

Confrontation of Full-Cost and Marginal Principles in the Automobile Supply Chain: Implications of Durable Consumer Goods in the Market Turmoil after WWII

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Introduction—‘Well, listen. There is not such a word as “cost reduction” in English.’

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Introduction—‘Well, listen. There is not such a word as
“cost reduction” in English.’

When I started conducting empirical research on corporations in the UK (related to automobiles, electronics, and electrical equipment) in the early 1990s, a British executive at a company once said to me in an interview in response to the usual question: How do you implement cost reduction in your company?

Well, listen [with some irritation]. You are not a [native English speaker]. Therefore, it is comprehensible that you do not understand, but there is not such a word as ‘cost reduction’ in the English vocabulary in the first place. Cost does not go down. Furthermore, it is not something to be reduced. The correct expression should be ‘price reduction’. (Interview held on 26 November 1991, in Wales, UK)

In this interview, he frankly revealed to me his belief by stating that, first, it was impossible to reduce costs in the first place (because ‘cost does not go down’) and second, the price of a product was determined by adding costs (because ‘it is not something to be reduced’). I never forgot this impressive statement. This statement of setting prices based

on a cost-adding method naturally reminds us of the term 'full-cost principle'. The act of cost addition conflicts directly with the notion of cost reduction. As long as directors adhere to the full-cost principle, there can be no cost reduction. This is not the only time I have heard about the term 'cost reduction' not being present in English vocabulary; researchers who studied automobile industries empirically in Europe before the 1990s would have, on occasions, heard this argument. This was the case three decades ago. However, since the end of the twentieth century, the idea of cost reduction has spread extensively. Currently, 'cost reduction' is a commonly used term in the Western manufacturing industry.

Since the full-cost principle involves adding the cost of each item, the notion of cost reduction contradicts the full-cost principle. Would it be correct to say that Western companies have now abandoned the full-cost principle? However, Michio Morishima (1923–2004), a Japanese London School of Economics (LSE) economist who regularly stayed in the UK, had pointed out in 1994 that the national economy was governed by '80 per cent full-cost principle and 20 per cent marginal principle' (MORISHIMA 1994: 68). Therefore, the full-cost principle still functioned significantly in the manufacturing industry at that time. If the notion of cost reduction had spread widely, does it mean that the principles of the modern industrialised world have changed drastically since those days?

In this paper, I first argue that the emergence of durable consumer goods (e.g., automobiles and household electrical appliances) has triggered the production difficulty inherent in such goods. The production of durable goods, which was carried out on a make-to-order¹ basis, has been forced to adopt a make-to-stock² production system by the entrance of such goods in the mass consumer market. One characteristic of the Japanese supplier structure is that parts suppliers are in tune with the make-to-stock principle to which end-product manufacturers are exposed. The impact of the Japanese production system on the US and European automobile industries can be qualified as a factor that facilitates the process of shifting from make-to-order production to make-to-stock production. I argue that the fact that the principle of make-to-stock production (the marginal principle) has penetrated the realm of the principle of make-to-order production (the average principle or the full-cost principle) is at the root of today's structural shifts in the industry.

1) The production process of goods that begins only after a confirmed customer order is received.

2) The production process of goods that begins only with anticipated consumer demand and without a confirmed customer order. However, *make-to-stock* does not seem a proper term in this paper. As the Toyota Production System recommends to hold as little stock as possible for the effective management, the appropriate term should be *make-to-anticipate*.

1. Full-Cost Principle advocated by Hall and Hitch

The full-cost principle is a hypothesis proposed by Hall and Hitch of Oxford University about eight decades ago in 1939, based on a questionnaire survey of 38 entrepreneurs (HALL and HITCH 1939). This full-cost principle is an empirical refutation of the theory of price formation based on the marginal principle. This monumental study formed one of the foundations of the post-Keynesian theory of price formation (especially the theory of normal cost price). Hall and Hitch described the full-cost principle as follows:

The basis of the current doctrine on the price and output policy of the entrepreneur is that he expands production to the point where marginal revenue and marginal cost are equal. [...] The most striking feature of the answers was the number of firms that do not aim, in their pricing policy, at what appeared to us to be the maximization of profits by the equation of marginal revenue and marginal cost. [...] This is expressed to some extent by the phrase commonly used in describing their policy-‘taking goodwill into account’. But the larger part of the explanation, we think, is that they are thinking in altogether different terms; that in pricing they try to apply a rule of thumb which we shall call ‘full cost’. [...] An overwhelming majority of the entrepreneurs thought that a price based on full average cost (including a conventional allowance for profit) was the ‘right’ price, the one which ‘ought’ to be charged. [...] but the procedure can be not unfairly generalized as follows: prime (or ‘direct’) cost per unit is taken as the base, a percentage addition is made to cover overheads (or ‘oncost’, or ‘indirect’ cost), and a further conventional addition (frequently 10 per cent.) is made for profit. (HALL and HITCH 1939: 13, 18, 19)

The formula for the full-cost principle is expressed below:

$$p = c + \Pi = \left(1 + \frac{\Pi}{c}\right)c = (1 + m)c$$

If the price per unit of output is p , the cost is c , and the profit is Π , then m is the net markup rate (the rate at which the profit margin is added, also called the markup coefficient). The study by Hall-Hitch was followed by papers by P.W.S. Andrews (ANDREWS 1949a; 1949b), who had been involved with the Oxford Economists’ Research Group (OERG).

