

# A Research Strategy for an Analysis of the Link Between Government Actions and Industrial Development in Japan: The Case of the Oil Industry

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## 1. Introduction

The phenomenal economic growth of postwar Japan has attracted varying degrees of attention from the general public and mass media. At the same time, interest in many different academic circles has grown. Both Japan specialists and comparativists have attempted to offer an account of why and how the Japanese economy has grown so much and so fast. Some cite Japan's industrial policy as one of the major causes of the spectacular growth which the resource-poor country has achieved. Yet, there is no agreement as to what the contribution of industrial policy has made on economic or industrial development.<sup>1</sup>

The industrial policy of Japan has been examined by students of both politics and economics. Most studies carried out by students of politics tend to be descriptive and are primarily concerned with explaining how government policy is made, who the key players are, and what the characteristics of the relationship between the government and business (or industry) are.<sup>2</sup> Generally, political scientists are primarily concerned with policy-making processes or the behavioural or power relationship between governmental actors and industry rather than with policy impact analysis or market constraints on government policy.

On the other hand, economists tend to focus on capital, labour, technology, economies of scale and other factors of production which affect economic growth. They are mainly concerned with the question of *how* rather than *why* the Japanese economy has grown and pay more heed to factors of production rather than referring to government policy.<sup>3</sup> Those who are concerned with the question of *why* often include in their analysis the impact of government policy on industry.<sup>4</sup> Their analysis, however, tends to treat government policy as being given as the independent variable, and overlooks the issue of how and by whom a policy is formulated. Most economic studies of industrial policy are preoccupied with the analysis of the gap between policy goals and economic or industrial changes as if these changes have been brought about by public policy. Economists tend to neglect an examination of the socio-political determinants of policy, and more importantly, the actual linkage between government actions and economic and industrial growth. In short, economic studies tend to be good at the analysis of what policy goals the government has set, and to what extent these goals have

been achieved regardless of the role the government has actually played in bringing about these changes. In order to establish the link between policy and economic and industrial change, it is essential to incorporate an analysis of the way the government affects the economy or industrial development.

Current studies of the Japanese political economy have two major shortcomings. One is the lack of integration between politics and economics. Political studies have made little attempt to empirically demonstrate the link between government policy and economic or industrial development, whereas economic studies seldom attempt to account for policy input and decision-making processes in their analysis of the role of government in the economy. In order to explain and understand the role of the government in the management of the economy, a new perspective is required: one which establishes the relationship between government policy and industrial and economic development, and by integrating the findings offered by both politics and economics.

The other major shortcoming of current research is that many studies have generalised the Japanese political economy without critically analysing the limits imposed by their approaches or the case studies which they have employed. On the one hand, studies carried out at the macro (national) level have generalised findings without detailed reference to various industrial sectors and individual cases. There may be many exceptions to their generalisation. On the other hand, many studies at the micro-level, i.e. case studies, have a tendency to extend their findings to the macro-level often beyond the scope of their studies. To date, little attempt has been made to establish the relationship between government policy and industrial and economic development in a systematic fashion.

These weaknesses in the study of the Japanese political economy are reflected in the fact that despite the increasing number of studies, there is still no agreement on what role the government has played in economic processes or what impact the government has made on industrial and economic development. As a result, markedly differing characterisations of the Japanese political economy have emerged. The economy has been labelled by different studies as a "plan rational" (as against "market rational") state, a "developmental state," a "network state," a "corporatist-without-labour state," "scattered pluralism," "bureaucratic inclusionary pluralism," "LDP-bureaucracy complex-directed pluralism (canalised pluralism)," "compartmentalised competition," "guided free enterprise," "state-directed capitalism," or "creative conservatism."

Against this background, this paper attempts to present a research strategy which will establish the link between government actions and industrial development. It aims to put forward an approach for this purpose, operationalising the concept of industrial development. The major assumption of this approach is that industrial development results from intricate interactions between government actions (or lack of such actions) and steps taken by the private sector in the market. In particular, it advocates that a comparative case study will be useful in demonstrating the differences which government actions might have made in industrial development. Employing the case of the oil industry, it assesses the usefulness of

the research strategy developed in the study of the government in the management of the economy in postwar Japan. The case study may demonstrate that the current situation of the oil industry is a result of complex interactions between government action and decisions made by oil companies in the rapidly changing international and domestic oil market. It is hoped that the case will illustrate that the analysis of industrial development requires an integrative approach between political science and economics, as it is neither politics nor economics alone but both political and economic forces which have shaped the oil industry as it stands today.

Analytical focus on the oil industry as a critical case study can be justified by the fact that oil plays a vital role in the Japanese economy. Roughly half the energy produced by oil is used by the industrial sector rather than by the transport or residential sectors. Oil supplies nearly 60 percent of primary energy sources. As almost 100 percent of oil is imported from abroad, the management of oil supply and demand is highly important for the management of the Japanese economy. Experiencing two major oil crises in the 1970s, the Japanese government has been making considerable efforts in the management of energy requirements.

