

**Emergent Dualism in the UK Automotive Industry:  
Should We be Concerned?**

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Mari Sako  
Industrial Relations Department  
London School of Economics and Political Science  
Houghton Street  
London WC2A 2AE, UK  
Tel. 0171 955 7037  
Fax. 0171 955 7424  
e-mail [M.sako@lse.ac.uk](mailto:M.sako@lse.ac.uk)



## **Abstract**

Are car assembly plants which have adopted 'lean production' trading with 'lean' parts suppliers? Or are they using suppliers as buffers and as sources of low cost labour? This paper examines these questions empirically by using official statistics in the UK, US, Germany and Japan. In the UK, there is evidence of parallel reduction in inventories at suppliers and assemblers in the 1980s, but also of growing productivity and wage gaps between the two groups. It is argued that management, unions and policy-makers should all be concerned about this emergent dualism in the UK automotive industry, and that attention should be paid to the mechanisms for diffusing innovative practices from assemblers to suppliers.



## **Emergent Dualism in the UK Automotive Industry: Should We be Concerned?**

'Partnership' remains a buzz word in the UK automotive industry. In management, the Society of Motor Manufacturers and Traders (SMMT) has been recommending partnerships between vehicle manufacturers and component suppliers.<sup>1</sup> Labour has also come around to endorse the idea of a partnership with management at the corporate level.<sup>2</sup> In both cases, it is hoped that partnerships would deliver better international competitiveness for the UK industry. The process in order to attain this end involves 'making a contribution or even total commitment' (according to Bill Morris, the TGWU General Secretary), and requires 'positive cooperation, not just acquiescence' (in the words of Walter Hasselkus, Rover's chief executive).

The viability of partnerships depends on how improvements are made and how gains from such improvements are distributed. The diffusion of the idea of 'lean production' (Womack et al 1990), 'lean supply' (Lamming 1993), and 'lean thinking' (Womack and Jones 1996) has created a debate on the actual consequences of adopting 'best practice' methods captured in the lean paradigm. The main debate is over whether lean production is good or bad for workers within assembly plants. The proponents emphasize the beneficial effects of team work, problem-solving groups and other employee involvement practices on both business efficiency and the well-being of workers (Womack et al 1990). The critics focus on speed-ups, intensified supervision and management's incorporation of team leaders as detrimental to workers' well-being (Babson 1995, Parker and Slaughter 1988) .

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<sup>1</sup> SMMT Industry Forum 'Guidelines on Customer/Supplier Partnerships in the UK Automotive Industry' April 1994.

<sup>2</sup> E.g. T&G Partnership in Progress Automotive Parts Conference, 12 December 1996, ICC Birmingham.

This debate concerning intra-firm labour-management relations must be set in a inter-firm context due to car manufacturers' ability to outsource parts production. In this larger context, the debate is over whether lean production at assembly plants has been adopted to benefit, or at the expense of, parts suppliers. The proponents of lean supply argue that lean assembly plants nurture lean suppliers who also benefit from inventory reduction, high productivity and wage growth. The critics argue that that may be so in theory, but in reality, assembly plants have been allowed to shift the burden of inventory holding onto their suppliers who are used as buffers. Suppliers consequently suffer from insecurity of business prospects and are unable to invest in productivity-enhancing practices. Workers at supplier plants therefore suffer from low pay and insecure jobs.

This paper contributes to this debate by an examination of the recent trends in the UK automotive industry. In particular, it investigates what government official statistics say about the achievements of automotive suppliers relative to vehicle manufacturers in the area of inventory reduction, productivity growth and wages during the period 1979-1992. These three indicators were chosen in order to examine two contrasting assertions concerning the impact of the adoption of lean production at assembly plants: that suppliers are benefiting as 'lean production' diffuses down the supply chain, and alternatively that suppliers are suffering due to assembly plants using suppliers as buffers and as sources of cheap labour. International comparisons with Germany, US and Japan are made in order to place the UK situation in the global picture.

### **Inventory Reduction**

The inventories in the total automotive supply chain may be subdivided into (i) inter-firm inventories, consisting of raw materials (RM) and finished goods (FG), held as a buffer

between firms, and (ii) internal work-in-process (WIP) inventories needed to accommodate variability and delay in manufacturing processes. Figure 1 shows an overall trend in inter-firm inventories in the United Kingdom, expressed as a proportion of assemblers' total sales, using the UK Census of Production data for 1979-1992.<sup>3</sup> During this period, assemblers' RM inventories and suppliers' FG inventories fell by 60% and 65% respectively. Also, during the same period, WIP inventories declined by just over 70% at both assemblers and suppliers (see Table 1). This parallel reduction in inventories lends support to the proponents' view that lean production has been diffusing down the supply chain.

