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1 Introduction

A connecting theme binds the constituent studies which make up this second half of the special issue exploring new perspectives on policy responses to changes underway in the global auto industry. This might fruitfully be described as the quest to identify ways in which the industry best contributes to economic and social development, from the viewpoint of policy formulation as this applies both to policy content and to the appropriate levels for effective policy engagement. In each instance, existing policy stances, positioned at the local, national-regional, national, or supra-national levels, are considered alongside the other forces driving auto-industrial trajectories, to explore goodness of policy fit, and to proffer conclusions pointing towards new recommendations. As with the studies published in the first half of this special issue – exploring growth, employment and the role of the state in a globalised industry dominated by large corporate players¹ – there is again a consensus amongst contributors on two related points: government policy towards the industry has a positive role to play in auto-industrial development; and the spatial reach of both policy makers and businesses matters for the pressures brought to bear on each. At the same time, the connections linking the studies to follow are more particularly described by means of two policy sub-headings: means of development, and levels of engagement.

2 Means of development, levels of engagement

In the first instance, each contribution sees the development of the auto industry as something that runs in potential parallel with the broader economic development of the societies within which it operates. It is a (potential) motor of growth, and a (potential) vehicle for economic transformation. The proximate 'means of development' are thus to be found in innovation and investment – whether in the service of 'catch-up' by emerging giants like Brazil or India, and in relation to the older metropolitan centres of auto-industrial production and design, or in the introduction of cutting-edge changes promised by new technologies, or both. However, the prospects for auto producing regions are never certain: older industrial centres can find themselves in decline; newer industrial centres may not realise their ambitions. For this reason, policy, by necessity, has an important, and strategic, role to play; and in considering how to design policy, and with what object(s) in mind, sustainability is paramount.

Next, and in addition to considering the appropriate mix of government and non-government agencies required for effective policy design and implementation, with a view to encouraging and channelling the dynamics of the sector, what we might call the 'levels of engagement' for policy must also be appropriate and carefully considered. On a spatial scale, policy engagement can occur at multiple points. There are measures which might best be organised and delivered by the organs of government in closest proximity to the business centres whose activities it is the goal of policy to influence or support – with policy devolved to the towns, cities and environs which host infrastructure projects, or supply a workforce, or house businesses engaged in design or production activities. But in many cases delivery on a broader scale must be preferred: at the level of sub-national regions which cut across the jurisdictions of the most local government bodies; at the level of the national territory as a whole, with respect (say) to national tax or employment policy; or even at the supra-national level, to implement appropriate rules

by which to coordinate the policies of different national governments, across a range of policy areas. In this last case, for example, one goal of policy might be to prevent strategically minded – and strategically capable – larger firms engaging in rent seeking by playing governments against each other, at the expense of longer term development, including development benefiting smaller businesses. Levels of engagement thus matter too when national governments consider how best to manage foreign owned businesses seeking to acquire or maintain a stake in their domestic economies.

The preoccupation of this concluding part of the special issue exploring policy responses to change is therefore with finding the levels of engagement by which governments can best engineer scenarios in which the means of development are used to most constructive effect. The requisite levels of engagement encompass considerations both as to the scope, scale and point of design and delivery of policy, and the local or global positioning of the businesses with which policy measures to encourage socio-economic development engage.

Readers will find much of interest in the detail provided in individual studies. For example, several of the case studies look at government efforts, in a mature industrial economy, to promote electric and low carbon emission vehicles, via the adoption of EU electric vehicle infrastructure standards and the provision of incentives and support for manufacturers, local authorities and energy providers on the supply side, and measures to encourage a nascent consumer interest on the demand side. Others consider emerging economies: the conceptualisation of competitive advantages for sustained and sustainable local business development when the main corporate players are foreign owned giants; and the changing efficacy of market liberalisation over protectionism when the basis for knowledge acquisition and learning by indigenous businesses is also changing over time. An extended case study explores reasons why supra-national rules of engagement are desirable not only for national economies and communities, but also better informed business decisions.