Though the oil industry consists of both up — and downstreams,<sup>5</sup> the main focus of the discussion will be placed on the latter, in particular, the oil refining and distribution sectors because in Japan, partly as a result of the Occupation policy and partly owing to the lack of investment capital and indigenous oil resources, the postwar oil industry has developed mainly along the downstream line rather than as integrated oil firms.<sup>6</sup>

## **2. “Back to the Market”**

The market is formed when sellers and buyers or producers and consumers of goods and services execute a transaction contract for a certain amount of goods and services at prices mutually agreeable. In simple terms, the market is where the forces of demand and supply meet through a pricing mechanism. It is one of the most fundamental concepts in contemporary economics because in an ideal “free market,” the market is the system through which resources are allocated in the most efficient way.

In the market, the government can be both a seller and a buyer or a producer and a consumer. It is the seller of many public goods such as education, medical care, defence, to name a few. At the same time, it is the buyer of labour forces, land, technology and many other commercially produced goods and services, so as to provide public goods. In many cases, there may be no directly quoted prices for public goods and services. Yet, the buyers of these government services and public goods have to pay in kind, often collectively, through tax, or individually, in the form of users’ fees. Sometimes, the government may provide “free services” to the current generation, circulating debts. This means, however, that the government has decided to let future generations pay for the current services and public goods which it provides now. In many ways, then, the government can be regarded as a player in the market.

At the same time, the government can be neither a producer nor a consumer in a market but it can still influence the demand and supply of commercially traded goods in the market. For instance, it banned the opening of petrol stations on Sundays at the time of the oil crisis in 1973 and attempted to reduce oil supply by eliminating access to petrol among possible buyers. From time to time, the government has raised taxes on, for example, tobacco and cigarettes, or sales tax on other goods and services so as to increase its revenue. Such rises in taxes are most likely to decrease consumption or demand for such products as some people may buy less or give up buying altogether. These government measures are not "market displacing." Yet, these actions i.e., resource allocation, can affect the market profoundly, and therefore require due attention for research inquiry.

If the study of political economy is concerned with "Who Gets, What, When, How"<sup>7</sup> then, no student of politics can ignore the fundamental system of resource allocation called the market. An analysis of the interaction between the government and the market must be one of the central research agendas of the political economy. Unfortunately, such analysis is one of the most neglected areas in the field.

In the study of the Japanese political economy as well, the students of politics have not focused much on the market mechanism, particularly towards the interplay of the forces of demand and supply and the associated pricing mechanism. This is possibly because many students of Japanese politics have been largely concerned with other important politico-legal issues or the questions of defence and foreign policy. Even the more recent studies of the Japanese political economy have not placed analytical focus on demand and supply issues or pricing issues in the market. Shift to market is critical not because the government is no longer important but because the market plays a crucial role in resource allocation and, therefore, is key to an understanding of our economic and political activities.

It is a basic contention of this study that any assessment of the role and relative power of the government is incomplete without an examination of the link between government policy and the market.

### **3. The-Level-of-Analysis Problems in the Japanese Political Economy**

The link between the government and the economy can be analysed in many different ways. As the economy consists of a set of industries, one way to study the link is to investigate the co-relationship between government actions and the development of industrial sectors. This can be carried out at many different levels, including the national macro-economic, sectoral, organisational or individual levels as well as at the international level. This is, at least, theoretically possible, because the national economy can be treated as one national system, as well as a subsystem of the international economy. The national economic system can be broken down into its subsystems, at such levels as industrial sectors, companies, or individuals. These levels roughly correspond to the major subfields of economics namely, international, macro-, industrial and micro-economics. At each level, it is

possible to develop a research design through which one can examine interactions between the government and market.

The national political economy itself is a highly complex system. Possibly for this reason, many pioneering studies, while successful in describing what policy the government has developed and why, have not succeeded in establishing the exact link, if any, between government policy and economic growth. Hence this study advocates a shift of analytical focus, from the macro to more micro-level.

As the sectoral level can provide a convenient 'meso-level,' which connects the macro and micro-levels of analysis,<sup>8</sup> one of the recommendations of this study is an empirical focus on the sectoral level. This focus on an industrial sector does not necessarily exclude an analysis of industrial organisations, firms or individuals, as they are subsystems of an industrial sector. Nor does this automatically exclude an analysis of the national system, either, since an industrial sector itself is a subsystem of the national economy. By integrating the study of the development of many different industrial sectors, one may be able to explain the nature of the Japanese political economy, including the causes of economic development and the role which the government has played in it.

