Editorial

Dan Coffey

Leeds University Business School, University of Leeds,
Leeds, LS2 9JT, UK
Tel: +44-0-1132-334485 E-mail: djc@lubs.leeds.ac.uk
E-mail: ida10@keele.ac.uk

Biographical notes: Dan Coffey holds a PhD from the University of Warwick. He works at Leeds University Business School, where until recently he was Director of all economics-related MA programmes. His research interests are industrial organisation and operations research, and he has extensive field-based experience in the area of car assembly scheduling and logistics. His current projects include a forthcoming book on the car industry (*The Myth of Japanese Efficiency: the World Car Industry in a Globalising Age*), and a co-edited volume on the industrial crisis in Japan, both commissioned by Edward Elgar. He has published in a number of academic journals.

1 Introduction

The subject matter of this special issue of the *International Journal of Automotive Technology and Management* is the interaction between market strategies and market pressures on the one hand, and product supply strategies on the other, broadly conceived. The contributions to this issue draw on an interdisciplinary expertise to shed light on the various ways in which a fuller understanding of the interface between the demand side and the production side of the industry can help illuminate both the business strategies adopted by assemblers, the mediating effects of industrial structure, and the diverging pressures on the large and the small in the struggle for success and survival in world-wide car manufacture, the most global of industries. This introduction sets out an overview of the issues at large, as a context within which to locate the conceptual and empirical themes explored in the individual contributions.

2 An overview of issues and contributions

The opening task is rendered manageable thanks to the first contribution, an authoritative and comprehensive overview of the demand and supply conditions of the car industry in general – the crux of the marketing/product supply interface – from Professor D. Garel Rhys, OBE, of the Centre for Automotive Industry Research at Cardiff University Business School in the UK. Professor Rhys, an acknowledged authority on the organisation of the industry, draws on his wealth of experience to provide a rich, and empirically and historically grounded, appraisal of the issues. Following an opening statement on the importance of a rounded view of what makes for business success in the car industry, the paper leads the reader carefully through a complex area. What becomes quickly apparent

is the carefully qualified status Rhys gives to the debate on lean production, viewed as pertaining essentially to which steps generate cost-competitiveness on the supply side of production – of particular importance to the volume producers.

In this respect, three points to highlight in Professor Rhys' appraisal are that:

(a) market demand as well as supply remains fundamental to long-term business success

(b) car assemblers continue to react to each other in strategic ways

(c) relative size remains important in deciding strategy.

On the first point, Professor Rhys commences by iterating the importance of an understanding of market demand if developments within the industry and the strategic decisions that firms need to make are to be properly understood. Car assemblers as business firms need to find the supply conditions appropriate to the particular needs of the markets they serve: in order to underwrite long-term survival both must be right, and it is for this reason that the organisation of the interface between product supply and marketing strategy is basic to commercially effective decision-making. Given this, the question of an assembler's *business strategy* (point b), not only in relation to the end-consumer, but also in relation to other assemblers, comes very much to the fore. That there is more to strategy than cost-based price-competition is evident, for example, in the pricing policy selections made by Japanese entrants to overseas markets. As Rhys points out, while certainly offering price-competitive, quality-adjusted products, price-cost margins in the European region (for instance) were maintained even after restrictions on the sale of Japanese cars were lifted. Thus whatever the cost advantages enjoyed by Japanese entrants, there is little evidence that this was translated into a strategy of a price-undercutting in the market place to win market share, implying behaviour that cannot be fully understood by reference solely to the conditions of product supply.

The qualified status Professor Rhys gives to supply side policy debates is aptly illustrated in his discussion of the abiding difficulties facing smaller assemblers (point c). Forced to expand into a fuller range of market segments in order to survive, but faced with the fundamental reality of being too small nonetheless to fully share the economies of size aggressively exploited by the giant mass (volume) assemblers, firms like BMW must continue to rely on branding and carefully targeted market positioning for survival. For these firms the debate on 'lean production' has less immediate relevance: strategy is dictated first and foremost by policies to cultivate consumer demand, and to secure the niche markets that can be exploited by firms which can appeal on the basis that they are *not* large assemblers, while at the same time trying to circumvent the problems of size by becoming full-line producers, and/or parts of larger groups in the industry.