A number of major debates run at parallel to these studies. Do low carbon technologies point to a global 'substitution industry', in which production of internal combustion engines and components is gradually replaced, but with little by way of an overall rearranging of the pieces on the chess board in terms of the currently dominant auto-producing regions of the world and their major commercial interests? Or will first mover advantages accrue to those nations and regions hosting entrepreneurial firms which, with policy support, obtain early adopter advantages vis-à-vis jobs and growth? Are nationally-consolidated policy plans preferable to regional policy variety within countries? Is there a shift towards niche markets – a long-standing preoccupation in autoindustry debate - and if so, will the strategically important niche markets of today develop through time into ultimately sustainable but novel forms of what again becomes mass market provision? Can the resources and capabilities of foreign owned transnationals be harnessed to the needs of indigenous businesses in emerging economies as a prelude to their own global ventures? These questions, and more, are explored, in different contexts, in the studies in this issue. It is perhaps no surprise that the phrase 'think global, act local' appears in several of the contributions.

There is, of course, a shadow again looming over the whole of the automotive world, in the form of the unresolved global economic crisis which first erupted with the near meltdown of a series of US and European banks following the Lehman Brothers collapse. At the point of writing, the threat of a second wave of potentially collapsing financial

institutions is being exacerbated by the crisis of the Eurozone, itself promoted by the combined impact of slump, austerity, private-sector bank 'bad debt' overhang, bond market speculation and the conduct of credit ratings agencies. In the midst of rising bond yields – the increasing returns demanded by buyers of government debt – and falling credit ratings, even Germany has now experienced a failed bond issue. The role of the European Central Bank (ECB) is central to this rapidly evolving crisis, but with disagreements at the highest level as to what to do, and with major exchange rate misalignments, between some Eurozone countries at least, a difficult problem so far remains beyond political solution. The European Commission has slashed its growth forecasts; and the outlook is worsening. And this is no local problem: US financial institutions are exposed to Europe, while US domestic policy is similarly committed to austerity, in a context of political deadlock; China, whose export success is dependent on Western markets, and whose accompanying financial reserves are increasingly important to Western financing arrangements, is itself showing symptoms of economic stress, with growth rates falling as its major export markets struggle. No doubt the list could be extended - the travails of Japan continue - but the point is clear: the world auto industry is again facing a major global demand shock, and not least in the West.

This however is no excuse for debate around policy design for long-term auto-industrial development to falter. On the contrary, if the world auto-industry is to play an active part in promoting sustainable recovery, such debate is becoming more, not less, important. And how best to identify the levels of policy engagement by which to effectively engage the means of auto-industrial development – with all this entails – is a major thematic concern.

3 An overview of contributions

These then are the themes taken up in judicious and innovative detail in the individual contributions, each adding new insights to our overall sense of auto-industrial development. Interestingly, the first three studies are organised around assessments of the same national economy, but at different interpretive scales and with different policy issues in mind; these commence with the position of the country in question within Europe and the world economy, and conclude with the state of the auto-clusters and localities within. The national territory in question is an 'old' auto-industrial economy – Britain – with a long established significance as a base for car production and export, and a mature domestic market; the opening trio of studies encapsulate, with their different emphases and orientations, concerns about the difficulties posed by globalisation, and anticipations of future auto-industrial cultures. The studies which follow then turn to the policy ambitions of two of the 'emerging' powers in the 'new' auto world, Brazil and India: the contrast is absorbing.

The first paper by David Bailey and Alex de Ruyter ('Re-examining the BMW-Rover affair: a case study of corporate, strategic and government failure?') explores the circumstances surrounding the acquisition and subsequent break-up and sale of the British Rover Group by the leading German quality cars maker, BMW. This was a major event both for the German business and in the closing stages of the life-history of the 'British' car industry. The authors isolate and explore an under-researched but important subject for the study of auto-industrial development, namely an exploration of the anatomy of failure. They do so in order to identify practical measures which might in

future better serve the major stakeholders involved in, or affected by, transnational investment programmes, including local communities.

To this end their analysis identifies three categories of failure: 'corporate', exemplified in the failure per se of a venture seeking synergies between separate businesses; 'strategic', revealed in the failure of decisions made at the apex of a business complex to generate outcomes appropriate to their wider contexts; and 'government', referring to failure not only of an individual government policy stance to appropriately guide private investment decisions, but also to a failure of policy coordination between national governments. These themes are explored in a rich historic and narrative as well as analytic detail, and the paper as a whole offers a synthesis and overview of the now substantial literature on its case-study that will mark it as a natural future reference point. Moreover, the details are used to marshal policy recommendations going well beyond the particulars of one specific case. These include the monitoring of ex post behaviour against ex ante guarantees or pledges made by car making businesses to governments, workforces, communities - and other businesses - at the point where their initial investment plans are endorsed. The case for a supra-national dimension to policy, involving a prospective and enhanced role for the European Commission, is also made: an outline is given of its shape, to spur debate.

