

# Appendix 1: The effects of the oil price shocks on shipbuilding in the 1970s

*Hugh Murphy and Stig Tenold*

This small chapter attempts to give the reader an appreciation of the effects of the two oil price shocks on the market for ships. We address changes both on the demand side (shipping) and the supply side (shipbuilding) in the 1970s and early 1980s. It is not, however, an exhaustive explanation but an indicative one.

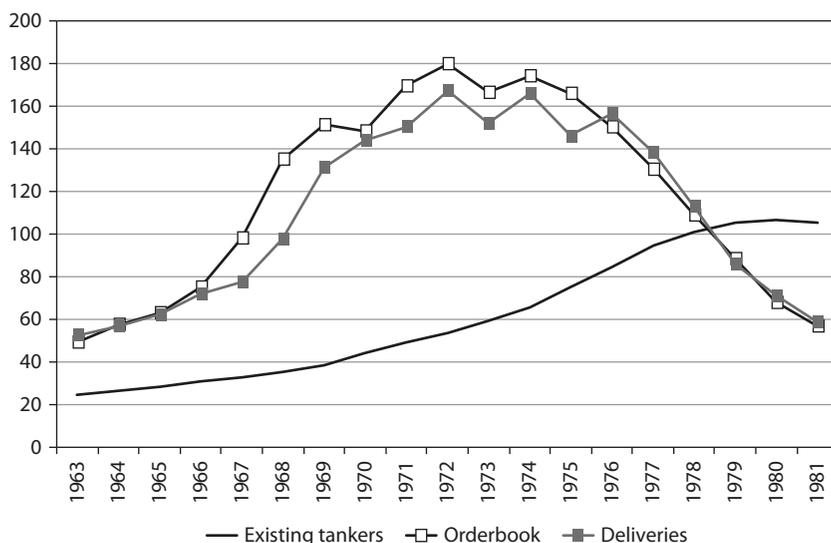
In the 1950s and 1960s the search for economies of scale led to increased demand by shipowners for larger and larger tankers. From 1967, with the closure of the Suez Canal consequent on the Arab-Israeli war and its continuing non-use to 1975, this trend accelerated, as vessels now had to take the far lengthier route around the Cape of Good Hope.<sup>1</sup> A dearth of shipbuilding capacity led to an increase in newbuilding prices, motivating speculative demand. Some VLCCs were sold immediately after they had been completed at a considerable premium to the price originally contracted for, while other contracts were even sold at a profit before the building of the ship was finished.

The quest for economies of scale had important implications for the shipbuilding industry. The average size of the vessels on order more than trebled in the decade after 1962. Shipyards had to adjust to this, only to see the development stagnate, then reverse, after the 1973-1974 oil price increase. This is undoubtedly one of the roots of the crises in shipping and shipbuilding. Figure A.1.1 shows the growth in the average size of tankers ordered in the 1960s and first half of the 1970s, and the drastic reduction in average size after the freight market broke down.

The hump-like properties of the orderbook and deliveries in Figure A.1.1 are echoed in – and partly explained by – the development of the demand for oil transport. Again, strong growth in the 1960s was followed by stagnation, then by an absolute decline from the last part of the 1970s onwards.

<sup>1</sup> A tanker sailing from Bombay to London via the Suez Canal travelled roughly 6,200 nautical miles. The same tanker taking the Cape of Good Hope route travelled 10,800 nautical miles.