The particular emphasis enshrined in these points effectively captures the wider remit of this special issue. It is concerned with the ways in which both the demand-side of the market, and rivalry between assemblers, impinges on the viability and effectiveness of the product supply policies selected by strategically aware firms competing in a global context, and in an industry marked by (sometimes spectacular) exit (failure) and entry.

This is systematically explored in the Rhys paper, which goes on to consider supply, costs and process technologies, globalisation, and the complications entailed by product variety. From here it moves into product demand, marketing strategy, and then the diverging positions and prospects of the giant mass (volume) producers and the now typically large

but nonetheless smaller specialists, giving due regard throughout to the importance of non-price as well as price competition in a highly rivalrous industry. The result is something of a *tour de force* in progressing a definite point of view with a carefully attached overview of the issues relevant to all industry analysts.

The subsequent contributions look at particular topics which further develop the themes of the special issue. These we can group under three broad headings, as follows:

(i) globalisation strategies

(ii) matching strategies

(iii) plant selection strategies.

2.1 Globalisation strategies

The first of these papers (by Philip R. Tomlinson) explores world-wide overseas entry patterns for the Japanese auto-industry over a forty year period, from 1960 to 2000. In this paper, entry is viewed from the perspective of foreign direct investment, the decision by an assembler (or major supplier to that assembler) to acquire productive capabilities in an overseas region for purposes of effecting global product supply and marketing. The study convincingly shows the relevance for industry analysts of an empirical framework that commences with an explicit recognition of the existence of strategic rivalries between different Japanese assemblers, as well as with their Western counterparts: in this paper, strategic rivalry for Japanese car-makers commences in Japan. After detailing the world-wide overseas acquisitions of the Japanese assemblers over the whole of the reference period, and the sequences in which first one assembler and then another made the strategic move into North America and South America, Asia, Europe, and Oceania, the interactions between the Japanese assemblers at a global level are teased out by the construction of matrices which correlate for selected reference dates the number of overseas transplants in operation for each assembler at this time vis-à-vis domestic rivals. The conclusion reached is that the time sequence for overseas moves by Japan's assemblers was typically 'bunched' in each region, so that as one firm made its move into direct production overseas, others followed close-behind. This is interpreted as an example of 'tit-for-tat' response patterns of a kind which have long been at the forefront of game-theoretic models of business behaviour, in which 'followers' are prompted to move when they do because of a fear of being left behind by 'first-movers'.

The analysis is repeated for the Japanese suppliers to the Japanese assemblers, providing an empirical contribution to an understanding of the formation of *keiretsu*-like structures in the car industry organised around assemblers' overseas acquisitions. In this part of the study, a careful distinction is drawn between 'group' suppliers and 'independents', based on detailed scrutiny of assemblers' ownership thresholds in suppliers' equity. In interpreting the evidence here, the study rejects as too restricted the popular view that the development of Japanese assembler-supplier complexes outside of Japan represents nothing more than the inevitable unfolding of lean production and supply chains. The conclusion reached is that 'strategic contingency' also plays an important role.

The penetration of foreign markets naturally involves strategic decisions for a car assembler even when it sells through exports rather than directly acquire production facilities located in the destination country or region. Here it has long been appreciated that the car industry provides an ideal test case for the study of the sensitivity of the

prices at which exported goods sell in destination markets (as imports) compared to the prices of locally produced goods, when exchange rates fluctuate. Conversely, empirical investigation of the degree of sensitivity shown can reveal much about an assembler's market-strategy and strategic interaction with rivals. Suppose (for example) an assembler based in the Euro-zone were to choose today to export cars to the UK. If production costs are denominated in Euros, and the assembler prices to achieve a target margin over cost for each unit sold also denominated in Euros, then if Euro-sterling exchange rates fluctuate the prices charged British consumers in sterling must also vary. If the assembler, however, is worried that varying prices charged in sterling will lose it market share or provoke an unwelcome response from rivals also selling to the UK market, then it might opt instead to absorb the effects of exchange rate fluctuations by allowing its Euro-denominated margins to vary, rather than risk 'passing through' the effects to British consumers. The general reckoning in this regard amongst trade-economists is that the precise stance adopted by an assembler in these circumstances can help shed light on its market strategy, the degree of its existing rivalry with other firms selling to the destination market, including where relevant local producers, and the extent to which there is *de facto* evidence of coordinated (non-competitive) price setting behaviour.