The second paper by Nigel Berkeley, David Jarvis and Jason Begley ('Phoenix from the ashes: can low carbon vehicles ensure the long-term viability of the West Midlands automotive cluster?') considers the opportunities afforded by low carbon vehicles (LCVs). Its case study policy focus is, coincidentally, on a part of Britain adversely affected by the failure of the BMW-Rover Group corporate venture – the British West Midlands. The absence of a national 'brand carrier' for Britain, along with an historic decline in volume manufacture and a weakened national automotive research and development effort, are all identified at the outset as key factors bearing down on policy makers; but at the same time, serious constraints are also identified at the policy implementation level – not least regarding supporting institutions, most particularly with respect to funding and capacity. In these contexts, the authors explore the possibilities for revitalising the historically diminished but still nationally significant West Midlands automotive cluster, and the scope for policy initiatives to enable the region to become a new leader in LCV technologies.

It is an assessment that will again be of considerable interest to international researchers seeking to draw transferable lessons from the details of specific cases. The study reviews such relevant matters as the strength of the existing design and engineering base, the effects of competition from Eastern Europe on supply chain sourcing, and the problem of attracting and qualifying new young workers in the numbers needed to transform an 'old economy' sector poised on the edge of technical and social renewal. The core of the paper, however, is government policy and the appropriateness of funding and institutional support if strategies to realise low carbon automobility in a low carbon economy are to be effective. Here, and notwithstanding, the ambitions of the British government, with its five-pronged strategy supported by a range of initiatives involving stakeholder-business projects, problems of funding, capacity, coordination and policy remit are identified as live issues. And significantly, the authors see an underlying contradiction in state policy, a more localised responsibility for policy delivery combining with a diminishing but still centralised funding mechanism, following abolition of previously key regional development agencies.

This theme is taken up in the third paper by Gavin Harper and Peter Wells ('Diverse regional sustainability strategies: template for the future or squandered resources?'), which contrasts the policies for auto-industrial development pursued in different parts of Britain. In addition to further investigating the consequences of abolishing regional development agencies, Harper and Wells explore on a more abstract plane the appropriate spatial scale upon which policies to engender and develop new eco-industrial cultures should be mounted. The authors contrast policies organised around LCV initiatives in different parts of the same country – with past trajectories now favouring different products and product technologies: electric cars in the North East of England, low carbon cars in the West Midlands, and hydrogen engines in Wales – to bring questions of regional diversity to the fore. Such diversity, attributed to particular past histories and reflected in different current contexts and concrete needs, raise questions as to how best to interpret variety between national regions: are different regional trajectories in some sense 'competing', or are they 'complementary'?

Drawing on interview based data, and a detailed knowledge of relevant players, the analysis proceeds by way of a study of comparative national-regional cases. This is framed by a dialogue with the so-called 'transitions framework'; this envisages automobility systems in terms that comprise mutually supporting sets of relations encompassing technology, organisations, social practices, cultural norms and behaviour: it implies that multiple actors must be engaged to confront problems which emerge on multiple levels. Amongst other things the authors ask whether sustainability, in the new automotive world, requires policies to encourage socio-economic diversity, and whether the appropriate spatial scale at which the processes for development best operate have in fact been properly identified by the relevant policy maker, in this instance the British government. Their discussion of the national policy landscape, and appropriate levels of delegation to regions and localities, and in a situation where a window of opportunity exists to transform the auto world, is informed by the highly pertinent fact of financial austerity and budget cuts, in Britain as elsewhere.

If these papers are concerned with preserving as well cultivating domestic capabilities in a context marked by rapid technological transformations and globalising forces, the same concerns are evident in the papers which follow. But this time the analyses proceed from the purview of the auto-industrial sectors in more confidently emerging economies.