**Figure A.1.1 Average size of existing tankers, deliveries and orderbook 1963-1981 (1000 dwt)**

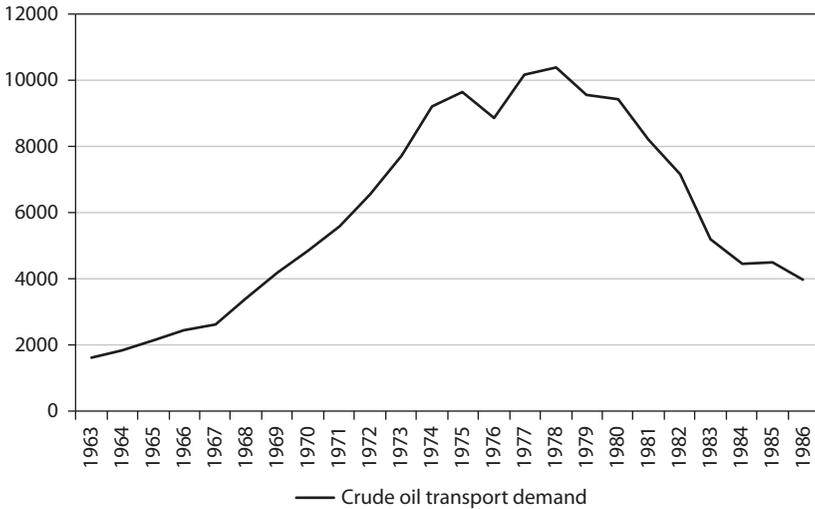


Source: Based on dwt-figures for oil tankers from Fearnley and Eger, *Review*, various issues

The basis for the breakdown of the tanker freight market was the Organization of the Petroleum Exporting Countries (OPEC)<sup>2</sup> price hikes of 1973-74, with its associated embargoes following the Yom Kippur War. These eventually led to a tripling and then quadrupling of the price of a barrel of crude oil.<sup>3</sup> The price increase had profound effects on the demand for shipping and shipbuilding and on Western economies as a whole, which were plunged into recession. The effects were further compounded by another rise in the oil price in 1979-80. Then, hoarding of oil as a result of

2 OPEC was created at the Baghdad conference on 10-14 September 1960 by five founder member countries: Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. They were later joined by Qatar (1961), Indonesia (1962), Libya (1962), United Arab Emirates (1967), Algeria (1969), and Ecuador (1973). OPEC was originally headquartered in Geneva but moved to Vienna on 1 September 1965. Its formation was a direct challenge to the then hegemonic position of the seven oil majors. OPEC's original rationale was to co-ordinate and unify petroleum policies among member countries, with the aim of giving a fair return on capital. Before the concerted actions in late 1973 and early 1974, the organisation did not succeed in acting as a cartel.

3 The posted price increased from USD \$3.011 per barrel up until 16 October 1973 to USD \$11.651 per barrel after 1 January 1974: OPEC, *OPEC 1989 Statistical Bulletin*, 126-127.

**Figure A.1.2 Crude oil transport demand 1963-191985 (bn ton-miles)**

Source: Based on ton-mile figures for crude oil from Fearnley and Eger, *Review*, various issues

the Iranian Revolution, which deposed the shah of Iran, pushed oil prices even higher.<sup>4</sup> As Daniel Todd put it:

Upsurges in oil prices in 1973 and 1979 ... also sufficed to scuttle the oil carrying trades. From an unprecedented boom in 1973, the tanker market slid into the depths of a Stygian slump.<sup>5</sup>

At the beginning of 1973 ships that could transport oil – tankers and combination carriers – made up more than 80 per cent of the orderbook, and during the year the share jumped to more than 85 per cent.<sup>6</sup> Then new orders for tankers and combination carriers more or less dried up – the share of new orders fell to around a fifth in 1975, 1976, and 1977.

In the aftermath of the first oil price hike, between the end of 1974 and the beginning of 1976 some 50 mn dwt of world tanker tonnage on order was summarily cancelled – a figure which reached 60 mn dwt by 1977.<sup>7</sup>

4 In the twelve months following the Iranian Revolution, the price of a barrel of crude oil rose from an average of USD \$16 per barrel to just under USD \$40 per barrel.

5 Todd, *Industrial Dislocation*, 4.

6 Based on dwt figures from Fearnley and Eger, *Review*, various issues.

7 Beth, Hader, and Kappel, *25 Years of World Shipping*, 36, and OECD, *Maritime Transport, 1976*, 80.

**Table A.1.1 Annual volume of orders placed and annual completions 1970-1976 (mn grt)**

Year	Volume of orders placed	Completions
1970	41.03	20.98
1971	29.64	24.39
1972	30.36	26.75
1973	73.60	30.41
1974	28.37	33.54
1975	13.79	34.20
1976	12.94	33.09