This is the angle adopted in the next paper (by Manuchehr Irandoust and Abdulnezzar Hatemi-J), which investigates Swedish car exports prior to the emergence of the Euro-zone to each of five destination markets: France, Germany, the UK, the US, and Japan. After a pithy review of the relevant body of theoretical and empirical literature – some of it dealing with abstract issues of industrial organisation in international trade but much of it focused directly on the body of evidence for the auto-industry – the authors, both experienced economists with a record of careful work in this area, apply an econometric methodology to investigate the behaviour over time of Swedish car export prices. They find statistically significant differences in the pricing behaviour adopted for Swedish exports across the destination markets: in the case of the US, for example, the findings show that Swedish exporters felt constrained to absorb exchange rate fluctuations in their own margins rather than risk changing the dollar-prices charged North American consumers, while in the UK the same exporters felt free to allow British consumers to absorb the impact of exchange rate movements by varying sterling-prices. This would point, *inter alia*, to a perception of heightened rivalry in the US market – or a strategic intent to build market share and presence by consistent dollar-pricing over time – and a more relaxed view on the willingness of UK consumers to accommodate instability. The conclusions reached are consistent overall with the very substantial body of evidence that shows the existence both of coordinated pricing in individual markets vis-à-vis rival assemblers, and of discriminating circumstances across markets which highlight the importance both of varying competitive conditions and the importance of strategic decision-making to the industry. Again, market decisions are contingent.

While differing in research methodology and choice of topic, it is perhaps worth noting that in addition to the central role the findings ascribe to assembler strategies worked out in rivalrous contexts in determining outcomes in the world industry, rigorously conceived studies of these types can also be complementary in the insights they give when considered together. The first paper deals with Japanese foreign direct investment patterns overseas; notwithstanding the temporary obstacles posed to Japanese assemblers in making inroads into foreign markets – overcome in part by the decision to construct transplants – over the longer run it is clear that barriers to trade have proved relatively transient to these firms.

But at the same time, it is also widely perceived that Japan remains a difficult market for foreign producers to penetrate: there is an asymmetry here in the experience of globalisation. It is interesting to see how this is supported in the additional finding in the second paper that Swedish car exports to Japan were not only priced in a way consistent with absorption of exchange rate fluctuations through changes in margins, but that prices charged consumers in Japan at any *given* exchange rate did not respond positively to changes in producer prices as a whole in the Japanese economy: this could be interpreted as being reflective of the effects of impediments to foreign car sales in Japan – having once obtained a foothold, exporters are (or feel) constrained to price in a way that does nothing to jeopardise this. If the impetus driving Japanese assemblers to globalise production has been informed in part by strategic rivalries between these firms, the context in which these have played out is also one in which Japan's domestic market has been simultaneously secured against foreign penetration.

2.2 Matching strategies

The next set of papers deal with the important issue of the strategic match between the intended market(s) targeted by an assembler, and the policies adopted on the side of production and resources to support this objective. To highlight the importance of matching strategies in this sense, each considers a case with a strategic mismatch.

The first paper (by Dan Coffey) looks at a case in which a Toyota-like product supply strategy proved to be a poor choice for a small assembler at a critical point in its career when what was needed was a manufacturing regime better able to cope with a market strategy based on custom-building cars for a sold-to-order market. The case analysis throws light both on a specific period in the fraught history of the British based car industry, but more generally on the importance of finding strategically effective matches between the demand side and the supply side of making and marketing cars. The underlying thesis too is that the (still) popular view that Toyota-like production and supply chains are intrinsically well-suited for making cars that offer customers a wide-selection of choices in final model specification is someway wide of the mark. A framework is presented which builds both on the case at hand and on wider-evidence to develop this point: the conclusion reached is that in this particular instance adopting a Toyota-like product supply regime was a mistake in a situation requiring a 'flexible' form of assembly.