Like the most recognized theoretical work during that time on the subject, P. W. S. Andrews’ “Manufacturing Business” (1949), the model rested on the assumption that firms try to deter potential entry rather than maximizing their short-run profits. The book by Andrews (1949) arguably contains the best-known full-cost price theory connected to the strict full-cost principle, and was, at the time, presented as an

alternative to marginalist price theory. Andrews based his approach on the results of his empirical research (which he was not able to publish because some of the surveyed firms in his sample had not agreed). He argued that managers set their prices on the basis of average direct costs of the product. (NUBBEMEYER 2010: 23)

In the background of these arguments, interrogations were raised in the 1930s that entrepreneurs did not set prices according to the mainstream theory, that is, marginalist principle, in reality.³⁾ To begin with, the economists who gathered at OERG were dissatisfied with the marginal utility school in terms of how to incorporate reality into the theory.⁴⁾

2. Criticism of the Full-Cost Principle

Therefore, mainstream economists immediately raised fierce counterarguments as critiques of the full-cost principle. Above all, Austin Robinson criticised it with an intense expression:

Austin Robinson thereby challenges the fundamental finding of Hall and Hitch (1939) that businesses do not maximize profit but, rather, fix their prices in accordance to a 'full cost principle'. Robinson (1939, 543) concludes that more questions were raised than answers provided, suggesting these two studies be placed in an 'incinerator [!]'. Perhaps, more charitably (and dispassionately), one could claim that employing 'unsophisticated' methodology and relying on such a meager sample would necessarily result in 'dubious' results (Reid 1981, 36). Given all this, Austin

3) "As summarized, the full cost principle consisted of a loose but consistent set of propositions which appeared to be inconsistent with marginalism. [...] Thus the theoretical nature of the full cost price clearly makes it incommensurable with the marginalist price. Although the anti-marginalist flavor of the full cost principle and the full cost price was generally not recognized or given its full due by Hall and Hitch, it was recognized by Andrews, who concentrated his attention on the full cost pricing procedures and full cost prices, and thus went on to develop an alternative theory of prices to the marginalist theory of prices (Hall and Hitch, 1939; Lee, 1984)." (LEE 1991: 496, 497)

4) "Interestingly, both the leading voices around the Oxford Economists' Research Group, such as Hall and Hitch, Andrews or Harrod, and Milton Friedman were - although out of completely different motives - unsatisfied with the theory of imperfect competition developed by Robinson (1953, first published 1933) and Chamberlin (1933). The former were unsatisfied with the theory's lack of "realism", in that sense that the assumptions the theory made, such as taking it as given that managers followed some sort of marginalist rationale, were not an accurate description of reality. Friedman, on the other hand, criticized it for the inclusion of "realistic" assumptions as a starting point for building a theory of the firm." (NUBBEMEYER 2010: 45)

Robinson's (1950, 1951) subsequent assaults on Andrews (1949) are not surprising. Andrews should have known better than to persist with such casual empiricism. And, it is hard to imagine he was unaware of Robinson (1939). (JACOBSEN 2017: 197)

In addition to some fierce criticism, as in the case of Robinson, the ambiguity of the full-cost principle was pointed out in critical deliberations. Apart from the arguments as to why entrepreneurs do not follow the marginal analysis (such as the marginal revenue curve, which is unknown), the reasons for following the full-cost principle were not so clear. Thus, the question as to why entrepreneurs set prices according to full-cost was, after all, only answered by saying that it was a 'just price' or 'customary pricing'. Andrews described it with the expression as 'right price' (ANDREWS 1949a: 83). In addition, the inherent difficulty in determining the markup ratio remained unresolved, and the theory seemed far from mature. In most cases, the reality of the application in the business was ambiguous, which can be called the 'price-approved full-cost principle', 'deemed full-cost principle', or 'false full-cost principle'.

Although there were severe criticisms from mainstream economists, some marginalists, however, argued very seriously about the validity of the marginal theory, which also prompted serious reflection on it because a wide gap existed between their theory of prices and pricing practice in real business.