Source: *Lloyd's List* Statistical Reports, various years

The effects of the crisis lasted longer than anticipated, and by 1978 there was more than 30 per cent oversupply of tanker tonnage. With the second oil price hike of 1979 the situation worsened, and by 1982 more than 60 per cent of the tanker fleet was surplus to demand.<sup>8</sup> In that year, demand for tanker shipping was slightly lower than it had been in 1970, but over the same period the tanker fleet had increased by almost 150 per cent.<sup>9</sup> Table A.1.1 shows the immediate effect of the oil crisis on the annual volume of orders placed, with completions exceeding new orders by 1974.<sup>10</sup>

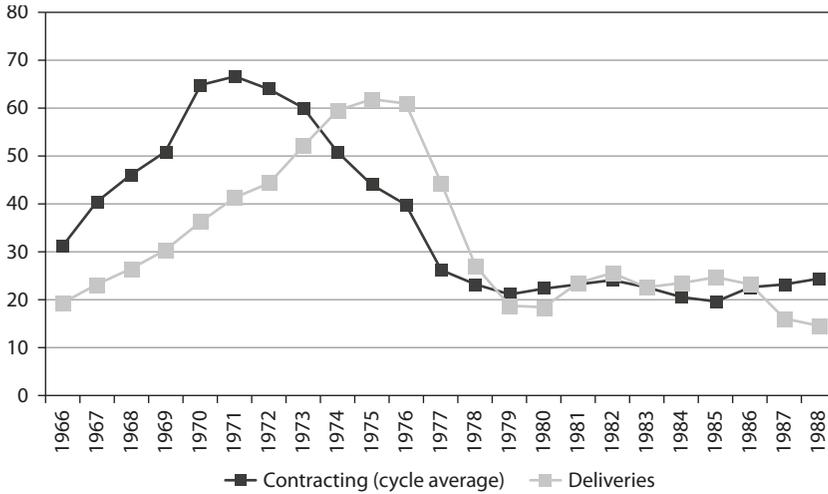
The shipbuilding industry had experienced a latent demand surplus throughout the first post-war decades, leading to a substantial increase in the volume of outstanding orders. The industry responded as expected – by increasing capacity. Ironically, when the production capacity reached the scale needed to fulfil the anticipated demand, the new orders collapsed. Figure A.1.3 shows the gap between new orders and deliveries in the second half of the 1960s. By 1973 shipbuilding production capacity had increased to more than 60 mn dwt – more or less exactly the average annual ordering over the five previous years. From the following year onwards, the demand for new ships collapsed.

Again, the shipbuilding industry response lagged – the decline in new orders fell faster than the industry could adjust its capacity. However, by the early 1980s a new equilibrium was reached, at around the half of the level from the early 1970s.

8 Todd, *Industrial Dislocation*, 5.

9 Tenold, *Tankers in Trouble*, 86.

10 For a more expansive introduction to the shipping crisis, see *ibid*, *passim*.

**Figure A.1.3 New orders (seven-year average) and deliveries 1966-1988 (mn dwt)**

Note: In order to neutralise the effect of the variations along the shipping cycle, the contracting figures are presented as seven-year average, corresponding to the “rule-of-thumb” size of the cycle.

Source: based on dwt-figures for world contracting and world deliveries from Fearnleys, *Review*, various issues

There were also lag effects affecting both shipowners and shipbuilders,<sup>11</sup> but the latter were potentially the hardest-hit, as they tended to be the bigger firms in the industry with many orders in hand – simply because of the size of the product – and had oriented their productive resources, particularly steel output and plant and equipment towards VLCC construction.<sup>12</sup> Although there was a short-term inelasticity of demand for oil, the crisis hit relatively quickly, shipbuilders were left to finish contracts, which were

11 The lag between contracting and delivery when shipbuilders had large orderbooks led to a rise in the tanker fleet post-OPEC. Shipowners were also slow to adapt to oversupply as cyclical downturns, usually of short duration, had always been a feature of the market and, by the time that all concerned realised that expected growth had failed to materialise, the difficulty of adapting supply to changed market circumstances was apparent.

