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## Swing plants and punishments: a study of a Ford closure decision

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**Abstract:** This paper explores a major plant closure event based on a technical assessment of scale, plant numbers and projected global demand, in a repeated bargaining game context. It reconciles two apparently competing viewpoints:

- a that the closure followed from weak global demand conditions
- b that it was a response to workplace tensions.

The case study event is the withdrawal of Ford from UK based car assembly, and the resulting closure of the car assembly section of its Dagenham site. The study casts fresh light both on the nuanced circumstances of a particular closure event, and the logic more generally of industrial organisation and plant flexibilities within assembly plant networks. Some points of interest are also noted for ongoing debates about 'lean production'.

**Keywords:** plant closures; cost efficiency; flexibility; bargaining games; lean production.

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## **1 Introduction**

Plant closures in the car assembly sector are significant events of policy interest not only for their own immediate sake regarding loss of local jobs and industrial capacity but also from the point of view of the windows thereby opened onto broader terrains. To this end, we offer a forensic reassessment of a major and highly controversial plant closure decision by a leading car manufacturer – Ford motor company – which elected to rationalise operations in its European theatre at the expense of British operations; this resulted in the closure of the car assembly section at Ford's UK Dagenham site.

The first contribution of this paper is to consider different views of the event. The company argued that its decision to reduce the number of car assembly sites which it separately maintained in Europe would facilitate not only an accommodation to a global shortfall in demand for cars but also the development of what it elected to describe as 'swing plant' facilities – individual factories better able to withstand swings in demand across product lines because of an enhanced potential for worker redeployment from one assembly line to another, thereby economising on adjustment costs. Since an argument of this kind could readily be applied by *any* multiple sites producer to explain and justify plant closures and rationalisation within an existing production network, we consider the logic of this proposition vis-à-vis internal cost structures. We show that the economics of rationalisation of an assembly plant network are subtle, and involve not only global demand magnitudes relative to plant numbers but also (potentially) the tacit bargaining games played between each of the main parties engaged in production. This allows us to consider an alternate charge, which is that the Dagenham closure was at least in part a response to workplace tensions and disputes – a 'punishment' – undertaken moreover in a context of relatively weak British employment rights and protections. At the same time, a deeper consideration of 'swing plant' flexibilities raises further questions about how best to understand competing and contextually defined notions of 'efficiency'.

Our second contribution is to consider policy response aspects, both at an immediate and obvious level – how the British state reacted, and in its European context – but also on a more general plane of abstraction concerning plant investment rationalities and what these imply about the mechanisms at play distributing regional production capabilities. In the course of pursuing these issues we contribute too to the study of the recent history of Ford motor company in Britain and Europe, offering revisionist suggestions and commenting on 'Ford Production System' (FPS) and lean production.

The paper is structured thus. It begins with contexts and competing explanations for the Ford plant closure event (Section 2); the economics of consolidated production and the twin significances of global demand factors and tacit bargaining games are then set out in general terms (Section 3); before a further consideration to engage with the subtleties raised by 'swing plant' flexibilities (Section 4). While policy response issues are discussed throughout, the last main section considers the broader parameters informing public policy debate in Britain vis-à-vis Europe (Section 5), which include assumptions about the car industry as a key industrial sector, followed by a conclusion. A brief appendix outlines relevant issues regarding workplace tensions at the factory site.

## 2 The closure event: contexts and competing explanations

In this section we provide a précis of relevant contextualising details, and we outline competing explanations for the Ford Dagenham closure decision. Before considering the issue of workplace tensions and discontent, we outline first Ford's own explanation. To do so we draw on Ford's direct testimony before a British cross-party parliamentary body (the House of Commons' Trade and Industry Committee) which investigated the circumstances of the closure, before offering its own conclusions on the case. We have already given a textual account of the cut and thrust of the parliamentary interrogation of Ford elsewhere, and since the full text of the testimony of Ford's witnesses is also public record – the interested reader should consult (inter alia) Coffey and Thornley (2009, pp.35–39, 44–51) and HC (2000–01, pp.1–15) – we narrow down to core essentials.

### 2.1 The Ford Dagenham closure event: the Ford explanation

The cessation of work at the car assembly section of the Ford Dagenham complex brought with it an end to some 70 or so years of car production at this site. At its founding in the later 1920s – the first car rolled off the line in 1931 – it was the largest car plant in the region, the 'Detroit of Europe' [Collins and Stratton, (1993), p.120]. It was with this site that Ford volume operations in Britain really commenced, and subsequently the Dagenham factory complex, in the South-East of England, near London and adjacent the River Thames, became a major feature in Britain's industrial landscape. A second assembly plant later established in the North-West, at Halewood near Liverpool, also began to build cars from the first half of the 1960s (ibid, pp.135–136). Like Dagenham, this younger site also ran into later difficulties, and was first to lose Ford-badged cars.

A presentiment of the ultimate fate of the Ford Dagenham site can in fact be found by considering the earlier withdrawal of Ford car assembly from the Halewood plant. In the middle 1990s, and as Tolliday (2003, p.106) reports, the Ford *Escort* was assembled in three European plants – at Halewood itself, at Saarlouis, and at Valencia. The first two were dedicated to *Escort* production, while the latter also built Ford *Fiestas*. In a subsequent rationalisation, the British plant lost out to the other two sites as a base of assembly operations for the *Escort*'s replacement model, the *Focus*. The decision was announced in 1997; by 2000, Ford-badged car assembly at Halewood had stopped.