Concern over the ideological content of Andrews' theory of manufacturing business led economists by imperceptible steps to dismiss it as of low quality and to label him a poor theorist. Similarly, we find comments that his work was "full of dark sayings", unfathomable, untheoretical, or simply nonsense. However, in spite of the low opinion which many economists had of Andrews and his theory and the wish of other economists to dismiss it out of hand, the fact that it was viewed as a significant and direct attack on the theory of imperfect competition and an indirect attack on marginalism or neoclassical price theory prompted many economists to consider it seriously, even if their purpose was to show that it was nothing but marginalism in a different language (Lee and Irving-Lessmann, 1992). (LEE 2013: 504)

According to Mongin, reactions from marginalist supporters can be classified into three groups: dismissal, reform, and absorption into the existing neoclassical framework.⁵⁾

5) "To summarize, there had been some progress made after Hall and Hitch, but the adduced evidence remained definitely incomplete, and partly as a cause, partly as a consequence of this failure, the implied models of the full-costers were nebulous. In retrospect, the task of answering the FCP "challenge" to profit maximization does not strike one as all too difficult. The marginalists had to choose between the following moves: dismissal, reform, absorption-cum-status-quo. Since the

During the full-cost controversy, many marginalists argued in the direction of absorption of full-cost pricing evidence into the neoclassical framework.⁶⁾ Some marginalists claim that Andrews supported the same arguments as marginalism. However, there was no clear denial by Andrews (NUBBEMEYER 2010: 27).⁷⁾

Therefore, in real business, entrepreneurs set prices (more or less) based on the full-cost principle. This reality brought about hesitation from marginalists. The discrepancy between theory and reality seemed unaffected. These works were the antithesis of mainstream economics, which advocated a theory of pricing based on marginalist theory.

With the emergence of the above data, economists began to realize by the late 1930s that a wide gap existed between their theory of prices and the real world of prices and pricing. First of all, the data showed that full cost pricing procedures were widely used by firms, whether industrial or retail. Thus it became apparent that firms did not explicitly employ the marginalist tools when setting their prices. Secondly, the data showed that the behavior of prices, say with respect to fluctuations in demand or to changes in excises or sales taxes, did not conform to the results suggested by neoclassical price theory or appear to be adequately explained by it. On the other hand, the full cost pricing procedures did seem to account for the anomalous price behavior. Finally, in conjunction with the above results, it became widely apparent to economists that firms did not set prices that maximized short period profits (for example, see [Hawkins 1939-40, p.383; and Reynolds 1938, p.465]). Thus the data generated throughout the 1930s drove many economists to question marginalism (or

third one definitely prevailed, I shall very briefly dispose of the first two strategies.” (MONGIN 1990-1991: 240)

- 6) “The main route that was taken by proponents of marginalist price theory was to absorb full-cost pricing into the existing neoclassical framework. This of course required that full-cost pricing was seen as an empirical fact, rather than a theoretical construct that poses an alternative to the common profit maximization hypothesis. The aim of this strategy is to argue persuasively that the valid evidence on cost-plus and in particular full-cost pricing does not stand in contradiction with the marginal theory of prices. The marginalists thus argued for an understanding of full-cost pricing in the broad sense, and dismissed its strict definition.” (NUBBEMEYER 2010: 27)
- 7) “Thus, along with the assumed equality of average direct costs and marginal costs, Robinson argued that there was no difference between Andrews’ formulation and the result of neoclassical price theory in a stable or mature oligopolistic market. This argument was also made by Silberston (1951) and Kahn (1952). According to Lee and Irving-Lesserman (1992, p.288), Andrews failed to make it more explicit that in his model, entrepreneurs followed other pecuniary motives than profit maximization in the neoclassical sense. He did not state another objective, nor make it clear that the determination of the costing margin was different from the optimal mark-up defined by marginalism. Curiously, he did not make any attempt to defend his theory or the strict full-cost principle as an alternative to neoclassical profit maximization.” (NUBBEMEYER 2010: 24)

neoclassical price theory) or at least its current applicability.” (LEE 1984b: 1110–1111)

At the end of over ten years of intense criticism from marginalists, the controversy over the full-cost principle seemed to have ended in the early 1950s. It is the opinion that full-cost pricing was theoretically compatible with marginalist theory and was, therefore, absorbed by marginalism.

But by the mid-1950s, the principle was viewed as being completely compatible with neo-classical price theory in general and marginalism in particular. Consequently the FCP [Full-cost principle] ceased to be of interest to most economists, and they no longer awarded it special attention. (LEE 1984c: 233)

The samples in Hall and Hitch’s arguments were indeed too small to be empirical (as they were aware),⁸⁾ and the theory was not mature. The counterargument from the full-cost advocacy side was the perception that entrepreneurs did not set prices according to marginalist theory in reality. The reason the full-cost principle has survived so far, even though its theoretical foundations have been questioned to a large extent in the academic discussions, such as the difficulty in determining the markup rate (denoted by q or m), is that businessmen in the real world set prices more or less following the full-cost principle, whether ‘true’ or ‘false’. In short, entrepreneurs have conventionally set prices using the cost-adding method (i.e., the cost-accumulation method) (as shown in our experience at the beginning of this study) in daily business life. The full-cost principle has been largely accepted for eighty years. Ultimately, the full-cost principle theory was far from completely disproven.