International comparisons put the UK automotive supply industry in a good light.<sup>4</sup> In 1979, UK suppliers held the largest amount of total inventories, as compared to suppliers in West Germany, US or Japan. But in the 1980s, the extent of reduction of all three types of inventories was the greatest among UK suppliers (see Figures 2-4). Within Europe, UK suppliers on average are still holding relatively high levels of FG inventories. But it is most notable that West German suppliers continue to hold twice as much WIP inventories as UK suppliers. In fact, the West German automotive companies reduced its inventories much more

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<sup>3</sup> Business Monitor 'Census of Production' in the UK is an establishment-based survey. The 1980 SIC code revision enables the data to be classified into 'motor vehicles and their engines' (351) and 'motor vehicle parts' (353). In this paper, establishments in the former are called assemblers and those in the latter suppliers.

<sup>4</sup> The following statistical sources are used: the Annual Survey of Manufactures for the US ('motor vehicles and car bodies' (SIC 3711) as assemblers and 'motor vehicle parts and accessories' (SIC 3714) as suppliers); MITI's *Kogyo Tokeihyo* (Census of Manufactures) for Japan ('vehicle manufacturing' (SIC 3611) for assemblers and 'vehicle parts and accessories' (SIC 3613) for suppliers); and Statistisches Bundesamt (ed.) *Beschäftigung, Umsatz und Energieversorgung der Unternehmen und Betriebe im Bergbau und im verarbeitenden Gewerbe* ('producers of cars and engines' (SIC 33.11) as assemblers, and 'producers of car and engine components' (SIC 33.14) as suppliers). The US and Japanese data are collected at the establishment level, but the German data are at the enterprise level.

slowly than the UK counterparts during 1979-1992; German assemblers' WIP inventory declined by 30% while suppliers' WIP declined by 27%.<sup>5</sup>

### **Productivity Growth**

If inventory reduction occurs as part of a lean production system, then it should be normally linked to significant productivity growth. Typically, shopfloor improvement processes focus on eliminating all types of waste, and result in not only inventory reduction, but often also improved space utilisation, quick die change, better standardised work methods and manpower reduction. In the UK, since inventories declined substantially at both assemblers and suppliers in the 1980s, we might expect productivity to be growing at a similar speed at these two segments of the automotive industry. This is, however, not the case. As Figure 5 shows, labour productivity, as measured by gross value added per head, rose faster at assembly plants than at supplier plants in the UK.

Over the period 1979-1992, suppliers' real labour productivity rose by an average of 1.8% per annum, while assemblers' productivity rose three times as fast at 6.1% per annum (see Figure 6). This one-to-three ratio is replicated in the US where suppliers on average trail behind assemblers, the latter achieving an impressive average productivity gain of 8.8% per annum. This UK-US situation is in contrast to Japan where both suppliers and assemblers have been able to increase their productivity at a similar rate of 4%. Although at a much slower

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<sup>5</sup> The slow adoption of just-in-time production and delivery in Germany is said to be due to a set of 'restrictive conditions that strongly militate against unmodified transfer' of lean production, including the institutionalised defences of a portable, occupational skill structure and limits to the discretion of individual firms over their organization of work (Streeck 1996).



rate, productivity growth at German assemblers and suppliers has been in parallel with each other.

One possible reason why UK suppliers' labour productivity has been lagging behind assemblers' may lie in the differential rate of labour shedding. The 1980s was a decade of employment shake-out in UK manufacturing. In 1979, a total of 289,900 workers were employed in assembly plants, and an additional 156,000 worked at supplier plants. By 1992, the assembly plant workforce declined by 57% while the supplier workforce declined by 45%. If we look just at the shopfloor, which has been the focus of lean production, the number of operatives declined by as much as 59% in assembly plants, compared to 46% in supplier plants over the 1979-1992 period. The sheer reduction in headcount enhanced labour productivity growth, and the greater extent of employment shake-out at assembly plants must have contributed to their higher productivity growth. Moreover, while some leading first-tier suppliers have already adopted a whole host of methods (cellular manufacturing, total quality management, continuous improvement teams, etc.) which lead to productivity enhancement, a vast majority have yet to adopt them.

### **Relative Pay of Supplier and Assembly Workers**

The productivity growth differential between UK assemblers and suppliers is reflected in the widening gap between average pay of assembly workers and that of supplier workers. Figure 7 shows the average annual wages and salaries per head at supplier plants, as a ratio of wages and salaries per head at assembly plants, in the UK and Japan. A few decades ago, Japanese exports were said to be competitively priced due to cheap labour in Japan. More recently, while Japan boasts the highest nominal GDP per capita in the world, some people still maintain that the cost competitiveness of Japanese automobile exports is helped by the massive

outsourcing of parts to suppliers which pay relatively low wages. In fact, as Figure 7 shows, suppliers' wages have been consistently lower, at an average of 73% of assemblers' wages throughout the 1980s in Japan. This wage differential has been cited as evidence of the 'dualistic' structure of the Japanese economy.

But this dualism of the automotive labour market is no longer peculiar to Japan. In the UK, whereas supplier workers enjoyed 90% of assembly workers' pay in 1979, this proportion declined steadily to 75% in 1992, which is not much better than the relative pay of supplier workers in Japan. Interestingly, US supplier workers suffered a similar fate, as their pay declined from 85% of average assembly worker wage in 1980 to 74% in 1993 (see Figure 8). The 1980s was a decade when both the UK and US experienced a declining union density and the spread of decentralised pay bargaining. By contrast, in West Germany where industry-level collective bargaining is still intact in the automotive industry, suppliers' pay relative to assemblers' has been consistently hovering around 85%.