The closure with which we are principally concerned came not long after. Ford announced on May 12th 2000 that the replacement model to the single Ford car line still being assembled in Britain at Dagenham – the Ford *Fiesta* – would no longer be sourced at this long established site, with car assembly operations to be wound up as production of the old model wound down, coming to an end early in 2002. Once again, and with some noteworthy parallels to the Halewood case, a British site had lost out with a decision to produce the replacement *Fiesta* at two sites on the continental mainland – at Cologne in Germany, and (once again) at Valencia in Spain. Since by this time the Dagenham complex was the only British site assembling Ford-badged cars, this meant in turn the withdrawal of all Ford car assembly work from the country. Ford did, however, announce that it would continue operations at the Dagenham diesel engine plant, with an expansion in capacity and range, and a limited redeployment of workers.<sup>1</sup>

In essence, Ford's explanation of its closure decision boiled down to two points:

- 1 owing to a global shortfall in demand a decision had to be taken to reduce the number of plants separately maintained to produce Ford car-lines in Europe
- 2 a process facilitated via the ‘doubling up’ of car lines at favoured sites, thereby also achieving enhanced flexibility at those plants vis-à-vis future demand swings.

On this first point, the not unreasonable proposition was advanced that weak demand put upwards pressure on the burden of fixed costs relative to a reduced production, thereby necessitating some consolidation towards fewer sites: ‘running plants at less than full capacity incurs additional fixed costs ... that has resulted in very poor financial returns ... rationalisation has been occurring’ (quoting Ford Evidence to HC (2000–01, p.1).

And on the second, Ford described the process of ‘doubling-up’ as one entailing the promotion of what its representatives called ‘swing plants’. In the context of the Dagenham closure case, as indeed of the Halewood closure, the Valencia plant emerged as the designated ‘swing plant’, building several car lines (the replacement model to the *Escort* – the Ford *Focus* – and the replacement version of the *Fiesta*). The argument advanced was that ‘swing plants’ enjoyed advantages of flexibility – ‘the technical term is swing plant ... you can change production of a model which may be falling in demand into one which is increasing’ (quoting Ford Evidence to HC (2000–01, pp.6–7). For this reason, and in the following sections, we will assess not only the industrial logic of rationalisation to reduce fixed costs in the context of a depressed global demand, but also the specific case made on behalf of enhanced plant flexibilities of this kind.

In each respect, we might also note that a not entirely dissimilar assessment of the emerging economic climate was advanced to the same investigating parliamentary body by another US car maker long established in Britain, General Motors. In the same year that the Dagenham closure was announced, GM (Vauxhall) also announced that it would soon be ending car production at its own British complex at Luton.<sup>2</sup> And in explaining this decision the company’s testimony before parliament also pointed to a shortfall in demand (a ‘severe deterioration’ in European markets) that necessitated some consolidation of car assembly work at a reduced number of sites; and it described the increased value of ‘flex plants’ – ‘desirable to have what we call a flex-plant ... with two different models’ (quoting GM Vauxhall Evidence to HC (2000–01, pp.49–50). In our paper, we favour the swing plant terminology favoured by Ford, but regardless of nomenclature we should recognise here an essentially identical argument, making the formal assessment of these lines of explanation for closures of wider relevance.

## 2.2 *The Ford closure event: demand versus employment side perspectives*

While we might think of the above explanations as applying essentially on the demand side, we should also consider the closure event from its employment side perspective. As is generally well-known, British workers enjoy few legal protections at work to require protracted consultations on site closures or to impose significant exit costs – and in considering why British car assembly plants should have consistently lost out in the instances discussed to competing sites on the continental mainland, this must be considered a potentially major consideration even accepting demand side factors. But in considering the Ford closure there are also further specific points of note.

First, the closure was a decision to relocate production undertaken after earlier assurances had been given that the Ford Dagenham site would source the new model, and as such its announcement constituted a policy *volte face* by the company. Second, it came

in a context marked by substantial evidence of workplace stresses – including what the investigating parliamentary body referred to laconically as ‘recent unfavourable publicity with allegations of racism’ [quoting Final Report in HC (2000-01, p.xii) – and a submerged dispute over new working practices for the site (see our Appendix)]. While a reversal on earlier assurances could be triggered solely by demand side factors, perhaps with weak British employment rights playing a conditioning role, decades of the inculcation into the business sciences of the lessons of game theory naturally draw one to ask whether some other ‘trigger’ might have been tripped in this instance. Employment relationships are often amenable to consideration as repeated games, enacted within indefinite time horizons: where the parties to the employment bargain at one plant in a multiple plants network fail to achieve a stable relationship, investment could be affected at the ‘problem’ site – as a disciplinary or cautionary signal to all employees.

And indeed we will demonstrate that demand side and employment side perspectives on the Ford Dagenham closure event are far from being mutually exclusive approaches in their explanations of developments, because it is difficult to make sense of economising arguments about plant network rationalisation to reduce fixed costs in the context of depressed global demand conditions without also considering the bargaining games played between employer and workforce in multiple plants production – and the impact on wage-effort schedules of the always present threat of redirected investment. Large firms operating within unionised sectors seeking to secure advantages in the determination of employee wages and effort levels are often thought likely to split work between competing sites to create a credible threat of work relocation, in the car industry as elsewhere – a strategy further supported by model replacement cycles.<sup>3</sup> And it is in this context that we should consider too the issue of swing plant flexibilities.

