly the degree of protection in some countries is higher than in the Federal Republic. But the subsidization in other countries does not justify doing the same. For the economy as a whole, reduction of subsidies for the national shipbuilding industry is profitable (Hiemenz, Weiss, 1984). Other shipbuilding countries' subsidies also are not the cause for the problems of the German shipbuilding industry at all. Instead, they stem from changing demand and supply conditions on a worldwide scale.

As a matter of fact, whenever market developments hit German yards hard, important subsidy programs were introduced in favour of the German shipbuilding industry in response. This was the case in 1962 when the first Shipbuilding Assistance Program was started: In the years before, Japan had conquered large shares of the market very rapidly. This was also the

---

1 This is the official argument of the Federal Government for their subsidization policy (see e.g. Deutscher Bundestag, 1985). Of course, the German shipbuilding association is using it to claim subsidies (see e.g. Verband der deutschen Schiffbauindustrie e.V., 1984).

case at the end of the sixties/beginning of the seventies, when governments supported the large yards by investment assistance: Other shipbuilding countries had specialized in new ships and applied new production processes before, thus being able to react to new developments in demand of ships better than German yards. This was also the case in the second half of the seventies, when several additional programs in favour of the yards were introduced: The worldwide decrease in demand for ships had worked itself through to the employment level of German yards and new shipbuilding countries had become serious competitors. And, finally, this is the case in the present situation: A further decrease in the demand for ships and growing competition from developing countries are the causes of the present problems of the German shipbuilding industry and not subsidies of other countries.

In countries with levels of economic development comparable to the Federal Republic as the most West European countries, subsidies for shipbuilding are paid for the very same reason: The yards in these countries are under pressure caused by changing supply and demand conditions. But although the shipbuilding industries in these countries were protected, they were not able to stabilize production on the level of earlier years, not at all defending their position in the shipbuilding market as the cases of Sweden, France, the U.K., Denmark, Norway and the Netherlands show (see table 1 and A1). This is another strong indication that subsidies in other industrialized countries have not caused the problems of German shipyards. As far as protection of shipbuilding in countries like South-Korea, Brazil, Taiwan, or the People´s Republic of China is concerned, it may be true that state interventions have reinforced the competitive pressure on German yards. But they are irrelevant on the background of the real comparative advantage these countries have in shipbuilding activities.

Table 1A - Production of Seagoing Ships in the World and in Selected Countries (Thousand of Gross Registered Tonnage) 1960-1985

Year	World	Federal Republic of Germany	Denmark	France	Netherlands	Norway	Sweden	United Kingdom	Spain	Japan	Brazil	South Korea	Taiwan	People's Republic of China
1960	8 382	1 124	214	430	682	254	710	1 298	173	1 839	.	.	.	.
1961	8 058	1 038	191	543	467	333	736	1 382	146	1 719	.	.	.	.
1962	8 182	967	211	471	527	378	860	1 016	132	2 073	.	.	.	.
1963	9 028	1 051	294	505	461	366	969	1 096	114	2 269	.	.	.	.
1964	9 724	827	278	530	276	369	1 034	808	236	3 764	.	.	.	.
1965	11 764	1 035	209	486	148	460	1 266	1 282	225	4 886	20	.	.	.
1966	14 105	1 158	472	441	324	442	1 130	1 074	374	6 495	55	10	.	.
1967	15 157	1 041	425	420	292	530	1 361	1 188	375	7 217	11	6	.	.
1968	16 845	1 211	518	630	265	610	1 097	1 047	455	8 349	129	3	.	.
1969	18 739	1 787	591	691	486	618	1 263	828	637	9 168	65	7	.	.
1970	20 319	1 317	518	859	632	702	1 539	1 327	649	10 100	64	2	.	.
1971	24 387	1 968	728	1 086	572	884	1 864	1 233	830	11 132	136	16	98	.
1972	26 752	1 389	952	1 030	750	825	2 028	1 197	1 083	12 857	226	15	134	.
1973	30 410	1 926	1 004	1 170	852	984	2 290	1 067	1 319	14 751	168	14	1 034	.
1974	33 538	2 142	1 076	1 046	942	964	2 181	1 198	1 561	16 894	164	313	134	.
1975	34 200	2 499	969	1 150	1 028	1 052	2 188	1 170	1 593	16 991	295	410	103	.
1976	33 922	1 874	1 034	1 673	634	758	2 515	1 500	1 320	15 868	407	814	102	.
1977	27 532	1 595	709	1 107	240	567	2 311	1 020	1 813	11 708	380	562	303	.
1978	18 194	845	346	440	315	325	1 407	1 133	821	6 307	442	604	400	.
1979	14 289	437	263	720	277	364	460	691	630	4 697	665	495	200	.
1980	13 101	376	208	283	122	208	348	427	395	6 094	729	522	236	.
1981	16 932	703	352	502	173	310	453	213	780	8 400	716	929	305	34
1982	16 820	615	451	265	212	347	287	435	557	8 163	500	1 401	454	135
1983	15 911	798	444	308	232	182	328	497	501	6 670	259	1 539	334	175
1984	18 334	517	474	327	154	112	303	441	355	9 711	271	1 473	825	330
1985	18 157	562	458	200	180	122	201	172	551	9 502	581	2 620	272	163