The second paper (by R. Venugopal) considers the diverging experiences of two attempts to enter the Indian market for passenger cars. It contrasts the substantial commercial success of a local producer of trucks diversifying into car assembly for the domestic Indian market, with the outright failure of a joint venture between an advanced automaker (Peugeot) and a local firm (Premier Automobiles Ltd). The local producer succeeded despite possessing limited experience in, and limited resources for, the manufacture and marketing of a personal transport product; the joint venture did not because it aimed to launch an 'international-quality' car into an emerging economy market, but failed to properly anticipate – and to learn from – the difficulties which would arise from local market conditions. This informative study is indicative both of the importance of the locale in devising an effective strategy for market penetration, and the emergence of local producers in a potentially enormous market which have succeeded (with little foreign collaboration) with relatively 'basic' products. The analysis is developed in the context of a modified resources-based perspective on the firm, which gives a fuller

role for strategic commitment to a coherent business plan. The overall conclusion reached is that new product success in emergent markets like India will be strongly linked to market selection and product positioning.

Comparing these studies, each considers a case in which a business venture struggled because of failures in strategy, but from opposite sides of the spectrum. The first considers a case in which an ambitious but carefully considered marketing strategy was undermined by a poorly conceived policy selection on the side of product supply. The second, based on a clever and apt selection of competing cases, and pointing as well to the nascent potential displayed by indigenous producers in an important emerging market, looks at a salutary instance in which a possibly significant competitive advantage on the resource side was ineffectual in compensating for a poorly considered marketing effort. Both highlight the importance of selecting effectively matching strategies.

2.3 Plant selection strategies

The next paper (by Evaristo R. Clementi, Pier Angelo Piazza and Giuseppe Volpato) is highly original, rigorously constructed and argued, and profoundly important both for the challenge it presents to industry analysts when assessing the options facing assemblers in making choices impinging on both the demand and supply sides of production, and also from the viewpoint of progressing public policy debates on the sourcing strategies of firms in a global industry. It simulates the comparative cost structures of four types of assembly plant, drawing on data taken from real-world situations, and subjecting the results to a form of 'sensitivity analysis' to help identify robust conclusions. Focusing only on cost categories likely to be affected by an assembler's initial decision on where and what to produce, the analysis differentiates four types of plant based on two types of classification: the plant in question may be a brown-field or green-field site, and it may be designed so as to produce a narrower or a wider range of major model specifications. Simulating the impact of the choice made both on expected profits margins and rates of return on capitals invested over the assumed life-cycles of the models, and carefully distinguishing the differential effects the choice has on both fixed and variable cost categories, the results arrived at are striking. Regardless of the choice made on the range of models to be built, the brown-field option emerges as the favoured one; and notwithstanding an assumed advantage in the market place from building a broader mix of model specifications, the outcomes nonetheless favour a less 'flexible' option.

If we locate these results against the themes developed in the preceding papers, their general interest and significance is apparent:

(i) in debates over globalisation these findings suggest that the advantages (all else being equal) for transnational car assemblers in opting for green-field sites over brown-field sites have been greatly exaggerated in popular controversy, even assuming very sizeable savings in labour-related costs when assemblers exercise the green-field option

(ii) in assessments of the extent to which developments in technology and organisation have favoured the cost-effectiveness of plants building larger rather than smaller numbers of major model specifications, these findings suggest that the literature has exaggerated the degree to which the economics of the industry favour 'flexible' plants.

The relevance of both (i) and (ii) to anyone interested in the supply and demand contexts within which particular plant selection strategies by assemblers are or are not justified is self-evident – regardless of whether that analyst is engaged in research on behalf of the industry, a state department, or an independent research institution. The relevance in particular to public policy debates on the inducements needed in industrial regions to forestall plant relocations by car assemblers to low labour cost areas is clear: the simulation finds that the net costs of doing so already exceed the net benefits, a conclusion which the authors expect changing technologies to strengthen over time. The findings, moreover, are presented in a format which permits both direct experimentation with orders of magnitude as a guide to future research, and a point of empirical reference. Here, the construction of the assumed difference in flexibility is likely to excite interest: for purposes of tractability, the paper simulates cost comparisons between plants which differ in the number of body-types produced, while holding other aspects of the product mix constant – in this sense, the study is a building-block contribution. Finally, the conclusions reached on the impact of technology are similarly contingent: if the advantages to assemblers of relocating in low labour cost areas are expected to diminish through time, the advantages obtained from running a more flexible facility is expected to increase, as a consequence of ongoing developments in micro-technology.