### *2.3 The Ford closure event: other issues*

In taking this tack we are of course making a judgement about the likely significance of employment-side issues as well as global demand factors for the closure decision, based on our initial assessment of which facts of the case seem most relevant: for example, neither the proximity of the different prospective plant locations to component part suppliers on the production side, nor to markets on the sales side, appear to have been advanced by Ford or discussed by affected parties as reasons for the closure – so that in this instance the associated transport-logistic and transactions cost do not appear to have been a major consideration leading to the loss of the Dagenham car plant. Similarly, it has been suggested [see Tolliday, (2003), p.108] that the closure was prompted by a high sterling exchange rate, a perennial concern for Britain; but this explanation was firmly rejected by Ford in its testimony to the investigating parliamentary committee, its representatives stating instead that ‘a long-term view’ had been taken using currency forecasts which assigned a modest value to sterling based on purchasing power parities rather than current market trading [see Coffey and Thornley, (2009), p.45] [the original Ford evidence in this regard can also be found in HC (2000–01, p.4)]. Thus while we can certainly take note of this suggestion, it cannot be considered a conclusive one.<sup>4</sup>

### 3 Demand, employment and consolidation: towards a game perspective

For all of the above reasons we now consider further the compatibility of evidence on the demand side of the closure decision with employment side issues, commencing with how plant investment decisions might impact on wage-effort schedules. In abstract terms, the key issues insofar as the twin significances of global demand conditions and employment side factors (wage rates and effort levels) are concerned can be readily identified by recourse to a simple example, to demonstrate their potential connections.

#### 3.1 Consolidating production: an example

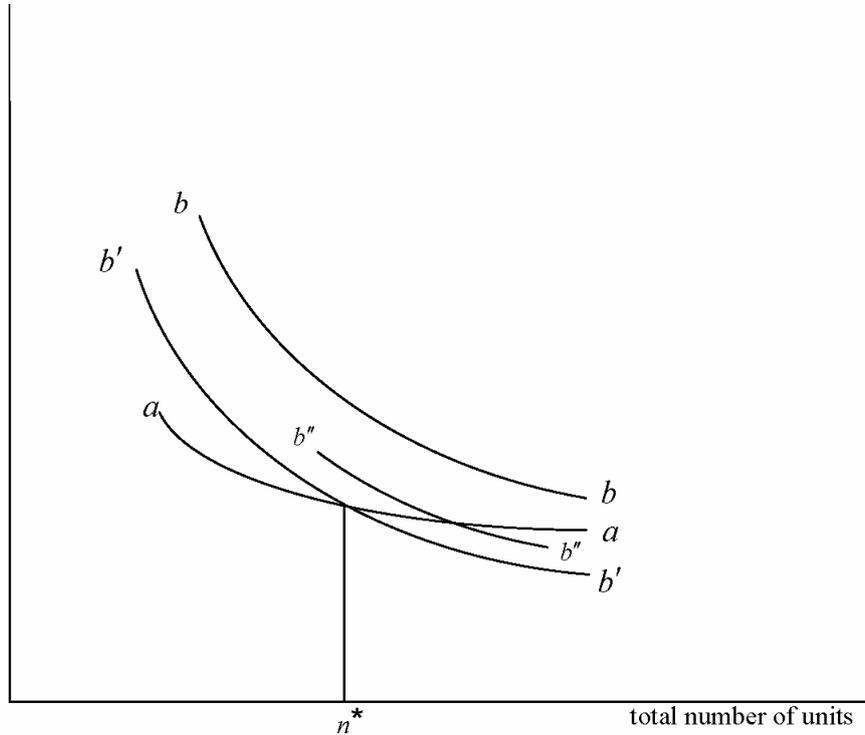
Suppose a car maker has to decide whether to build its car-line(s) or model(s) – in this section the analysis will not be affected by how many different models there are – separately at each of two plant locations, or together at one plant location. We posit two relevant cost categories: a fixed cost category ( $F$ ) and a unit wage cost category ( $C_W$ ), with this latter being comprised of the wage costs per car of labour employed.

To carry out the necessary assessment we can readily adopt a familiar tool. Everyone concerned with car manufacture and assembly is familiar with ‘scale curves’ tracing the cost advantages to producers of an increase in production volumes. Let us suppose that the unit wage cost of car assembly – let us call this  $C_W$  – is the same regardless of model identity, and that this is invariant to the anticipated scale of production, at least over the range of outputs against which the location decision will be made.<sup>5</sup> We will further assume, however, that the level at which  $C_W$  is determined may nonetheless differ with the number of separate plant locations chosen; in other words, the unit wage cost of car assembly is to be regarded as potentially indexed to the number of sites across which assembly operations are to be located – one versus two, in this initial instance. In other words, we allow the possibility that the car-maker can achieve lower wage costs at each of its factory sites if it operates at two ‘competing’ locations rather than just one. Because of our assumptions  $C_W$  is unaffected by changes in the composition of output, and we can think of each car built as a single ‘wage cost’ unit, to be added to the total cost.

It is easily seen that if plant fixed cost is allocated to production by the expedient of dividing through by the number of units that will be assembled at that site, then for the system as a whole overall average costs of production for each car built will be:

$$\frac{\sum F}{n} + C_W \quad (1)$$

where  $\sum F$  is the sum of the fixed costs of all of the plants to be used – in our example so far this would be either for one plant or for two – and  $n$  is the total number of cars to be built across all model types, or the total number of wage cost units.