We can notice that Hall-Hitch and Andrews’s argument has survived despite fierce and severe criticism because empirical data supported the full-cost principle as a rough orientation. Although the full-cost principle has not been carried out in a strict sense, entrepreneurs have relied on principles that are similar to the full-cost principle. After Hall and Hitch raised the issue, the debate up to now has shown that the perfect full-cost principle (or the strict full-cost principle) is far from working thoroughly, but only valuable in limited cases, if not exceptional, in its application. In real business, however, entrepreneurs are more or less priced by the full-cost principle. Some empirical studies support this assertion.⁹⁾

8) “The authors are acutely conscious of the shortcomings of an inquiry of this kind. We considered the evidence of only 38 of the entrepreneurs interviewed, which is far too small a sample to warrant any final conclusions.” (HALL and HITCH 1939: 12)

9) “Between 1939 and 1960, more than thirty studies appeared that affirmed Hall and Hitch’s initial proposition that firms use cost-plus methods in the pricing process (Lee and Irving-Lesserman,

3. 'True' Full-Cost Principle and 'False' Full-Cost Principle

According to the full-cost principle, companies set their prices by adding costs and profits in advance (Hall and Hitch gave a figure of 10% as the markup, but we often hear a figure of 15% for modern Western companies). However, the question is how much volume will be sold at a price determined by the company. Thus, the full-cost principle is effectively applied when the company sells goods at a predetermined price and quantity. If the sales volume is unknown, the turnover is naturally unknown, and the profit is unknown as well. This is an important requirement, and the strict full-cost principle is effective only when the price and quantity are fixed in advance. Therefore, this condition is fulfilled only within a narrow range. Where the condition of pre-determination is lost, the trades where the full-cost principle functions effectively are not trades where the full-cost principle is applied in a strict sense. The situations in which the full-cost principle is effective are summarised in Table 1.

The 'true' full cost principle works fully only when the cost and profit calculations by each company are finally confirmed as the correct price in the market. In this case, it seems that each company calculated its price based on strict criteria. The full-cost principle does not work when the sales volume is uncertain in the market, such as consumer goods for the masses. In other words, the fact that it survived does not mean that the full-cost principle has functioned strictly in the actual economic process.

The biggest difficulty of the full-cost principle is that even if the price is set based on the full-cost principle and put on the market, the cost of a unit of product varies depending on the quantity sold, especially when the fixed cost is high, as in the consumer durables industry. We can determine the true cost only when price and quantity are confirmed in advance. The markup ratio should be known also beforehand to set the price and quantity of the goods in advance. As long as the price and quantity are fixed *ex post* in the market, the full-cost principle does not work truly.

1992, p.281). For example, in Great Britain several studies reported the use of cost-plus pricing in a variety of industries. Blackwell (1954) reported the use of cost-plus pricing in the book publishing industry, Pool and Llewellyn (1958) came to the same conclusion in the hosiery business and Balkin (1956) gave a detailed account of these practices in the clothing industry. Fogarty (1943) showed that landlords used cost-plus pricing methods when fixing rents and prices. Pearce (1956) and Pearce and Amey (1956) showed in a detailed case study of two firms the prevalent use of full cost as a calculatory base. Later research on pricing behaviour was not solely concentrated on the UK. Fog (1960) undertook a survey among 139 Danish firms and found that the majority of firms apply full-cost pricing but also adjusted prices according to demand and competition factors in a final step.” (NUBBEMEIER 2010: 22)

Table 1 True and False Full-Cost Principles

	Cases where the true full-cost principle is working		Cases where the true full-cost principle is not working			
Note	The price and quantity of the products to be sold are fixed in advance.		The price of the goods to be sold is fixed in advance, but the quantity is fixed <i>ex post</i> .			
Production	Make-to-order production		Make-to-order and make-to-stock production			
Industries	Shipbuilding, Heavy Machinery, Construction etc.	Traditional subcontracting in Europe	Public works	Oligopoly and patents	Strong brands	Economic boom
Remarks	<p>In make-to-order production, companies conclude orders in advance by contract for shipbuilding, large machinery, etc. and begin to fix prices, quantities, specifications, etc.</p> <p>The military industry is also included here. The cost can be properly calculated and the profit earned is naturally fixed.</p> <p>The typical full-cost principle prevails in the European tradition of subcontracting.</p>		<p>In the public service, prices are calculated on a total cost basis.</p>	<p>Protected by oligopoly and patents, the products made are almost certain to be sold.</p>	<p>Brand power almost certainly ensures the sale of the product.</p>	<p>In a booming economy, as demand exceeds supply, the products are to be sold with the price and quantity expected in advance.</p>

Source: Author

4. Difficulty Inherent in the Production of Durable Consumer Goods

Why are prices of industrial products set more or less under the full-cost principle whether true or false? Michio Morishima advocated that there was a confrontation for market-adjustment between the ‘quantity-adjusted’ type and the ‘price-adjusted by supply and demand’ type in the markets (MORISHIMA 1994: 12).

Durable consumer goods have emerged quite recently, and the post-World War II economy has been characterised by their diffusion. Among the various goods listed in Table 2, nondurable consumer goods (consumable goods among consumer goods) have historically been the first goods traded in the market. However, durable goods among the production goods (‘durable production goods’ in Table 2, usually called ‘capital goods’) did not appear on a large scale before the development of the machinery industry in the nineteenth century.