The fourth paper ('Localisation of product development based on competitive advantage of location and government policies: a case study of car makers in Brazil') by Ugo Ibusuki, Hideo Kobayashi and Paulo Carlos Kaminski commences with the tensions which exist between localisation of design to meet local market requirements and the desire of transnational corporations to internationalise operations. It contrasts the 'global car' concept, in which the same model sells everywhere, by implication shrinking the space for an independent engineering capacity at subsidiary locations, with the abiding needs for corporate strategists to take account of non-convergent local needs and tastes. Observing that growing domestic demand in emerging economies is promoting local production, in previously peripheral economies, organised by globally active advanced firms from the 'Triad' regions of North America, Western Europe and Japan, the authors consider the question of national competitive advantages as applied to Brazil. They do so in order to consider which factors will best support the development of local businesses.

The study proceeds in progressively structured stages. First, they show how a framework extolling the role of industrial policy in promoting industrial clusters can be nested within the categories suggested by Michael Porter (the 'Porter diamond') as best

representing the factors which determine national competitive advantages in a global economy; having identified ways in which government policy geared towards cluster formation can act positively within each of the categories describing factors for competitive advantage, the resulting associations are then mapped against product development competencies. Next, they present the results of a questionnaire survey, supplemented by interviews and case study analysis, which investigates these same category associations from the viewpoint of each of the main foreign car makers now active in Brazil. These foreign players are in turn subdivided into categories depending on their point of arrival in Brazil – with VW, GM, Ford and Fiat comprising the first wave, and Toyota, Honda, Renault/Nissan and PSA Peugot-Citreon the second. The study as a whole, which provides a series of positive policy inferences and recommendations, is supported by a succinct and informative overview of recent trajectories for production, sales, and trade in the Brazilian auto industry.

Given that the focus in this paper is on the role of foreign transnationals in engendering product development competencies in an emerging economy, it is entirely apt that the fifth and final paper, by Madhuri Saripalle ('Learning across policy regimes: a case study of the Indian automobile industry'), should be a study of the role played by policy supported growth in transforming the learning processes of firms. This is executed via a careful econometric analysis deploying panel data for the Indian automobile industry to test a set of related hypotheses: these explore the efficacies of different policy regimes – protectionist, deregulatory, and liberal – for knowledge assimilation. The context of the analysis is the remarkable development of the Indian auto industry over an extended interval of time marked by a careful government policy oversight which has gradually relaxed the restrictions on foreign owned businesses acquiring positions in the Indian economy. The econometric exercise is in turn supported by both historical exegesis and original case study research, providing a rich methodological basis upon which to explore complex issues.

Although readers will benefit most by inspecting the paper for themselves, there are a number of features of note. First, the paper adopts an explicit and sophisticated econometric methodology to address intra-firm learning, a determinant of inter-firm performance, as a process which evolves under successive policy regimes. Second, this econometric analysis is rooted in a careful review of how different forms of learning - by doing, by innovation, and by means of the firm's own internal resources - can be mapped against policy regimes each marked by their own macroeconomic environments, market structures and technologies and forms of institutional support. Third, the paper tacitly, but substantially, endorses the effectiveness of the history of Indian industrial policy towards the auto industry; and it does so in a manner which stands as a rigorous corrective to overly simple policy prescriptions that contrast 'protectionism' with 'liberalisation' without considering the significance of the evolution of intra-firm learning processes, and in response to suitably evolving external policy environments, as a prerequisite for intelligent policy design. Finally, a very careful presentation of the (formal) model used, and its (empirical) results, is undertaken, so as to facilitate comparison with an extant econometric literature on learning processes and policy regimes, hitherto largely confined to economics journals.

Readers will appreciate the value not only of comparing the different circumstances of the Brazilian and Indian cases, but also the different treatments of the parallel issues raised. In each case, indigenous development is paramount as a goal of government

policy; in each case the involvement of global players has become integral to the policy formula. At the same time, a comparison with the British case is also instructive. While the British case is one invoking a qualified anxiety, the Brazilian and Indian cases are optimistic. In the world of auto-industrial trajectories and policies, the old order is becoming rapidly transformed.

References

- Bailey, D., Coffey, D. and MacNeill, S. (2010) 'Editorial: special issue on the world auto industry and policy responses', *International Journal of Automotive Technology and Management*, Vol. 10, Nos. 2/3, pp115–127.
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Notes

1 The first half of the special issue was published as Vol. 11, No. 2, of this journal. The accompanying editorial provides an outline of contents: see Bailey et al. (2011). For an introduction to an earlier two-part special issue focusing on change and policy responses, which was published as Vol. 10, Nos. 2/3, of this journal, see also Bailey et al. (2010).