Source: Lloyd´s Register of Shipping (various issues). - Verband der deutschen Schiffbauindustrie e.V. (various issues). - Own calculations.

Table A2 - Indicators of Ecnomic Performance of the Shipbuilding Industry in the Federal Republic of Germany 1960-1983

	Turnover		Employed Persons		Gross Investment in Fixed Assets		Gross Earnings per Hour		Return on Investment (a)	
Year	Million of D-Mark	In p.c. of Turnover in Manufacturing	Thousend	In p.c. of Persons in Manufacturing	Million of D-Mark	In p.c. of Investment in Manufacturing	D-Mark	for Comparison: Gross Earnings per Hour in Manufacturing (D-Mark)	p.c.	for Comparison: Return on Investment in Manufacturing (p.c.)
1960	2 556	1.0	94	1.1	80	0.5	2.89	2.89	1.96	11.53
1961	2 638	1.0	91	1.0	90	0.4	3.10	3.17	1.72	10.88
1962	2 419	0.8	88	1.0	80	0.4	3.54	3.53	-0.87	9.66
1963	2 518	0.8	82	0.9	100	0.5	3.72	3.79	-2.29	8.92
1964	2 589	0.8	78	0.8	130	0.6	4.17	4.15	-0.38	9.70
1965	2 589	0.7	79	0.8	140	0.5	4.60	4.54	-3.33	9.74
1966	2 983	0.8	78	0.8	160	0.6	4.93	4.84	-3.62	8.69
1967	2 982	0.8	75	0.9	110	0.5	5.25	4.99	0.88	8.41
1968	2 895	0.7	75	0.8	120	0.5	5.39	5.18	-4.58	9.81
1969	2 859	0.7	76	0.8	110	0.3	5.93	5.71	-5.27	10.50
1970	3 513	0.6	76	0.8	130	0.3	6.59	6.49	-5.08	10.05
1971	4 441	0.7	75	0.8	140	0.3	7.36	7.25	-3.93	9.40
1972	4 544	0.7	72	0.8	140	0.3	7.99	7.89	1.28	8.82
1973	5 546	0.8	71	0.8	170	0.4	8.91	8.76	5.99	9.23
1974	6 398	0.8	73	0.8	340	0.9	9.99	9.68	4.14	8.85
1975	7 182	0.9	73	0.8	420	1.1	10.65	10.40	9.57	7.61
1976	7 393	0.8	71	0.8	280	0.7	11.28	11.08	5.70	8.97
1977	7 541	0.8	68	0.8	190	0.4	12.16	11.89	3.66	8.93
1978	6 492	0.7	63	0.7	210	0.5	12.84	12.52	-2.40	9.06
1979	4 485	0.4	58	0.7	250	0.5	13.59	13.25	-3.54	9.65
1980	5 161	0.4	58	0.7	210	0.4	14.57	14.16	-4.24	7.23
1981	6 718	0.5	58	0.7	200	0.3	15.28	14.94	-2.48	6.86
1982	7 719	0.6	60	0.7	260	0.5	16.10	15.66	0.76	7.59
1983	8 550	0.7	55	0.7	250	0.4	16.64	16.23	-9.18	9.46

(a) entrepreneurial income and property income in p.c. of gross fixed assets in prices of 1976

Source: Statistisches Bundesamt (a). - Statistisches Bundesamt (b). - Own calculations.

REFERENCES

ARBEITSGEMEINSCHAFT WERFTGUTACHTEN 1970, Gutachten über die Lage der deutschen Werftindustrie im Auftrage des Bundesministeriums für Wirtschaft. Hamburg, Gummersbach und Düsseldorf, 1972.