2.4 The interface between marketing strategy and product supply

Taking these contributions in reverse and comparing them to the overview provided in the opening study by Professor Rhys, consistencies of perspective are evident. The cost simulations carried out for brown-field versus green-field sites, each differentiated by the number of major model specifications built, are consistent with Professor Rhys own view that the cost advantages to global car producers of looking for the low-wage option are diminishing over time, while the impact of the micro-technology revolution on cost structures (while real) has not yet been revolutionary. The failure of a major European firm to establish an effective joint venture in India, and the proposition that a Toyota-like product supply strategy may have actually undermined a small assembler trying to develop a market profile by selling custom-built products, are both consistent with the emphasis he gives throughout his appraisal of the need for assemblers to market cars that customers actually want and to properly match product supply to market strategy. In the same way, the study of international export pricing confirms the significance Professor Rhys attaches to non-price competition and price discrimination as reflexive indicators of the particular forms of rivalry that characterise the global car industry, and which shape and are shaped by the strategic choices made by firms within. And similarly, a reader proceeding through the Rhys-paper to the study of the world-wide entry patterns of the Japanese assemblers and their Japanese suppliers will find that it goes some way to answer a question Professor Rhys poses in his own paper: why did so many Japanese assemblers opt to acquire production facilities in Europe at a time when the total market was manifestly smaller than existing capacity, and without aggressively cutting prices?

Most fundamentally, there is agreement across each of these contributions, both in design and execution, on the overarching importance of the demand as well as the supply side of production, of the interface between the two in accounting for business success, and on the wider context of intense rivalry between firms in a globally diverse industry.

One other issue is perhaps worth highlighting in this context. Professor Rhys notes in his overview the significance attached by some industry commentators to hybrid-product technologies, most particular in the context of environmental concerns and the development of new engine technologies: this in turn raises the possibility of fundamental changes in product-design, and hence in the pattern of competitive advantages. On this point, while noting the issue, the view taken is that a short-term revolution is unlikely.[1]

3 Conclusion

The tendency, for the better part of two decades now, has been to deny the relevance of much of the issues raised in this context. If one starts from the perspective that a previously existing state comprising 'Fordist' mass producers and small luxury producers has been swept to one side by a more flexible and leaner type of production then it is perhaps tempting to dismiss differences as becoming less important (a tendency evident since Alshuler et al. (1984), Womack et al. (1990), and in Womack and Jones (1996)). Traffic here has not all been one way, as evidenced both in the sophisticated discussions of hybrid-forms of organisation in production, the concrete forms in which abstract principles gell, and ongoing debates over the organisation of work. The contributions to this issue present a view which is consistent with a rejection of the first trend, and puts issues of market structure and business strategy firmly back to centre stage.

References

Altshuler, A., Anderson, M., Jones, D., Roos, D. and Womack, J. (1984) *The Future of the Automobile*, Cambridge: MIT Press.

Hawken, P., Lovins, A.B. and Hunter-Lovins, L. (1999) *Natural Capitalism: The Next Industrial Revolution*, London: Earthscan Publications Ltd.

Womack, J. and Jones, D.T. (1996) *Lean Thinking: Banish Waste and Create Wealth in Your Corporation*, 1st edition, Bath: Simon and Schuster.

Womack, J., Jones, D.T. and Roos, D. (1990) *The Machine That Changed the World*, New York: Harper Collins.

Note

[1] The most enthusiastic prognosis of a transformation in the world auto-industry arising from new product technologies is undoubtedly that provided by Hawkins et al. (1999), a contribution widely noted by prominent politicians and policy-makers in government. In fact, in this book the prediction is also advanced that there will be a move from individual car ownership (a major consumer durable) to systems of car-rental, which if true would fundamentally alter the entire debate about product supply/marketing interfaces.