**Figure 1** Comparative scale curves

This expression contains all the information needed to define an aggregate scale curve pertaining to the overall averaged cost per car of the car makers' total production, and whatever the plant organisation and balance of output by model and location. The cost per car will fall as the anticipated scale of activity rises regardless of the scenario in place with respect to the number of plants used, since in whichever case applies the summed fixed cost in equation (1) will be spread across more finished units. At the same time, we will assume that splitting production between sites increases this sum.

However, if the sum of fixed costs increases when production is subdivided between locations then unless there is some offsetting cost advantage elsewhere to consider the car maker would have a simple choice to make. Consider Figure 1. Suppose that the scale curve for production consolidated in one plant is curve *aa*, which is drawn with the requisite shape. If using two plants increases summed fixed cost ( $\sum F$ ), this would imply by comparison a scale curve like curve *bb*, lying everywhere above the first curve and thus ruling out two sites as cost reducing at any production volume. In fact, only if this higher fixed cost were offset by a lower per car wage cost ( $C_W$ ) could there be any real decision to speak of when comparing one plant with two plants. But this could only be brought about if subdividing production between plants were to lower wage rates, or reduce headcounts given cycle times, or reduce cycle times given headcounts. Were this so, the relevant curve for two plant production would sit further to the left in the diagram relative to the first curve (curve *aa*) – curve *b'b'*, say, rather than curve *bb*.

Evidently, if this were the scenario at hand then the decision as to whether to subdivide production between two plant locations and accept higher fixed costs or to

economise on fixed cost by consolidating production at a single plant could indeed depend on global demand conditions – consistent with Ford’s (and GM’s) evidence. Referring again to our figure, suppose the two scale curves now intersect at production level  $n^*$ : at higher levels of overall activity working with two plants would be cost reducing – while if global demand conditions are too weak to sustain this activity, one plant would be cheaper. But this result only obtains if wage costs are sufficiently reduced by subdividing production across plants, since otherwise consolidation is cheapest regardless of global demand. Thus, in this example, only when there are large enough bargaining advantages to be had by the car-maker on the employment side from maintaining operations at several plants – only if the threat of work relocation exerts downward pressure on wage costs – will the state of global demand become a key decision making factor for the car-maker.

If the additional fixed costs of using more plants is  $\Delta F$ , and if  $\Delta C_w$  denotes the absolute size of any associated reduction in per unit wage costs, then the two plant option would only be cost reducing for the firm if it expected the following inequality to hold:

$$n\Delta C_w > \Delta F \quad (2)$$

This requires that  $\Delta C_w$  be non-zero: otherwise demand conditions are irrelevant – it would never pay the car maker to use two plants if one plant is an option. Once this point is grasped, it is a simple matter to extend it: given our aggregating assumptions the same inference applies for any larger number of plant locations compared with a smaller. The inequality in (2) generalises readily to such cases: the key point would remain expected differences in total wage costs compared to differences in summed fixed costs.

### 3.2 Inferences and applications

The framework thus readily applies in principle to something analogous to the Ford case, where one plant was removed from the system (Dagenham) even as work was allocated to two more, for assembly of an unchanged number of car-lines.<sup>6</sup> But the same framework also highlights an incompleteness in Ford’s account of why the closure occurred: because even if this were true as one part of the story, global demand conditions can only take on a decisive role if there are advantages to maintaining a larger number of plants at high levels of projected demand, despite increased fixed costs. An appeal to global demand conditions and economies on fixed costs thereby required can at best be only a partial explanation as to why network rationalisation leads to a plant closure: some explanation is also needed as to why such economising should be contingent on global demand factors to begin with. For this reason we could consider the Ford Dagenham closure event from a wider perspective, as an outcome potentially enacted within a production network organised under terms that imply a tacit bargaining game between a transnational employer and its various workforces, under circumstances structured by global demand conditions but hinging too on the leverage multiple assembly plants gives the employer over unit wage costs. In this way, an obvious line of *potential compatibility* emerges between the seemingly divergent positions offered by Ford’s evidence focusing on the demand side, and by suggestions of problems on the employment side with respect to workplace tensions. Clearly, this is also the kind of generalisable inference that could be of interest to other closure debates.

#### 4 Swing plant flexibilities: some further issues

If we now consider the particular issues raised by swing plant flexibilities what quickly becomes apparent is how little the terms of the above analysis change, even while further insight is given into the private rationalities that are potentially at play. We can begin by accepting the basic advantages of ‘swing plants’ (Ford) or ‘flex-plants’ (GM).

##### 4.1 *Swing plant flexibilities*

Suppose for example that a swing plant is charged with the assembly, on separate production lines, of two models, over a time span divided into two sub-periods. In the first period, demand is forecast as stable; but for the second, factory planners take the view that for production on each model there will be a 0.5 probability of further hiring to accommodate a demand upswing, but an equal probability of layoffs. If the predicted absolute size of employment swings were the same for each event, then there would be even odds that workers not needed for production in the second period on one car-line could simply be moved across to the other, if skill sets are commensurate. Let us maintain this symmetry assumption and assume that the charge for each car line of making hires or layoffs is positive ( $>0$ ), and in all cases equal to a charge  $S$ . Applying the requisite probability calculation demonstrates net advantages. If production is organised within a swing plant the total expected adjustment charge equals  $S$  exactly; had the two models been built at different locations, the total would be twice this amount.

But given this, little of substance otherwise changes. In fact, and given the fairly self-evident advantages of producing several models at the same site from the viewpoint of shifting workers across lines in response to demand fluctuations, all that the example here entails is a suitable amendment to the inequality set out in (2), above. In this example, running with two plants rather than the swing plant would still make sense if the gross savings in wage costs ( $n\Delta C_W$ ) were greater than  $\Delta F$  plus  $S$ , the expected net difference between adjustment charges with two sites and with one site.