#### **4. Industrial Development as a Key Analytical Concept**

Central to this study is the concept of 'industrial development.' Unless this is quantitatively measurable or qualitatively identifiable, it is difficult to establish the direct link between government actions and the development of industrial sectors. The key term, 'industrial development' can be defined as changes and continuities in the 'growth,' 'structure' and 'performance' of an industry. These are three major dimensions of industrial development and each of these dimensions can be broken down into sub-dimensions which can be measured in a number of ways.

Industrial 'growth' (or 'de-growth') can be defined as increases (or decreases) in production output or revenue over time. One may also add many other dimensions, such as changes in assets. Or if it is a labour intensive industry, it may be sensible to add the number of workers as a major indicator of industrial growth. In the case of the oil industry, an example of the most capital intensive, but not labour intensive industries, the use of the number of workers may not be a good indicator of industrial growth. When one totals production outputs, revenues, assets or number of workers of all the firms in one sector, one can calculate the aggregated sum of this industrial sector. When one totals the sum of every industrial sector in the economy, one can obtain the total figure in the national economy. By doing so a comprehensive picture of national industrial development will emerge.

Industrial 'structure' also has many important dimensions. Included here are two structural characteristics. One is simply the number of firms in a particular industrial sector, and the other, their relative power in the market. The latter can be measured in terms of relative sales share among the various companies which constitutes the market. Hence,

'structural changes' can be defined as changes in the number of firms and their relative market share.

If there is only one firm in the sector, there exists a monopoly market as in the case of the tobacco industry, or until recently, domestic or international telephone and telegraph industries in Japan. Unless the prices of their products and services are regulated by the authorities, there is a high possibility that consumers are overcharged and the company makes unusually high profits. If the sector consists of only a few major firms, which implicitly or explicitly coordinate their production outputs or pricing, so as to maximise profits, then there is an oligopoly market. As there is little competition among the firms in an oligopoly market, consumers may be unfairly charged. If there is more than one firm competing against another in the market, however, then prospects for intense competition between them are high, and this is viewed as positive for efficient demand-supply management (or efficient allocation of resources), and the resultant benefits for consumers according to classical economic theory. In many economies, the government legislates an anti-monopoly law and regulates market concentration and coordination among firms in various sectors to increase competition and efficiency, and to protect consumer interests.<sup>9</sup>

The 'performance' of an industry can be measured in terms of its profitability or financial health through many quantifiable variables. Among them are profit/sales ratio, profit/capital ratio, self capitalisation ratio, or simply dividend. Of these, profit/sales ratio is trading profit/turnover as expressed as a percentage. Faced with competition, management may set a relatively low margin, so as to increase market share. Sometimes, it may decide to accept a low margin so as to meet the initial investment cost of business expansion, including production facility investment, purchase of new technologies or launching of a new product. In general, however, low margin means poor performance.

Profit/capital ratio is sometimes called return on capital employed (ROCE) and this is also expressed as a percentage. According to Geoffrey Holmes and Alan Sugden, ROCE is often regarded as the most important indicator of profitability for the following reasons:

- (a) A low return on capital employed can easily be wiped out in a downturn.
- (b) If the figure is lower than the cost of borrowing, increased borrowings will reduce earnings per share (e.p.s.) unless the extra money can be used in areas where the ROCE is higher than the company's average.
- (c) It serves as a guide to the company in assessing possible acquisitions and in starting up new activities — if their potential ROCE isn't attractive, they should be avoided.
- (d) Similarly, a persistently low ROCE for any part of the business suggests it could be a candidate for disposal if it isn't an integral part of the business.<sup>10</sup>

Self capitalisation ratio (SCR) is a gearing ratio widely used in Japanese financial analysis, and is defined as the ratio derived from the following equation:

$$\text{SCR} = (\text{ordinary shares} + \text{reserves} - \text{goodwill}) / (\text{total capital employed})$$

The total capital employed includes loan capital and bank overdrafts. Thus, SCR is different from debt/equity ratio, which is borrowings/shareholders' funds or 'leverage' in American financial analysis. However, SCR, debt/equity ratio, or 'leverage' are all concerned with the proportion of capital employed, which is borrowed in relation to the proportion based on shareholders' fund.

Finally, dividend does not require much elaboration. This is investment return for shareholders who take higher financial risks than the providers of subordinated debts and secured loans. It is often argued, however, that Japanese companies are less concerned with constantly paying relatively high dividends at bad times. They tend to cut dividends in order to maintain the system of long time employment rather than making their employees redundant. For example, Masahiko Aoki argues that "In neo-classical economics, the 'firm' is identified with the entrepreneur, who performs the dual function of control and risk taking." He elaborates further that "In the modern context, 'entrepreneur' is usually taken to mean the shareholders, who exercise ultimate control over corporate affairs by selecting managers and take the uncertain residual income of the firm after the payment of contractual rewards to other factors of production," including labour. In this respect, "employees are not considered members of the firm". Yet, in the Japanese firm, this is not the case, he contends. According to him, the two major characteristics of the Japanese firm are as follows:

The body of employees is, together with the body of shareholders, explicitly or implicitly recognized as a constituent of the firm, and its interests are considered in the formation of managerial policy.