In the second half of the eighteenth century, the textile industry, such as the wool and cotton industries, came up first. These were industrial products, but they were nondurable consumer goods, which are goods consumed at a time by the public. Modern industry started and developed from the mass production of nondurable consumer goods. The development of the machinery industry was delayed compared to that of the textile industry. The machinery industry began to produce equipment for producing consumer

Table 2 Types of Goods: Consumer and Producer Goods

Types	Purpose	Names	Duration	Items	Remarks
Consumer goods	Goods consumed by the general public for subsistence	Nondurable consumer goods	One time only	Groceries, clothing, daily necessities, miscellaneous goods, etc.	Goods used by consumers once or for a short period
		Durable consumer goods	Long term	Household electrical appliances, cars, furniture, etc.	Goods used by consumers repeatedly or for a long period
Producer goods	Goods used by companies for production of goods	Nondurable producer goods	One time only	Raw materials, components, fuel, etc.	Goods used in production only once to produce the final product; usually called production goods
		Durable producer goods or capital goods	Long term	Machinery, equipment, moulds, etc.	Goods used repeatedly or for a long period in production process to produce the final product; usually called capital goods

Source: Author

goods (cotton yarn, cotton fabric, etc.), such as equipment for the textile industry and steam engines, in addition to munitions related to the military. However, these were goods used for production (durable goods in Table 2). Throughout the nineteenth century, machines were mainly produced in the form of artisanal production. The development of the iron and steel industry in the nineteenth century brought about the development of the material industry, which was also traded among enterprises. As for manufacturing methods, conversely, there were no advanced machine tools, such as lathe or milling machines; artisans used general-purpose tools and files to produce products. As a result, the production of standardised products was technically impossible. The machines and equipment used to produce the products were handmade, and the cost was high because of the immense person-hours of skilled workers.

In the twentieth century, a particular type of durable consumer goods emerged on a large scale due to technological innovations such as home electrical appliances and passenger cars. Rifles and sewing machines, which appeared in the nineteenth century, were probably the earliest durable consumer goods. Automobiles and household electric appliances had the most significant impact in the twentieth century owing to mass production.

These new types of durable consumer goods were products for the public, not for specific and minority customers, such as capitalists or aristocracy; the market size has been extremely large in scale. Automakers offer products in consumer markets to allow

customers to choose goods. In Figure 1, durable consumer goods (e.g., automobiles) are offered as final goods in consumer markets for public choice; the price and quantity are not known in advance before concluding the purchase contracts. Automobile production, particularly of passenger cars, is exposed to an unpredictable trend in demand issued by the public. In other words, automakers produce cars on a make-to-stock basis. Figure 1 shows that carmakers suffer from the inherent difficulty in the production of durable consumer goods. They are sandwiched between conflicting make-to-order and make-to-stock production requirements.

When a customer buys a certain model at a car dealer, automakers and manufacturers of parts have already started product development as well as procurement of materials and parts several years ago and have already invested a huge amount of money (billions of dollars, for instance) before the start of sales. If we follow automobile production consecutively from the beginning to the goal, we can create a series of processes from product development, procurement of materials, special tools such as dies, internal and external production of parts, and the final assembly of the vehicle.

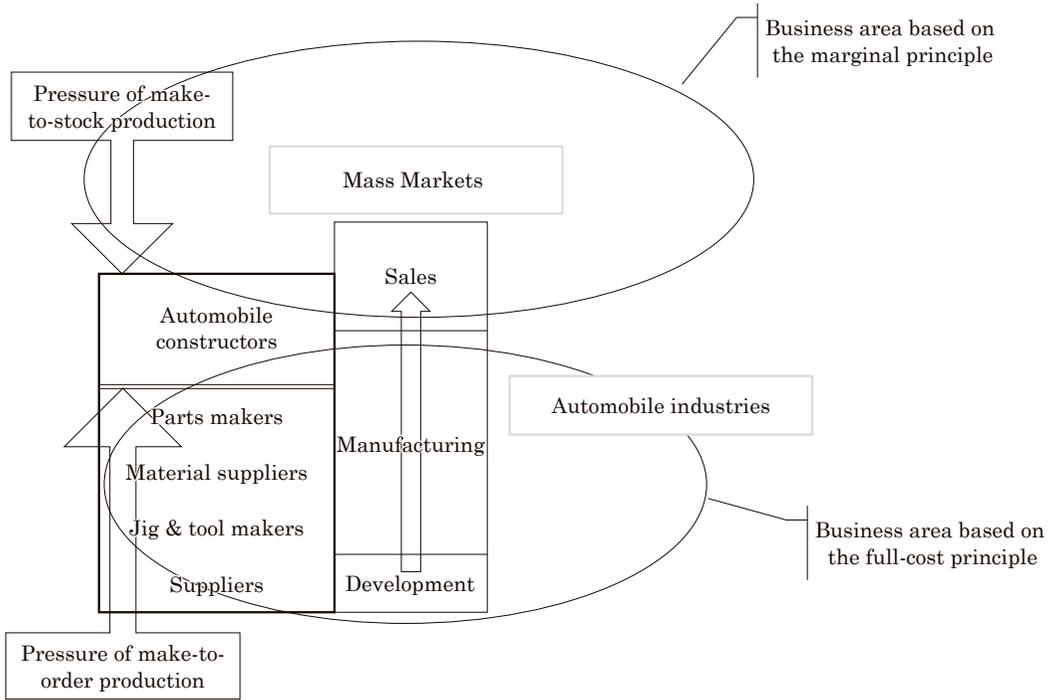
Customers consult catalogues and finally choose their cars, which have already been developed and wait for the final assembly in a car constructor's plant. Customers do not buy their cars before the goods appear in the market; carmakers should have finished the development and preparation of the final goods several years prior to the introduction of their cars to the market. Therefore, carmakers are subject to pressure from the market based on the marginal principle of make-to-stock production.¹⁰⁾