Were we to display this example using Figure 1, curve  $b'b'$  would shift rightwards – say to position  $b''b''$  – while a smaller shift (not drawn) would likewise move curve  $aa$ ; but the net effect would merely be a new intersection point at a now higher activity level. To make sense of a claim that global demand plays a key role in deciding how many plants are warranted from the car-makers’ viewpoint *still* requires a unit wage-cost advantage for subdivided production as a potentially offsetting factor at high activity levels.

More generally, it is unlikely that a car maker would do much more than make some internal allowance for the net economies of swing plant flexibility, internalising this within the calculation at the point of construction when comparing cost pros and cons. All this means is that the production volume ( $n$ ) needed to justify a larger rather than a smaller number of plants would as a matter of course have to cover both  $\Delta F$  and some estimate of net differences in adjustment costs for model-mix changes within the global forecast – let us call this  $\varepsilon$  – given the projected unit wage-cost difference  $\Delta C_W$ :

$$n\Delta C_W > \Delta F + \varepsilon \quad (3)$$

Thus swing plant flexibilities as such merely point to an additional source of economies in plant overheads when rationalisation occurs, and in no way vitiate the requirement that demand side and employment side factors be simultaneously considered.

#### *4.2 Inferences and interpretations*

Indeed, the real points of interest may lie elsewhere. In the first instance, the orders of magnitude required of employer bargaining advantages in order for production split across competing sites to be cost-effective, even at higher levels of projected global demand, may well be greater than a simple assessment of fixed costs alone would suggest, an observation of some relevance to the wage-effort literature.<sup>7</sup> In the second, there are well established debates as to whether industrial organisation decisions by large firms are best viewed in the first instance as essentially ‘technocratic’ decisions, undertaken with the aim of achieving cost-effective production for given wage rates or effort intensity levels at work, or whether the intent is also to move wage-effort schedules to the advantage of employers. A good example here is the critical perspective on organisational decisions by Cowling and Sugden (1998), who contrast the logic of ‘distributional’ (wage-effort) motives with ‘transactions costs’ economising motives of the sort emphasised by Oliver Williamson. But if we think of the adjustment costs in the example above as a species of transaction cost, we can see how both kinds of calculation might be simultaneously present and relevant. Similarly, in an interesting comment on the Cowling-Sugden study, Dunne (2001) suggests that some primacy should also be given market uncertainty in explaining the strategic decisions of corporations; but in our example, the hedge against worker bargaining power requires a quite different investment decision (more sites) to the hedge against demand fluctuations (fewer).<sup>8</sup> More generally, we can see that the entire complex of relevant factors does not lend itself to describing the plant numbers decision as a simple ‘technical efficiency’ issue.

Thus if car makers like Ford (or GM) are willing to countenance ‘swing’ (or ‘flex’) plants only in circumstances that are contingent upon global demand conditions, and if we are correct in inferring the prior relevance of wage-effort bargaining concerns, then by implication such car-makers are not acting as simple transactions cost minimisers (if we consider charges for net hiring or layoffs to be examples of transaction cost) any more than they always make decisions to economise on avoidable fixed costs. Similarly, and in response to the view that ‘flexible organisation’ is the inevitable response to uncertainties in the composition of final demand in the product market, we can see from the details of our analysis of the Ford case why a more nuanced view is needed. What this case also shows, however, is how a complex calculation is potentially structured – with the resulting cost-calculus trading efficiency concerns (cost avoidance at any given set of wage rates and employee effort levels) against bargaining concerns (the determination of wage-effort outcomes), and with outcomes conditioned too by global demand.

### **5 Policy response issues: Britain in the EU**

So far as policy response assessments are concerned, we can extract generalisable observations of relevance to any national government or regional body engaging with a car industry characterised by a prevalence of multiple assembly plants: confronted by demand side explanations for local closures by companies relocating work initially

proposed for one spot but now moving it to another, and by criticisms on the employment side from affected workers and their representative organisations that other issues are also relevant and deserving of proper attention and scrutiny, it would be well to consider the industrial logic by which both factors could simultaneously apply. At the same time, the private rationalities involved in strategic investment decisions should not be unduly conflated with a purely technocratic understanding of the issues.

This is not to say that an application of the approach suggested in this paper lends itself to easy conclusions: rather, it sets out what any conclusion must consider. If we look once more at the circumstances of the Ford Dagenham controversy, we have established how demand side (Ford) and alternative employment side explanations might act in mutually structuring as well as mutually compatible ways. This does not mean that a definitive statement is ultimately possible as to whether a weaker than expected projection on global demand, or workplace tensions, or both, finally accounted for the withdrawal of car assembly from the Ford Dagenham case study site – in practice, a judgement call. But what we have shown is that there is nothing inconsistent with a body of seemingly contrary evidence, and that issues arising can be framed in a connected way. We have also established that ‘swing plant’ (or ‘flex-plant’) flexibilities while relevant do not alter the basic structure of issues to consider, whatever other complications arise.