Management acts as a mediator in the policymaking process, striking a balance between the interests of shareholders and those of employees. The enterprise union functions as a substructure of the firm and represents employees in the decision-making process.<sup>11</sup>

If this is the case, the comparative analysis of dividend level between Japanese and Western firms may confirm that dividend payment is smaller in Japan than in the West, especially if Western firms are operating close to the neo-classical model of the firm. Even so, such a state of affairs does not necessarily reduce the importance of dividend payment levels as a proxy variable, illustrating financial health or profitability of companies or the industry. Because at least over time, or between sectors or companies, the level may fluctuates as financial health or profitability changes within the Japanese context.

Needless to say, not all the data required, may be available for all these variables. Some of them are sporadic, especially, the statistics required for the prewar period or international comparison. However, by aggregating scattered data available, one may be able to find some clues on the characteristics of industrial development, and the co-relationship between government action and the development of an industrial sector. In the following section, an international, sectoral or historical comparison will not be made in a comprehensive fashion owing to limited space but some comparison will be included to accentuate the developmental characteristics of the postwar Japanese oil industry.

## 5. The Government and the Development of the Oil Industry in Postwar Japan

The oil industry provides an interesting case for an assessment of the link between government actions and industrial development. In the postwar era, government regulation of this industry has been one of the most intensive among all the industrial sectors and its results have been the most unsatisfactory.

The Ministry of International Trade and Industry (MITI) or its predecessor, Ministry of Commerce and Industry (MCI), has extensively regulated this industrial sector throughout the postwar era. There are many reasons for government intervention. Soon after the Occupation, the Allied Forces prohibited oil import or refining of imported crude oil in Japan. Oil was considered a strategic material and the General Head Quarters (GHQ) of the Occupation Forces thought that Japan did not require much oil now that the country was to be demilitarised. Yet, with the rise of the cold war, economic recovery and reconstruction became the chief priority and in 1949, the import and refining of crude oil was permitted for the first time since the end of the war. As the resource poor economy began to grow, its appetite for oil and other energy resources increased. The Japanese government has been concerned with the management of oil supply and demand and hence, with the oil industry.

### **The Growth of the Oil Industry and the Government**

The Japanese oil industry in the downstream sector grew rapidly from 1950, a year after the refining of imported crude oil was authorised for the first time in the postwar era by GHQ. The refined volume of imported oil increased from 2 million Kl in 1950 to over 32 million Kl in 1960, a 16 fold increase, to almost 205 million Kl in 1970, more than 100 fold increase from the 1950 level. After it peaked at 262 million Kl in 1973, at the time when the first oil crisis struck the economy, oil refining decreased in Japan as oil consumption began to decline, as it did elsewhere in other industrialised countries. By 1982, refining decreased to a level below 200 million Kl per year.<sup>12</sup>

Faced with drastic increases in oil prices, car owners switched to fuel-efficient compact cars and industrial oil users rationalised production systems. Soon, the Japanese economy began to grow using less energy or oil. These drastic changes in ultimate demand for oil were driven by market forces.

MITI played a supportive role in bringing about these changes. In the 1950s, for example, it helped a shift from coal to oil as the primary energy source despite the fact that there was strong opposition to such change from domestic coal interests which had powerful allies among conservative political leaders. In fact, there was some evidence that MITI officials endorsed the oil-first policy despite the fact that the official stance of the government was coal-first; they made available scarce foreign exchange reserves for the importation of crude oil to encourage the rapid growth of the oil industry.<sup>13</sup>

In the 1960s, MITI overwhelmingly supported "economic growth-first policy" and by maintaining an uncritical attitude towards industrial expansion at the expense of environmental pollution, it contributed to drastic increases in oil refining and consumption. It

made sure that the domestic refining capacity expand more rapidly than the actual demand.

In response to oil price hikes and supply interruptions caused by the Arab oil embargo of 1973, MITI initiated a series of programs, the ultimate objective being to spur a shift from economic growth led by heavy industries to economic expansion based on more information — and technology — based industries. It is important to note that as discussed above, the government did not bring about cuts in oil demand. MITI's role was to support and encourage a shift to a less oil dependent economy through tax incentives and other means.

MITI's broad policy directives have been put into practice through the Ministry's regulatory powers in the oil industry and via other means. For instance, refining output has been closely checked by MITI based on its powers to regulate the expansion of refining facilities. In the 1950s, MITI did this based on its foreign exchange and technology import powers. In 1951, the total refining capacity in Japan was 103,800 barrels per day (b/d) and by 1961 MITI had authorised an increase in refining capacity equivalent to 10 fold the 1951 production level. This in turn made Japan the second largest oil refiner in terms of capacity in mixed economies by the early 1960s.