In Figure 1, in the processes from development to final assembly, automakers negotiate and contract prices with suppliers based on specifications and requirements before contracting. Thus, the supply chain is dominated by make-to-order production based on the full-cost principle due to its nature of business. Subcontracting transactions are a typical example of the full-cost principle in conventional production systems in Europe and the United States. Carmakers are subject to pressure from the supply chain based on the full-cost principle.

Here, we point out the difficulties inherent in durable consumer goods. Final goods producers (i.e., automobile manufacturers) are sandwiched between two different markets based on make-to-stock or make-to-order production. The price of the model, which carmakers put into the market after assembly operations, is subject to customer demand. As long as carmakers target the masses, they cannot determine prices based on the full-cost principle. Because the final products are consumer goods, they can only be produced on a make-to-stock basis. In the supply chain, products are made to appear as if they

10) Naturally, the marginal principle based on the supply-demand relationship is functioning partially in the supply chain of automobile production, because automakers buy general-purpose items such as screws and simple parts relying on market prices.

Figure 1 Difficulty Inherent in the Production of Durable Consumer Goods:
Confrontation of Make-to-Order and Make-to-Stock Production



Source: Author

were the result of a calculation of full-cost prices because each cost was added individually at the entrance of the final assembly plant. Therefore, in the supply chain before the final assembly, carmakers have no choice but to proceed with make-to-order production.

The price of the car is finally confirmed *ex post*, even if carmakers want to see the price determined by accumulating costs in the supply chain. Therefore, the cost is fine-tuned *ex post* by the supply-demand relationship in the market to meet the real price. Durable consumer goods are products that have entered this intermediate area based on the full-cost principle. The prices set following the full-cost principle were fine-tuned by the supply-demand relationship in the consumer market. The price of the product of the company that achieves the best performance becomes the standard, and the products of other companies cannot be sold in the expected quantity, so the fixed cost per unit of the product inevitably increases, and the profit decreases by that amount. If such an ennuï is to be avoided, all but the highest-performing firms will have to cut their costs to secure their margins. This creates strong pressure to reduce the costs. Cost-cutting means that it is no longer sufficient to fine-tune prices in this intermediate area. As price reduction

is no longer sufficient, the structure of costs (expenses) itself must be examined and ameliorated.¹¹⁾

5. Dualistic Hypothesis on the National Economy by Michio Morishima

Morishima (1984a; 1984b; 1994) developed a dualistic argument concerning the full-cost controversy. Inspired by his argument, this paper argues in the following sections that such ambiguous pricing is normal in the national economy, and that the emergence of durable consumer goods has spread out the marginal principle into the manufacturing industry (where the full-cost principle originally functions), which forms the basis of today's global structural shifts. Based on the principle of effective demand, Michio Morishima accepted the full-cost principle, but drew an overview of the modern national economy, stating that 'the real economy is an eclectic mixed economy based on both the auction principle and the full-cost principle' (MORISHIMA 1984a: 103).

I divide products into two groups; the first of which consists mainly of products from manufacturing industry which have no perfectly organized market (exchange), and the second of which consists of products which have exchanges (agricultural, forestry and fishery products, mineral products). With Group I products, where output is monopolized by a single firm the production activity of the firm may be explained by the classical monopoly theory. [...] The theory of the full-cost principle will pertain to all other firms producing Group I goods; In that even the number of competitors does not present any problem, but of course where there are few competitors it may well be easy for them to act in concert. Should they do so by forming an explicit or implicit cartel, they will behave in most respects as monopolists, but to the extent that they remain competitors the competition will be intense (even with two competitors). The price war which will take place between competitors may well more or less standardize their mark-up rates at the minimum value. The prices of goods in Group II will not be set by individual firms but in the exchanges. Such prices will then be declared as fair price for that time and will possess authority outside the exchange.

11) Of course, 'cost reduction' is easier said than done. Above all, it is said that only a few companies in the world, including Toyota Motor Corporation, have been able to properly implement such a cost reduction method. In the traditional Western manufacturing industry, where the stereotype idea that 'cost reduction is impossible' prevailed, cost reduction was nothing more than increasing the production volume and lowering the fixed cost per unit of product. However, this method is only possible through mass production and mass sales, and it is no longer effective during the downward phase (after the 1980s) when the conditions for mass production and mass sales were lost due to oversupply. That is why the *lean production system* (a Western interpretation of the Toyota Production System) became the optimal system in the downward phase.