On a more philosophical plane, the question also arises as to the distinction between private and social planning, and the mechanisms by which production capabilities are distributed across countries and within regional theatres. One incidental consequence of an industrial mechanism which spreads production across different locations in order to thereby obtain bargaining advantages for the controlling firm over other parties – we focus on employment issues, but the point is a more general one – is that production capabilities are distributed more widely in space than would otherwise be the case; and this in and of itself may be a desirable, even if an incidental outcome. But the mechanism itself is also significant, because a process driven by bargaining advantages is neither a socially planned nor coordinated one; it remains consistent with pronounced regional inequalities, and it can deliver considerable ‘shocks’ to local economies; moreover, it is predicated essentially on bargaining stances at the interface between the firm and other parties, that could alternatively be tackled by other regulatory mechanisms. For obvious reasons, such questions sit at the centre of much policy debate.

Alongside engagement with questions of desirable policy stances it is then of interest also to consider actually existing state policy positions and policy responses. If the attendant circumstances of our case study event contain details that make it a layered case from the viewpoint of assessing different kinds of planning rationality, the specific question of how the British state responded to this event is also illuminating.

However one looks at it, a prominent feature of the 20th century development of car and commercial vehicle production in Western Europe has been the degree to which the national territory of Britain has provided a favourable locus of investment for successive transnational firms seeking to secure an important market and a base of operations. At the same time, the internationalisation of Britain’s automotive sector has proceeded not only to a degree but also in a manner quite different to the experiences of other EU countries – the presence today of major players from the USA, Japan and Europe, and more latterly the involvement of Chinese and Indian firms, is contextualised by the absence of any significant indigenous player remaining amongst original equipment manufacturers. The demise of a British owned car industry remains a subject of live controversy, but while anything like a proper review of reasons lies beyond the scope of this paper, there is little

doubt but that the story of the internationalisation of Britain's auto industry is intimately associated with the disappearance of an indigenous volume car sector.<sup>9</sup>

No doubt in part because of this, Britain today is characterised by a pronounced policy commitment towards porous borders for economic activity and easy terms of entry and exit for transnationally based investors. The logic here is perhaps most particularly evident in policies towards Japanese car transplants in the 1980s, actively courted as a means of bringing new inward foreign direct investment to Britain, despite opposition from Europe on the access thus permitted (see Coates, 2005).<sup>10</sup> Decisions by Japanese car makers led by Nissan to produce cars in Britain, fed an enormous enthusiasm within British policy circles and business schools for 'Japanisation'; and this mania in turn created a ready and willing audience in the 1990s for the subsequent marketing of lean production as 'panacea' [Lyddon, (1996), p.76]: this served both to justify an existing policy stance and to satisfy a developed psychological need. This enthusiasm continues, barely diminished (if at all) by continuing weaknesses [with data for Britain prior to the current economic downturn showing falling auto-industry employment, static production, and ballooning trade deficits: for details, see Coffey and Thornley (2009, pp.51–55)].

Thus when called upon to respond not only to the Ford Dagenham closure event, but also to other major traumas experienced by the auto industry in the same year (and including the almost coincident decision of GM to pull back on British car assembly), the responsible government department opted to provide a statement reporting its satisfaction at past successes in attracting inward foreign direct investment, pointing to substantial inward investment from Japan as a case in point and denying anything untoward in its policy stance towards the industry [see Coffey and Thornley, (2009), pp.51–55]. For its part, the investigating parliamentary committee – the same House of Commons Trade and Industry Committee which took evidence from Ford on the closure – that called for this response added its own peculiar take on the event, speculating that the problem must have reflected the 'age' of the Dagenham site [see HC, (2000–01, p.xii)], a proposition expressly contradicted by Ford's own assurances that there was nothing wrong with the plant *per se*, and that the only real issue had been a weak global demand. While the same parliamentary body did also express some concern about weak employment protection rights for British workers, it otherwise shied away from overt policy criticism. And evidence of plant-side discontent at the site was (largely) glossed over.

From a policy response viewpoint, what is most interesting here is the degree to which such responses are conditioned by the situation of Britain in its regional context. But if the situation in Britain today from the viewpoint of policy formulation both reflects and contributes to a situation bordering on industrial 'dependency', Britain has also been active in trying to reform the rest of Western Europe in its own image – with respect both to product market and labour market de-regulation, again against opposition. If there is indeed a case to be made for a debate over how manufacturing capabilities in the auto-industry (as elsewhere) are best distributed within the European regions, it seems far from likely that Britain – despite its weaknesses – will be a country to lead it.

## 6 Conclusions

In this paper we have appraised the circumstances of a major car plant closure event in order to consider several substantive areas of auto industry policy research, while at the same time contributing to the rich body of literature on Ford motor company. We show

how demand side and employment side explanations of the case-study closure event are best understood not as competing but mutually conditioning concerns, and we draw from this analysis potentially generalisable conclusions vis-à-vis the private rationalities informing plant network organisation in the car assembly sector; at the same time, we infer from our case study – the closure of the Ford Dagenham car assembly plant – that the company's defence of its decision based on global demand factors was not inconsistent per se with a quite different view based on employment side factors, namely a closure mounted as *de facto* punishment for workplace non-compliance. In the course of this investigation, we also identify and consider a possibly emerging vogue amongst car makers for an appeal to enhanced plant flexibilities in explaining closure events that lead to production consolidated across a smaller number of competing sites: our analysis here points to complex trade-offs where firms may elect to accept or eschew enhanced flexibilities depending both on global demand conditions and wage cost structures.