In the 1960s onward when trade liberalisation measures were introduced, MITI continued to regulate the expansion of refining capacity based on the Petroleum Industry Law, passed in the National Diet in 1962. In order to help the oil industry meet drastic increases in oil demand, the Ministry continued to encourage the expansion of refining capacity well into the 1970s.

Capacity utilisation factor was, however, fairly low ranging from 50 percent to 67 percent between 1953 and 1966. This increased to 75 percent to 87 percent level between 1966 and 1974 thanks to rapid increases in oil demand. After the second oil shock in 1979, MITI recognised some 40 percent overcapacity and recommended the demolition of old facilities. Between 1984 and 1988, facilities capable of refining 421,000 b/d were scrapped. Excess capacity was also a major problem in Europe and America. In Germany and France, for example, capacity was halved between 1978 and 1988. In America this was reduced from 17,375,000 b/d to 15,285,000 b/d. In Japan this reduction was less drastic.

The above discussion points out many ways in which MITI affected the growth of the oil industry. The Ministry assisted a shift from coal to oil in the 1950s. It aided increases in oil demand in the 1960s and reduction in oil consumption in the post-oil-crisis era. Nonetheless, it is difficult to quantitatively measure the extent to which the Japanese government accelerated the growth of the oil industry.

### **The Structure of the Oil Industry and the Government**

The link between MITI's actions and the evolution of the structure of the oil industry is more visible than the relationship between government actions and the growth of this industrial sector.

There are many striking structural characteristics of the downstream oil industry in postwar Japan. One is little change in the number of companies operating in the wholesale sector. In most of the post-Occupation era, some thirteen wholesalers provided refined oil

products to Japanese consumers. Despite the fact that a few of them had serious financial troubles and almost went bankrupt, they have been always rescued by MITI through various means. For example, in 1966, MITI supported the establishment of Kyodo Oil by amalgamating Nikko, Toa and Asia Oil, the three financially weak domestic firms. MITI would not allow any bankruptcy.

At the same time, the Ministry had power to authorise the establishment of new companies in oil import, refining, wholesale or retail business, and restricted the entry of new firms into the oil business. As a result, only two companies were allowed to join the wholesale business between 1956 and 1984. They were Kyushu Oil set up in 1961 and Taiyo Oil established in 1968. Yet, these two new companies never became a major force in the oil industry. Their combined market share, for instance, never reached a level above 4 percent during this period. Thus, the impact of the government on the structure of the wholesale sector was direct and it sustained the existing firms as on-going business concerns.

The more striking structural feature of the oil industry is the fact that despite new entry by these two companies and despite some restructuring, there has hardly been any change in recent decades in the relative strength of Japanese oil wholesalers in terms of their relative market share. Between 1962 and 1990, i.e., for nearly thirty years since the legislation of the Petroleum Industry Law, Nippon Oil, the largest oil company, continued to occupy the top position in the market. Its market share only changed from 17.9 percent in 1962 to 16.7 percent in 1990. The runner-up, Idemitsu Oil continued to have the second largest market share, which was 14.6 percent in 1962 and 14.4 percent in 1990. There was little change in their market share. The same situation applied to smaller oil firms.

The stability in the sales market share has been sustained by MITI's regulation of the oil industry. The Ministry requires Japanese oil companies to obtain authorisation before the establishment of any new petrol stations. Nippon Oil has been given the largest share of petrol stations in the Japanese retail market, totalling a 19-18 percent share over the past three decades. During the same period, No.2 runner, Idemitsu has occupied a 15-16% share. The Shell Group's share has been roughly 13 percent. Both in the United States and Germany, the number of petrol stations decreased by 36 percent and 41 percent between 1974 and 1983. In Japan this steadily increased from 37,000 in 1970 to 54,000 in 1980 and the number has changed little since then. Thus, despite a dramatic increase in the number of petrol stations, there has been remarkable stability in the market share.

The stability in the share of oil market sales is also reinforced by MITI's regulation of the expansion of refining facilities. In the 1950s, relative size of refining capacity provided the major consideration in the allocation of scarce foreign currency for oil imports, an essential resource for capacity increase. As a result, every oil firm attempted to increase this capacity in order to expand business. In the 1960s, as demand for oil continued to grow rapidly, oil firms continued to compete for MITI's authorisation, having no doubt in an ever-increasing consumer appetite for oil products.

On the other hand, MITI, as the Ministry in charge of economic and industrial growth,

had the responsibility of ensuring that user industries and consumers had enough oil supply as the Ministry would be blamed for any mismanagement of oil demand and supply. As a result, it continued not only to authorise refinery expansion, but also encouraged the industry to expand the oil business and petro-chemical manufacturing by giving extra incentive to large oil refining and petro-chemical complex projects.