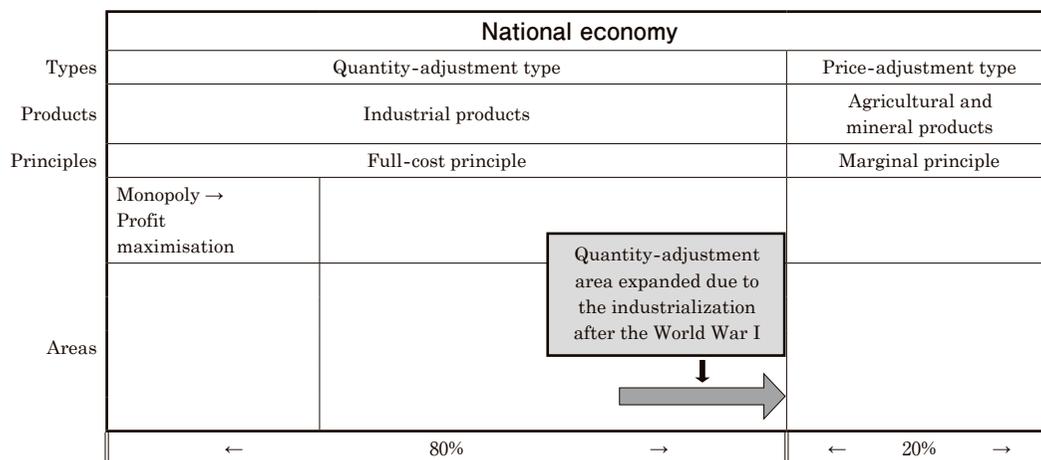
Whether or not firms sell through exchanges, they will adjust the quantities they produce so as to maximize their profits with the official price determined on the exchange as a datum. In accordance with the equilibrium conditions of neoclassical 'perfect competition' whereby marginal costs equal product prices, firms will increase (decrease) their output when product prices rise (fall). Therefore, supply of Group II goods will be an increasing function of their price. (MORISHIMA 1984b: 95-96)

According to Morishima, in modern industrialised countries, almost 80% of national products are priced according to the full-cost principle, and only the remaining 20% (mainly agricultural and mineral products) are priced to adjust supply and demand (MORISHIMA 1994:68). Figure 2 shows a schematic of Morishima's vision. The arrow indicates that since the Industrial Revolution, industrial production has increased in modern industrial nations such as the United Kingdom, and as a result, the area where the full-cost principle is dominant has expanded to 80% of the total.

According to Morishima, as industrialisation progresses and the weight of industry in the national economy increases in the historical development of the economy, the national economy shifts from price-adjustment to quantity-adjustment (even more so in the case of the consumer durables industry with large fixed costs). This hypothesis provides a bird's-eye view of the overall economic process on the confrontation of the price-adjustment type and the quantity-adjustment type, while dualistically utilising the neoclassical marginal principle and the full-cost principle based on the principle of effective demand.

The above-mentioned heterogeneous economy based on Morishima's dualistic model may be unacceptable to theorists who debate the principles underlying price formation theory, such as whether the mean principle (on which the full-cost principle depends) or

Figure 2 Image of National Economy According to Michio Morishima



Source: Author

the marginal principle (on which the principle of supply and demand adjustment by prices depends) should be adopted. Morishima's argument should be significant, as it is normal for two contradictory principles to coexist in a dualistic manner, and the history of economic development should be seen amid these confrontations.¹²⁾

6. Rise and Expansion of the Marginal Principle Area

Durable consumer goods, typically household electrical appliances and passenger cars, are purchased by the masses. Consumer goods are unavoidably governed by the supply and demand relationship, namely, by the marginal principle. However, because of the technical nature of durable consumer goods, they are governed by the full-cost principle in the supply chain for the preparation of parts, materials, and tools before the final product.

Figure 3 shows that the national economy is divided into three areas: quantity-adjustment area, price-adjustment area, and the intermediate area. The intermediate area is located between the quantity-adjustment (full-cost principle) area and the price-adjustment (auction-buying principle or marginal principle) area. In the intermediate area, commodities are priced based on the full-cost principle in the supply chain; in the final market, however, their prices are determined based on supply and demand. What happens in this intermediate area is that competition takes place based on prices proposed on the full-cost principle, with minor adjustments made by the marginal principle. In other words, the prices are fine-tuned as a function of the market.¹³⁾

12) The first thing that comes to mind when I think of such a dualistic eclecticism, in which both principles are valid, is that humans comprise both men and women. There is no such thing as men alone and no such thing as women alone. Even if there were a society consisting only of women (or men), that society would surely disappear in one generation because it could not have successors for the next generation. It would be a society with no history, no future, and nothing more than an invention of pure fantasy. Similarly, a society in which only the marginal principle functions is the one in which all markets are in a state of perfect competition, while a society in which only the mean principle functions is the one in which the prices and quantities of all commodities traded are fixed in advance in a perfectly totalitarian and controlled economy. Both are purely imaginary and neither state is possible. After the author's understanding, the real economy exists in a process in which both principles coexist and push around with each other.