It is perhaps obvious that in the context of the current economic and financial crisis, characterised by a severely depressed global demand for cars, there is some likelihood that many car assembly networks will be subject to reduction, in which connection consolidation and flexibility are likely to become key terms. But if we are concerned with appropriate policy response issues, some understanding of the underlying structure of plant number decisions is necessarily important; because over and above the possibility that employment side factors will also play a structuring role in some of the decisions which are made as to which sites are closed and which built-up, the entire industrial logic of multiple site assembly is of more general interest. There is an important debate to be had concerning how manufacturing capabilities might best be distributed across industrial regions, granted that extant logics are motivated by far more than simple questions of technical efficiency, and given their economic importance. In this respect the 'porous economy' model is an inadequate aspiration, although it remains to be seen how long the commitment within the European region of some national players like Britain to this kind of uncoordinated framework will mitigate against debate.

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## Notes

- 1 In addition to 3,000 directly affected assembly plant jobs at Dagenham, the relocation decision undertaken by Ford naturally had knock-on consequences for UK-based supply chains – substantially more than was offset by the expanded engine facility.
- 2 In the same year moreover BMW announced its decision to break up Rover Group, a decision causing a crisis at the Rover Longbridge site (for analysis of various aspects of this third case see, for example, Coffey (2005, 2006, 2009), which staggered on for a short span of years as a small independent British firm, MG Rover. In this paper we focus on British Government responses to car plant closures from the viewpoint of what this reveals about general economic policy predispositions, but for an overview of the emerging stance now developing in Britain regarding palliatives for major closure events see (for instance) Armstrong et al. (2008), Bailey and MacNeill (2008) and Bailey et al. (2008), looking at the eventual closure of MG Rover.
- 3 The literature on bargaining advantages obtained by multi-plant firms which spread their activities across national borders (common in the automotive industry) is now large. While we will not attempt a review here, Cowling and Sugden (1987) provide one introduction to the literature and include examples drawing on Ford in Europe (see *ibid*: pp.64–65, 74–77). In contrast to variants on the 'efficiency wage hypothesis' – in which employers concede higher wages to promote or sustain employee productivity – there is the potential at least for employers to benefit from simultaneously reduced wages *and* increased effort [see Coffey and Tomlinson, (2006), pp.561–562], in comparison with the wage-effort outcomes that would otherwise prevail.
- 4 In fact GM (Vauxhall) also argued that while currency planning assumptions were important, the locally high value of sterling in 2000 was 'not really the issue' ([HC, (2000-01), p.51] – the problem rather being weak global demand and a desire to rationalise.
- 5 For discussion of what this entails, see Coffey and Thornley (2009, pp.56–57).
- 6 The analogy is almost but not exact, inasmuch as in the Ford case the decision to produce with a smaller number rather than a larger number of car assembly plants was realised via the investment location decision for just one model (the *Fiesta*) in its portfolio of car-lines, reflecting the stage reached in its model-replacement cycle, and as determined by Ford. But the complications this would entail for our presentation are not of major importance, the main point of interest here being to note that differently phased model replacement cycles while not reducible to a bargaining workplace tactic undoubtedly strengthen employers' hands. Note also that in our formal analysis of swing-plants we consider a case where demand can fluctuate between two adjacently produced car-lines: the main conclusions extend readily to the case where the car-maker also redeploys between lines in different phases of the model cycle.

- 7 We should perhaps note here that for a case like the Ford-Dagenham closure, the fixed costs in question would resolve primarily to plant overheads rather than tooling or equipment. For brown-field sites the facilities cost component of plant overheads saved by reducing plant numbers may not be enormous, so that  $\varepsilon$  need not be insignificant in comparison with  $\Delta F$ .
- 8 We offer these examples because of the centrality of Cowling and Sugden to much recent debate as to the motives of corporate strategic decision making (see Note 3, above.)
- 9 One popular viewpoint is that Britain's entry to the EEC (as was) in 1973 exposed serious weaknesses in the quality of its auto industry, as in other branches of manufacture, a point of view constructed to a very considerable degree around the fate of the giant British Leyland Motor Corporation (BLMC), erstwhile national champion and standard bearer, which struggled badly in the 1970s, before being broken up and rump-privatised in the 1980s (as Rover). Its collapse has often been attributed to bad management, or poor industrial relations, or both. But in many ways this experience was atypical: neither the US transnationals Ford and GM nor the giant British component manufacturers GKN and Lucas foundered in this way – instead, each took advantage of an expanded European theatre of operations [see, for example, Cowling (1982, p.143) and Wilks (1984, pp.70–75) on the former, and Bhaskar (1979) for the latter]. Building on this Coffey and Thornley (2009, pp.17–26) explore a quite different understanding of events, distinguishing between different corporate trajectories, and considering political contexts and reactions.
- 10 This openness to inward foreign direct investment from any source is one side of the recent British policy equation, the other being a strong stance within Europe against labour laws deemed to impede labour market competition, a predisposition of recent Labour party governments in Britain as much as previous Conservative party governments (see Coates, 2005); gauged against the empirical evidence, this has as yet failed to revive Britain's manufacturing competitiveness – and indeed there is evidence that the porous economy stance favoured by British policy makers has inhibited investment and innovation by smaller domestic firms: see Kitson et al. (2003).

## Appendix

### *A research note on FPS*

In this brief appendix we offer some notes on the context to one of the workplace tensions evident at the Ford Dagenham site before the closure decision was announced, of independent research interest over and above the particular focus of our paper.