MITI attempted to give more support to *minzokukei* (100 % Japanese-owned) companies rather than *gaishikei* (wholly or partly foreign-owned) firms. Among *minzokukei* firms, it assisted the growth of Kyodo Group, its publicly supported company. Such a stance led to the weakening of the *minzokukei* with the emergence of *seihan gyappu* (a gap between refining capacity, *seisei*, and actual sales, *hanbai*). *Gaishikei* had stronger sales power and lacked products to sell while *Minzokukei* had too much capacity but not enough sales volume. The problem of the capacity/ sales gap has become smaller recently with the conditional liberalisation of oil product imports beginning in 1986. Nonetheless, although the criteria for refinery expansion authorisation has changed from time to time in minor details, the most important determinants have been relative capacity and actual production share. As a result, the relative share of refining capacity among oil companies has hardly changed. In this sense, the structural stability of the oil industry all the way from refining and wholesale to retail, can be considered the result of regulation of the industry by MITI.

#### **The Performance of the Oil Industry and the Japanese Government**

In general, the oil industry used to perform better than the manufacturing industry in terms of dividend, profit/sales ratio and self capitalisation ratio, although the profit/capital ratio of the former may not appear to have been as attractive as that of manufacturers because the industry by nature requires massive capital investment. As the regulation of the oil industry was tightened, its performance became much poorer than the manufacturing sector as a whole.

In the first half of the 1950s, the oil industry had better profitability than other industries. Its dividend payment exceeded 20 percent while the average figure for all industries was much lower than 15 percent.<sup>14</sup> Because of large capital investment required for the rapid expansion of refining capacity in the 1950s and 1960s, despite the relatively low facility utilisation factor, the profitability of this industry declined. By the early 1970s when the oil industry was expanding in full force, its profit/sales ratio decreased to below 2 percent, which was roughly half the figure achieved by the manufacturing sector and less than one third of the figure for US-based Exxon Corporation, one of the world largest oil companies.

To make matters worse, the Japanese oil industry as a whole recorded a loss in the fiscal year (FY) 1974-1975. Ever since then, the profit/sales ratio of the Japanese oil industry has been constantly lower than that of the manufacturing sector or Exxon. The first half of the 1980s in particular, was an extremely bad period for the Japanese oil industry; its average ratio for this period was below 1 percent as compared to more than 4 percent for the manufacturing industry.

With drastic increases in capital borrowing required for the facility expansion of the

1950s and 1960s, the self capitalisation ratio of the Japanese oil industry also deteriorated and this meant that interest and capital repayment for bank and other borrowing dramatically increased.

In order to meet anti-pollution regulation requirements and to fulfil the stockpiling quota following the oil crisis, the oil industry's needs for capital further increased. As a result, the self capitalisation ratio of the industry fell as low as 3.31 percent in 1975 whereas the figure for manufacturing industries was 18.37 percent. By the late 1980s, this ratio has climbed to a 15-18 percent level. But the average figure for manufacturing industries has also improved to a 40 percent level in early 1990s. In general, the oil industry has grown with more borrowing from outside funding sources than the manufacturing industry and is therefore more fragile financially than the latter.

The performance of the oil industry would have been better if there had been less competition in the market and if the government had allowed more autonomy in the pricing of oil products. Competition has been intensive in the oil market as oil products are commodities which have little distinction among the many different brands; gasoline from Caltex is much the same as gasoline from Shell. In order to soften the competition, MITI assisted them to set up price and production cartels until the Fair Trade Commission took the matter to court in the wake of the first oil shock.

The performance of the oil industry has been affected by implicit public policy which seems to be protecting the interests of large user industries. For years, MITI has been supporting the oil product pricing system in which heavy oil, mainly used by major user industries and farmers, is cheaply priced compared to the price of gasoline which is viewed as a luxury item rather than a vital necessity. At the same time, until 1986, it had a policy of "refining imported oil on the consumers' door step," so as to save foreign currency in the early postwar years and to protect the domestic refining sector. In the post oil crisis era, this meant that because of sharp falls in demand for relatively cheaply priced heavy oil, the price of heavy oil decreased further to the extent that it became much lower in price than crude oil. The more heavy oil an oil company sold the more loss it made.

This was exemplified by the sharp differences of profit/loss levels between *Minzokukei* and *Gaishikei* firms. As the former expanded in the 1960s with the support of MITI, its facilities were built and designed for the increased production of heavy oil rather than that of other oil products. In FY 1970, for example, more than half of the oil refined in Japan was processed into heavy oil, for which *Minzokukei* firms were major suppliers. The ratio of heavy oil production in refining decreased to a 45 percent level in FY 1980 and to a 33 percent level in FY 1991. Yet, demand for this product decreased even further. As a result, the production costs exceeded the sale price. *Minzokukei* firms have suffered from the mismatch between their product composition and altered patterns of demand for their products.