12 This was particularly true in the UK case where its three largest shipbuilders and employers, Swan Hunter on the Rivers Tyne and Tees, Scott Lithgow on the Lower Clyde, and Harland and Wolff at Queens Island, Belfast, all made disastrous entries into the VLCC and ULCC market in a period of intense international competition. All were hit badly by cancellations and legal wrangling post-OPEC and by the collapse of Maritime Fruit Carriers, originally an Israeli reefer company, which had moved into VLCC tankers on a speculative basis and had gone bust in 1976, when its orders comprised some 35 per cent of all work in UK shipyards. By the time the industry was nationalised in July 1977 all three firms were basically bankrupt.

semi-finished or fitting-out, or on which steel had already been ordered with no other alternative for its use. Shipowners found it easy – but expensive – to cancel contracts not yet begun. Usually the penalty was around 10 to 20 per cent of the contract price, but in some cases the yards demanded as much as two-thirds of the price.<sup>13</sup> As receiving a superfluous vessel would be even more costly, shipowners were willing to pay substantial cancellation fees. One Norwegian company paid a cancellation fee of around USD \$20 mn for a tanker on order in Germany, but “[d]espite the size of the amount, this loss can, in hindsight, be regarded as a good investment in the continuing existence of the company”.<sup>14</sup>

Some owners were left in a dilemma when construction was at an advanced stage, with no real prospect of a charter. Many refused delivery of vessels, dragging out contracts by picking faults, which would have been largely ignored if lucrative charters had been forthcoming. Such legalistic wrangling had always been a feature of the shipbuilder-client relationships and, as such, contracts were far more tightly drawn up than in the past to compensate. An alternative for shipowners was to lay up tonnage to save on operating costs, or, alternatively, to use it for storage of oil, but both options had cost implications.<sup>15</sup> Many of the tankers still operating reduced speed to conserve fuel following the increase in the cost of bunkers; in the latter half of the 1970s such “slow steaming” absorbed a larger share of the surplus than laid-up ships.<sup>16</sup> As the shipping crisis intensified it was not uncommon for laden tankers to anchor off land-based terminals for unspecified periods. This allowed oil companies to supplement their storage capacity in line with market movements.<sup>17</sup>

From 1974 onwards, shipbuilders’ rationale was to get VLCCs off their premises as quickly as possible in order to mitigate the effects of increasing inflation, as many of these contracts had been taken on at fixed prices, given the increasing competition in this market. In 1974 and 1975 the amount of tanker tonnage completed and delivered reached record levels and more

13 Letter from a Norwegian shipowner, dated 24 November 1975, in Archives of Norges Rederiforbund, folder 6B K 75 – Krisen 1975/IV/011075-301175.

14 Nerheim and Utne, *Under samme stjerne*, 250.

15 According to OECD, *Maritime Transport*, 1976, para. 221. The cost of laying up a VLCC might be as much as USD \$75,000 per month, and the one-off cost of preparation or of site acquisition could be in the region of USD \$700,000.

16 Tenold, *Tankers in Trouble*, 79. Slow steaming is undertaken when the fuel cost savings are higher than the profits foregone in additional voyages.

17 In 1978, 5 mn dwt of tanker capacity was used for storage purposes off the coast of Japan: see Fearnley and Eger, *Review*, 1978, 38.

**Table A.1.2 Annual tonnage launched in selected countries, 1975-1983 (000 grt)**

Year	Japan	South Korea	West Germany	Brazil	Sweden	UK	World
1975	17,987	441	2,549	389	961	1,304	35,897
1976	14,310	689	1,792	426	957	1,341	31,047
1977	9,943	455	1,390	572	360	1,119	24,167
1978	4,921	424	600	698	360	813	15,407
1979	4,317	479	385	467	229	610	11,788
1980	7,288	629	462	615	227	244	13,935
1981	8,857	1,229	669	549	364	339	17,066
1982	8,247	1,530	722	455	434	528	17,290
1983	7,071	1,201	651	359	525	527	14,888

Source: Lloyd's Register Statistical Reports, various years

than 40 mn dwt was delivered in 1976. An alternative strategy was to convert tanker newbuildings contracts to dry bulk or general cargo carriers, though these types of tonnage in terms of cost per ton were more expensive than VLCCs. In 1975 alone, around 10 mn dwt of tanker tonnage was converted to other ship types, and according to Fearnley and Eger in 1977 a figure of 15 mn dwt was registered as conversions.<sup>18</sup>