BUNDESHAUSHALTSPLAN FÜR DAS HAUSHALTSJAHR, Berlin, various issues.

DER BUNDESMINISTER FÜR WIRTSCHAFT, Schiffbaupolitik der Bundesregierung, Bundestagsdrucksache V/3290, Bonn 1968.

DEUTSCHER BUNDESTAG, Bericht der Bundesregierung über die Entwicklung der Finanzhilfen und Steuervergünstigungen gemäß § 12 des Gesetzes zur Förderung der Stabilität und des Wachstums der Wirtschaft (StWG) vom 8. Juli 1967, Subventionsbericht. Bonn, various issues.

HAUSHALTSPLAN FREIE HANSESTADT BREMEN, various issues.

HAUSHALTSPLAN DER FREIEN UND HANSESTADT HAMBURG FÜR DAS HAUSHALTSJAHR, various issues.

HAUSHALTSPLAN DES LANDES NIEDERSACHSEN, various issues.

INSTITUT FÜR SEEVERKEHRSWIRTSCHAFT UND -LOGISTIK and TREUARBEIT AKTIENGESELLSCHAFT WIRTSCHAFTSPRÜFUNGSGESELLSCHAFT STEUERBERATUNGSGESELLSCHAFT, Untersuchung von Maßnahmen zur mittel- und langfristigen Sicherung sowie zur kurzfristigen Stabilisierung einer leistungsfähigen, auslastbaren Werftkapazität in der Bundesrepublik Deutschland vor dem Hintergrund der finanzierbaren nationalen und internationalen Nachfrage. Gutachten im Auftrage der Bundesländer Bremen, Hamburg, Niedersachsen und Schleswig-Holstein. Hamburg und Bremen, 1986.

JÜTTEMEIER, Karl Heinz, Deutsche Subventionspolitik in Zahlen 1973-1981. Anlagenband zum zweiten Strukturbericht des Instituts für Weltwirtschaft, Kiel, 1984.

JÜTTEMEIER, Karl Heinz, Subsidies in the Federal Republic of Germany, Kiel, 1986 (unpublished paper).

KREDITANSTALT FÜR WIEDERAUFBAU, Bericht über das Geschäftsjahr 1980, Frankfurt am Main, 1981.

LAMMERS, Konrad (1984a), Mehrfachsubventionen (EG, Bund, Länder, Gemeinden, Sondervermögen, KW, LAB) - Generelle Problematik, Fallstudien und Vorschläge zum Abbau. Endbericht zu einem Forschungsauftrag des Bundesministers für Wirtschaft, Kiel, 1984.

LAMMERS, Konrad (1984b), Subventionen für die Schiffbauindustrie, Kiel Working Paper 211, Kiel, 1984.

LANDESHAUSHALTSPLAN SCHLESWIG-HOLSTEIN FÜR DAS HAUSHALTSJAHR, various issues.

LANGER, Jürgen, Subventionierung der deutschen Werftindustrie. Ziele und Auswirkungen, Hamburg, 1974.

LLOYD´S REGISTER OF SHIPPING, Annual Summary of Merchant Ships Completed in the World, London, various issues.

MATTHÖFER, Hans, "Die Werftsituation aus der Sicht der Bundesregierung". Hansa, 115, Jahrgang 1978, Nr. 6, S. 461 ff.

ROTHER, Detlef, The Restructured West European Shipbuilding Industry, Bremen, 1985.

STATISTISCHES BUNDESAMT (a), Fachserie 16: Löhne und Gehälter, Reihe 2.1: Arbeitsverdienste in der Industrie, various issues.

STATISTISCHES BUNDESAMT (b), Fachserie 18: Volkswirtschaftliche Gesamtrechnung, Reihe 1: Konten und Standardtabellen, various issues.

UNABHÄNGIGE SACHVERSTÄNDIGENKOMMISSION zur Überprüfung der Subventionen im Haushalt des Landes Schleswig-Holstein, Abschlußbericht, Kiel, 1984.

VERBAND DER DEUTSCHEN SCHIFFBAUINDUSTRIE, Die Subventionierung des Schiffbaus in den Konkurrenzländern, Hamburg, 1982.

VERBAND DER DEUTSCHEN SCHIFFBAUINDUSTRIE E.V., Deutscher Schiffbau im Jahre, Hamburg, various issues.