One of the few oil products whose consumption has increased in the post-oil crisis era, contributing to the profitability of the oil industry has been gasoline. Because of the design of production facilities *Gaishikei* firms have been able to produce more gasoline than Japanese

firms. As a result, they have a much larger share in gasoline production and its retail than the latter. This difference has made foreign firms much better off financially than the Japanese *Minzokukei*. Thus the weak financial state of Japanese owned oil firms has been partly caused by government policy of the 1960s, and partly by changes in demand-supply patterns in the Japanese oil market.

The major cause of the weak financial structure of the oil industry as a whole has been the decision by oil companies to rely on capital borrowing from the outside sources. In 1979, one of the world's largest oil companies, Exxon, borrowed only half of its capital requirements while Japanese manufacturers, on average, 80 percent. The figure for the Japanese oil industry was 95 percent. In addition, the reliance on outside borrowing is higher among *minzokukei* firms than among *gaishikei* firms, which has further made the former's financial state weaker than the latter.

Within the oil industry, a financial gap emerged along the supply sources, between the Aramco-supplied group of companies and those who did not have supplies from Saudi Arabia. In 1981, the price difference of crude oil between Saudi Arabian oil and Iraqi oil exceeded \$10/b. As 85 percent of the oil product constitutes the original cost for crude oil, this difference in supplies caused a huge difference in the profitability of oil companies.

In addition to the international oil market conditions, another major international factor which has been affecting the profitability of the Japanese oil industry is the USD/JPY exchange rate. In 1979, for example, the oil industry as a whole made an operating profit of 250 billion yen. Yet, because of foreign exchange (FX) loss exceeding 400 billion yen, the industry as a whole made a loss. In contrast, in 1980, it made a FX gain of 600 billion yen. Thus fluctuations in the FX market are a major concern and a decisive factor in determining the profitability of the oil industry.

These fluctuations can be prevented by the use of the forward foreign exchange market or FX options. Yet, unless every oil firm uses these FX derivatives in the same way, the costs of these instruments and opportunities in FX gain and loss will be different between one firm and the next and therefore, the FX market will affect the economic performance of oil firms differently.

The weak financial position of the Japanese oil industry is evident in many areas. It is the management of each oil firm who is mainly responsible for such a state of affairs because it is senior management who decides the investment level for oil refineries and who gains access to retail market outlets under its brand name. At the same time, as MITI's authorisation is required for the construction of petrol stations as well as for that of oil refineries, the Japanese government has also affected the performance of the oil industry. Overall, however, changes in oil consumption rate and mix as well as in the world FX market have also made a great impact on the performance of oil firms. The relatively and constantly weak financial state of the oil industry can therefore be attributed to government policy, decisions made by each company, and market conditions.

## 6. Conclusion

This case study has examined the relevance of a perspective which attempts to establish the link between government actions and industrial development. By disseminating the concept "industrial development" into three major dimensions including industrial growth, structure and performance, the perspective has been applied to analyse what has shaped the oil industry in Japan and what has brought about the current problems of the industry.

The rapid growth of the oil industry in postwar Japan is attributable to drastic increases in demand for oil products and oil companies' readiness to meet such demand. The Japanese government has not orchestrated such a change in energy consumption patterns but it has assisted the industry and market through various means. The impact of government actions on the growth of the oil industry is, however, difficult to measure quantitatively.

In contrast, the link between government actions and the highly stable structure of the oil industry is more obvious. The government has not only restricted the entry of new firms into the oil business but has also supported the maintenance of the existing market order in refining, wholesale, and retail. It regulated the industry based on its foreign exchange and technology import control powers until the early 1960s and thereafter regulated the industry in accordance with the Petroleum Industry Law of 1962. The relative strength of oil companies in terms of wholesale, refining, and retail market share has not changed much in recent decades, which is quite remarkable in mixed economies.

The performance of the Japanese oil industry can be attributed to decisions made by the management of each company, government policy and changing market conditions. The Japanese oil sector has had relatively poor performance in profitability, sales/capital ratio and self capitalisation ratio in comparison to manufacturers in Japan or an international major, Exxon Corporation. Thus, the perspective developed here has provided a tool to examine the interactions between the government, the industrial sector and the market by demonstrating that the development and current state of the oil industry are a result of the interplay of government actions and management decisions in the changing market.

This paper has also illustrated the point that the analysis of industrial development requires an approach which integrates the disciplines of political science and economics as it is neither politics nor economics alone but both political and economic forces which have shaped the oil industry as it stands today.