The tonnage conversion, as well as the redeployment of combination carriers from wet to dry markets, combined with the general recession to give a surplus of ships outside the tanker sector as well.<sup>19</sup> The end result was a rapid deterioration of new orders, in spite of a subsidy race to ensure that the shipbuilding capacity was utilised. The biggest subsidies came in the countries that were the least competitive; the Swedish Guarantee Fund, for example, offered public money to lend as much as 75 per cent of the value of vessels that shipyards built for stock, i.e. ships for which no orders had been received.<sup>20</sup>

Shipbuilders in many countries experienced a marked diminution in demand for new ships as lack of demand and overcapacity of supply predominated in a period of intense international competition. Table A.1.2 gives an indication of the drop in demand in four established shipbuilding

18 Fearnley and Eger, *Review*, 1976, 5.

19 In 1972 less than 20 per cent of combination carriers operated in the dry bulk market; by 1981 the corresponding figure was more than 75 per cent. The combination carriers increased the supply of dry bulk tonnage by around 25 per cent, with the evident effect on freight rates – and newbuilding demand – in this market; data from Fearnley and Egers, *Review*, various issues, Tables 3 and 15.

20 Stråth, "Industrial Restructuring in the Swedish Shipbuilding Industry", 233.

**Table A.1.3 Employment in newbuildings of merchant ships in five countries, selected years**

Year	UK	West Germany*	Sweden	Netherlands	Japan
1975	48,000	47,000	25,000	21,000	256,000
1980	25,000	25,000	12,000	10,000	164,000
1985	13,000	22,000	6,000	6,000	134,000
1990	6,000	15,000	553	4,000	89,000

Note: \* Excludes the former East German shipyards. In 1990 these had 19,000 employees.

Source: De Voogd, "Public Intervention and the Decline of Shipbuilding in the Netherlands", 252

countries, Japan, West Germany, Sweden and the UK and in two new entrants, South Korea and Brazil. The sheer scale of the drop – in addition to the relocation of the remaining production – indicates an industry going through seismic changes.

In 1975, the leading shipbuilding nation, Japan, launched just over 50 per cent of the world total; by 1983, it was 47.5 per cent, with large fluctuations in demand in between necessitating a drop in full-time employment and a concomitant rise in a part-time and sub-contracted workforce. By this stage, both the UK and Sweden had nationalised from 1977 their shipbuilding industries to preserve employment. In both countries, market realities, particularly the trend shift of shipbuilding production to the Far East with South Korea, by this stage the major competitor,<sup>21</sup> made nationalisation an expensive gamble. It was one that both countries ultimately lost, with serious effects on employment and the loss of merchant shipbuilding capacity.<sup>22</sup> Table A.1.3 gives an indication of the long-term effects of the shipping crisis on employment levels in five established shipbuilding nations.

Over the period 1975 to 1990 British shipbuilding retained just 13 per cent of the workforce employed in 1975. Corresponding percentages for West Germany, Sweden, Netherlands, and Japan are 32, 2, 19 and 35 per cent respectively. Over the period, Sweden experienced a precipitous drop in employment of 98 per cent, and Japanese shipbuilding lost far more

21 For this, see Bruno and Tenold, "The Basis for South Korea's Ascent in the Shipbuilding Industry".

22 See Johnman and Murphy, *British Shipbuilding and the State Since 1918*. For the consequences of state intervention and the impact on shipbuilding firms in four established shipbuilding nations, see Berggren, "The Effects of the Shipbuilding Crisis in Malmö", Devos, "The Belgian/Flemish Shipbuilding Industry", Johnman, "Public Intervention and the Hollowing-Out of British Shipbuilding", and de Voogd, "Public Intervention and the Decline of Shipbuilding in the Netherlands".

employees than the other four nations combined. Many of these losses had resulted from planned redundancies, shipyard closures, and rationalisation of production through mergers. Still, what ultimately determined the scale of job losses after the oil crises of the 1970s despite the high levels of government subsidies was the market, and which nations had the financial resources and the willpower to remain in merchant shipbuilding and to deal with oversupply and cutthroat international competition. Nevertheless, as the Swedish and UK cases show, government largesse by taking the industries into public ownership for employment reasons was not sufficient to ensure their survival.<sup>23</sup>

23 For the losses involved in the British case under public ownership, see Johnman and Murphy, *British Shipbuilding and the State Since 1918*, 240.