### *Lean production*

In the first instance, tensions ostensibly arose over the implementation of lean production at the site, a phrase first coined by a Western engineer (John Krafcik) in connection with the famous International Motor Vehicle Programme (IMVP) surveys reported to dramatic effect in the best-selling Womack et al. (1990). Debate since has been intense, as evidenced, for instance, in recent critical collections like Pulignano et al. (2008), or in earlier work by the likes of Ulrich Jurgens or Michel Freyssenet. Our own position, for example, on the IMVP car plant productivity survey which did so much to establish 'lean production' as an industrial slogan is as follows:

- a The published survey data failed to establish on its own terms any evidence of net Japanese labour productivity advantages not accounted for by high levels of factory automation, so that one of the principal claims associated with lean production is simply wrong.

- b Despite clear indications that Europe as a region fared less well in the survey than other world regions, although again with no proof of Japanese exceptionalism within Europe, a bias factor in the labour productivity index makes even this hard to interpret [for a relatively formal discussion see Coffey (2006, pp.77–88); also Coffey and Thornley (2006, 2008)].

As we argue here and elsewhere, ‘lean production’ is as much about Western preoccupations as it is about Japanese (see also Coffey, 2009; Coffey and Thornley, 2009, 2010); here we agree entirely with remarks cautioning against ‘theoreticians’ who ‘wax lyrical’ about a Japanese model that may not in fact exist [Freyssenet and Jetin, (2009), p.10].

But as has been remarked by critics like Paul Stewart, as with these others, the contexts in which ‘lean production’ makes an appearance are always instructive as to the role ideas play in shaping forces at work in complex industrial – and workplace – settings.

#### *Ford Production System (FPS)*

Several years prior to the Dagenham closure the phrase lean production appeared in the famous Ford factory ‘blue book’, a manual issued to Ford workers at the site listing all extant agreements on terms and conditions of work arrived at with the unions. It appeared in connection with a new agreement on a forthcoming initiative – FPS. What is of interest is that key passages linking this to lean production were drafted not by management but by trade union organisers in the car assembly section. Aware of the pending introduction of something to be called FPS, and similarly apprised of the growing popularity of ‘lean production’ as a marketing tool, the union organisers tied both phrases to a jointly signed re-assertion of *union* rights. Thus the italicised lines in the passages marked below in Table 1 (committing management in principle to existing workplace terms and conditions) were drafted by the unions. In this way, the unions sought to pre-empt any attempt to cite lean production to bypass existing agreements.

#### *Towards factory closure*

The agreement was signed in July 1997; shortly after, Ford first confirmed its intent to source the replacement to the *Fiesta* at Dagenham. Two years later, and under union pressure, the company gave fresh assurances, in 1999; but just 18 or so months later it announced that the business would go to the continent instead. Interviews with union organisers (by Coffey) at the Dagenham site prior to this announcement indicated a belief on the union side that site managers were growing increasingly discontented with the framework agreement: it was used to challenge changes seen as detrimental to employee terms and conditions [see also Coffey and Thornley, (2009), pp.48–49, 54–55]. The lead up to the closure announcement saw evidence emerge of company discontent.

**Table 1** Excerpts from Ford 'blue book'

1.1	Lean Production is recognised world-wide as one of the most efficient and productive ways of manufacturing and it is a key element of the FPS.
1.2	The Unions believe that the introduction of new processes and systems, based on lean production techniques and complemented by a philosophy of continuous improvement, has inevitably created issues for their members which may not have been fully appreciated at the outset. The Company has affirmed its objective to complete fully the implementation of FPS. <i>The Unions will continue to support ongoing productivity improvements that are in line with existing 'blue book' agreements.</i> The Unions believe that it is in their members' best interests that the Company is able to compete and survive in possibly the most competitive industry in the world. Therefore, positive engagement and cooperation will continue. <i>On the other hand, the unions must be alive to the issues that lean production creates and therefore they believe it crucial that minimum standards/protection for both their members and union organisations are confirmed. Consequently, this Memorandum of Understanding outlines and confirms the minimum standards/protections that are agreed between the Company and the Unions. The detailed application of FPS shall be discussed at plant level prior to implementation in line with operating requirements and in accordance with this framework document.</i>
1.3	<i>The FPS will not undermine or undervalue Union influence, whether by intent or the introduction of new processes and structures.</i>

Source: *Agreements and Conditions of Employment: Hourly Paid Employees*, dated December 22, 1997, p.146 (signed July 17, 1997) (emphasis and enumeration added)

### *Production politics*

Given the sometimes expressed view that lean production comprises 'work intensification and ... by-passing or undermining unionism' [Moody, (1997), p.106], the case is of interest because the framework reference to lean production came from the union side. There is also a long standing view that 'blue book' agreements of the Ford kind necessarily represent concessions to management initiatives – as a critical journalist once put it:

“When a man gets a job with the Ford Motor Company, he is given a booklet entitled: 'Agreements and Conditions of Employment for hourly paid employees'. If the odd worker bothers to read it, he's in for a surprise – it documents just about every defeat suffered by Ford workers in the past. Each new Agreement ... goes into the book". [Mathews, (1972), p.43]

From the viewpoint of workplace production politics, this instance departs markedly from script: the closure – if indeed influenced by this dispute – came as a reaction in part to tactical union use of a currently popular management phrase to assert union authority in the workplace vis-à-vis processes and practices; less a concession than a pre-emption. If the closure was a punishment, such contextualising details are also important.

In ending, we might note too the promise held out by continued engine production at the site; this could be construed inter alia as an intelligent use by Ford of its facilities, or as the proper maintenance of a strategic bargaining chip vis-à-vis relations with other parties. A further regional assessment, building on European studies of Ford of the type recently collected in the invaluable Bonin et al. (2003), would have great value.