Moreover, the Japanese government can be considered to be "strong" vis-a-vis the oil industry in regard to how the government has affected the growth, structure and performance of this industrial sector. Yet, the Japanese government was not always wise. Its actions often lacked foresight and caused more problems than it solved.

Despite the intensive government regulation of this crucial industrial sector, government policy has failed miserably in developing a strong oil industry in Japan. In this respect, the case of the oil industry therefore challenges the view that government industrial policy has led to strong industrial growth as far as the petroleum industry is concerned.

## Notes

- 1 For a critical review of the literature, see Takamichi Mito, *Contending Perspectives on the Japanese "Economic Miracle"* Working Papers in Japanese Studies No. 2 (Melbourne: Japanese Studies Centre, Monash University, 1992).
- 2 Leading examples are Chalmers Johnson, *MITI and the Japanese Miracle* (Stanford: Stanford University Press, 1975); Hideo Ohtake, *Gendai Nihonno Seiji Kenryoku Keizai Kenryoku* (Political Power and Economic Power in Contemporary Japan) (Tokyo: Sanichi Shobo, 1979); Daniel I. Okimoto, *Between MITI and the Market: Japanese Industrial Policy for High Technology* (Stanford: Stanford University Press, 1989); Richard J. Samuels, *The Business of the Japanese State* (Ithaca: Cornell University Press, 1987); Stephen Wilks and Maurice Wright (eds), *Comparative Government-Industry Relations* (Oxford: Clarendon Press, 1987); and Wilks and Wright (eds.), *The Promotion and Regulation of Industry in Japan* (London: Macmillan, 1991).
- 3 Major works include: Edward F. Denison and William K. Chung, *How Japan's Economy Grew So Fast: the Sources of Postwar Expansion* (Washington. D.C. . . : The Brookings Institution, 1976); Y. Kosai and Y. Ogino, *The Contemporary Japanese Economy* (New York: M.E. Sharpe, 1974); Edward J. Lincoln, *Japan: Facing Economic Maturity* (Washington D.C.: The Brookings Institution, 1988); T. Nakamura, *The Postwar Japanese Economy: Its Development and Structure* (Tokyo: University of Tokyo Press, 1981); and Kazushi Ohkawa and Henry Rosovsky, *The Economic Growth of Japan* (Stanford: Stanford University Press, 1973).
- 4 An excellent example is Ryutaro Komiya et al (eds.), *The Industrial Policy of Japan* (Tokyo: University of Tokyo Press, 1988). Michio Morishima's *Why has Japan 'Succeeded'?: Western Technology and Japanese Ethos* (Cambridge: Cambridge University Press, 1982) is not an economic analysis but stresses the ethical doctrines as the major foundation of economic development.
- 5 Upstream activities include oil exploration and development and downstream consists of oil imports, refining, distribution and sales.
- 6 For detail, see, T. Mito, "The Allied Occupation and the Development of the Oil Industry in Postwar Japan," a paper presented at Japan Research Centre Seminar, School of Oriental and African Studies, the University of London, June 1992; Richard J. Samuels, op. cit.; and Martha Caldwell, "Petroleum Politics in Japan: State and Industry in a Changing Policy Context." Ph. D. Dissertation, University of Wisconsin, 1981.
- 7 Harold Lasswell, *Politics: Who Gets What, When, How* (Cleveland, Ohio: The World Publishing Company, 1958).
- 8 This level is also recommended by a project funded by the Economic and Scientific Research Council of the United Kingdom. See Wilks & Wright, op. cit.
- 9 For a detailed analysis of various theories and aspects of market concentration, oligopoly, social costs of monopoly and restrictive trade practices policy, see, Roger Clarke, *Industrial Economics* (Oxford: Basil Blackwell, 1985).
- 10 Geoffrey Holmes and Alan Sugden, *Interpreting Company Reports and Accounts*, 3rd ed. (Cambridge: Woodhead-Faulkner, 1986), p.168.
- 11 Masahiko Aoki, "The Japanese Firm in Transition," in Kozo Yamamura & Yasukichi Yasuba (eds.), *The Political Economy of Japan Volume 1. The Domestic Transformation* (Stanford: Stanford University Press, 1987), p.265.
- 12 Nihon Sekiyu Kabushiki Kaisha, *Sekiyu Benran* (A Handbook of Oil) (Tokyo: Sekiyu Shyunjusha, 1982), p.375.
- 13 For details, see, Laura E. Hein, *Fuelling the Growth* (Cambridge, MA.: Council on East Asian Studies, Harvard University, 1990).
- 14 Tosuke Inokuchi, *Gendai Nihon Sangyo Hattatsushi II: Sekiyu* (The History of Modern Japanese Industrial Development Vol. 2: Oil) (Tokyo: Gendai nihon Sangyo Hattatsushi Kenkyukai, 1963), Appendix, p.36.