13) Naturally, automakers do not always cut prices and sell at a discount price just because sales are slow. In the U.S. market, automakers still offer cash back incentives to reduce prices significantly, but in the Japanese market, discounts are likely to be limited. However, since the price is not reduced, the quantity sold will be reduced. If the planned quantity is not reached, the fixed cost per unit will increase, and the profit margin will decrease by that amount. In the end, even if the price is not lowered, the adjustment function is working properly because the profit reduces due to the decrease in sales.

two distinct worlds for pricing principles. Each world has a decisively different production method.

The cost reduction is inconsistent with the full-cost principle. It is impossible, therefore, to reduce costs as long as suppliers continue to apply the full-cost principle to the pricing of parts and materials. Thus, it is desirable to have suppliers adopt make-to-stock production. Carmakers wish that suppliers synchronise their production with the make-to-stock production of the carmaker. However, converting make-to-order production to make-to-stock production is not easy because suppliers should synchronise not only in the production process but also in the essential core of the management, such as profit, risk, and autonomy itself. The conditions indispensable to synchronisation are measures taken by carmakers to minimise risk and maximise profits for suppliers. Each party is required to respect coexistence and co-prosperity without the financial deterioration of suppliers. As it is necessary to convince both parties that synchronisation with automobile manufacturers will lead to the development of suppliers, carmakers must take necessary measures for suppliers.

In the case of the automobile industry in Japan, we can point out *Keiretsu* (corporate groupings) as a typical example. *Keiretsu*, a group of corporations, has a carmaker in the centre with suppliers of parts, materials, and equipment as members. Stable and long-term relationships, as well as mutual understanding and sympathy, characterise them. Japanese suppliers, not necessarily members of *Keiretsu*, are striving to supply parts and other components based on the marginal principle, rather than the full-cost principle. This is because they try to synchronise with the pressure of the marginal principle to which automakers are exposed, and they try to shift to make-to-stock production instead of make-to-order production. *Keiretsu*'s significance lies in its shift from make-to-order production to make-to-stock production. How is this possible?

The decisive difference between true and false full-cost pricing lies in whether the price and quantity are agreed upon before receiving the order. In the true full-cost pricing in the supply chain, the supplier starts production only after agreeing on the price and quantity in advance. In *Keiretsu*, orders are placed without fully agreeing on price and quantity. In the Western conception, this practice is not recognized as a contract. Such conversion was made possible by the elimination of the condition 'price and quantity to be agreed upon in advance'.¹⁴⁾

14) Therefore, why do suppliers start the production of parts without setting prices and quantities? Certainly, there are many cases that cross-shareholdings are in place between car manufacturers and their suppliers belonging to *Keiretsu*. However, when deciding whom to place an order for a certain component, carmakers usually call several competitors for negotiation. The selection process proceeds often with a *Keiretsu* supplier and not-affiliated suppliers for competition. First, prior talks should have taken place between the car manufacturer and several suppliers to work out how to

Why is it possible to place orders without deciding on the price or quantity in advance? Of course, the conviction of mutual trust between the parties involved is essential. At the same time, however, it is indispensable for companies in the supply chain to be aware that they are also participating in market competition to which consumer durables such as automobiles are exposed.

By adopting the marginal principle as the transaction practice instead of the full-cost principle, suppliers can reduce the cost of parts and materials, which is beneficial for the cost reduction of final products. This is one of the functions of *the Keiretsu*.

In the consumer market, the final price is fine-tuned by the marginal principle, so companies with poor cost performance will have a small profit margin and even fall into a deficit. The only way to increase the profit margin is to lower costs. If the full-cost principle could be thoroughly endorsed and prices could be maintained at the same level as initially set, there would have been no strong pressure to reduce costs and entrepreneurs would not have felt such pressure. When Japanese manufacturers effectively appeared just after the oil crisis in 1973, they had 'brought competition' (as the Europeans indicated) into this well-ordered world, such as the international automobile market.

History shows that the synchronisation of suppliers to car manufacturers has not only increased the profitability of car manufacturers but has also enabled suppliers to grow by enlarging their business. In other words, the shift to make-to-stock production instead of make-to-order production by suppliers has increased the competitiveness of the Japanese automobile industry and has contributed significantly to its development.

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produce the component in question. In this context, above all, the suppliers have made useful suggestions for product improvements and cost reduction based on their own technology. However, what is the most fundamental element in this matter is the organising principle. The organising principle in Europe and the USA is to first decide on the job and then allocate people (or suppliers) to the job consequently. In contrast, Japanese companies first decide on the people (or suppliers) and then allocate the jobs or tasks to people. Owing to the job-allocation attribution, suppliers can start their tasks before setting the price and quantity. On this point, see NAKAGAWA (2021b; 2021c).

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