Various factors may account for why average annual earnings of workers at suppliers have declined relative to those of assembly workers. The following process of elimination points to the fact that the hourly wage rate has declined at supplier plants relative to assembly plants. First, only full-time manual male workers will be examined in order to eliminate the gender, status and occupational composition effects. Second, trends in work hours may be examined separately from trends in hourly rates. Figure 9 shows, using the New Earnings Survey data, that the basic weekly hours of full-time manual male workers have been declining very gently at both supplier and assembly plants, from 39 to 37.5 hours. By contrast, suppliers' overtime has not just been longer, but has fluctuated much more, lending support to the view that assemblers use suppliers as a buffer (see Figure 10). Nevertheless, on the hours front, there is no secular trend, such as a decline in supplier workers' opportunity to work

overtime which would have led to a decline in their take home pay. In fact, the New Earnings Survey shows that the suppliers' hourly earnings (excluding overtime pay and hours) have declined, from nearly the same level (99.7%) as assembly workers' hourly earnings in 1983 to 84% in 1996.

Why have hourly earnings declined at supplier plants relative to at assembly plants? Two reasons are commonly cited in the US, namely the location effect and the spread of non-unionism. It is argued that parts supplier companies, both US-owned and Japanese, are opening new plants without recognising unions in southern states away from the centre of activities of the Big Three and UAW in Detroit. At a first glance, neither factor appears to be as prominent in the UK as in the US. Besides a notable exception of Unipart, there are not many suppliers which have derecognised unions in the UK. Nor has there been any dramatic shifts in the regional distribution of automotive plants, with around a third of all automotive employment concentrated in the West Midlands region in 1981 and 1992 (Business Monitor Census of Production). However, what has changed drastically is the size distribution of supplier plants; whereas one in two supplier workers worked at plants employing 1000 or more in 1981, only less than one in five were by 1993 (Census of Production). This fragmentation of the automotive labour force into smaller production units is likely to have contributed to the decline in union power. With weaker union power and the spread of decentralised plant-level bargaining, supplier wages may be settled to reflect plant-level productivity which, as we saw earlier, has been lagging behind assembly plants' productivity.

### **Conclusions and Implications**

This paper provides evidence of parallel reduction in inventories at suppliers and assemblers, but also of growing productivity and wage gaps between suppliers and assemblers

in the UK. While the inventory trends lend support to an optimistic view that lean production is smoothly diffusing down the supply chain, the productivity and wage trends do not. Thus, there is no clear-cut overall evidence to give full support to either side of the debate over lean production.

What is clear is that in the 1980s, a distinct dualistic structure has emerged in the UK automotive labour market, with workers at supplier plants enjoying a significantly lower pay than assembly plant workers. Figure 11 puts this trend in perspective, by showing that in the context of the manufacturing sector as a whole, it is not so much the suppliers' wages which are trailing behind, but the assemblers' wages which have done exceptionally well in achieving high growth. The main question posed in the title of this paper is whether we should be concerned about this trend, and if so, whether anything should be done about it.

The answer depends, to an extent, on who 'we' are. But we should all be concerned. Managers may be content that wage levels reflect productivity at the plant level. But both policy-makers and management at supplier firms should be concerned about why suppliers' productivity growth is lagging behind assembly plants'.<sup>6</sup> One possible reason why inventory reduction at UK suppliers has not been accompanied by significant productivity growth may be the application of just-in-time techniques in isolation with other concomitant changes in work organisation which should be made to obtain long-lasting improvements. The relatively poor performance of UK automotive suppliers may also be due to the absence of incentives and institutions for disseminating best practice methods among suppliers. As firms disintegrate and

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<sup>6</sup> In this respect, SMMT Industry Forum's 'Engineers from Abroad' scheme is particularly apt. This scheme provides for master engineers from Japan, the US and Germany to train 30 British engineers who will be working with 300 second and third-tier UK suppliers to make process improvements in the next four years (Action Japan 'Focus Japan Automotive: A 'Europlus - Best Practice' Special Publication' 1996, pp.79).

outsource more and more of their operations, we need to study and understand the mechanisms for diffusing innovative practices across the firm's boundary. Possible mechanisms are via assemblers' supplier development programmes, Japanese-style 'supplier associations', and perhaps also trade unions.

The synchronisation of production between assembly plants and some of the core suppliers, such as that between Ford and Johnson Controls at Dagenham, create tensions which unions can use to strengthen their bargaining power. In fact, the outcome of the February 1997 strike at Johnson Controls in the US, with UAW winning between 22 to 50% pay rises over two years, shows that some suppliers' wages may be raised to be on a par with assembly plant workers' regardless of their relative productivity levels. Pay parity regardless of productivity differentials does appeal to a sense of fairness, particularly if workers work in close geographical proximity. However, how typical is the very close coordination required in the delivery of bulky seats, without which unions would not be able to exert so much power? If the answer is not very, unions should be looking for a way to assist in enhancing suppliers' productivity while maintaining employment opportunities.

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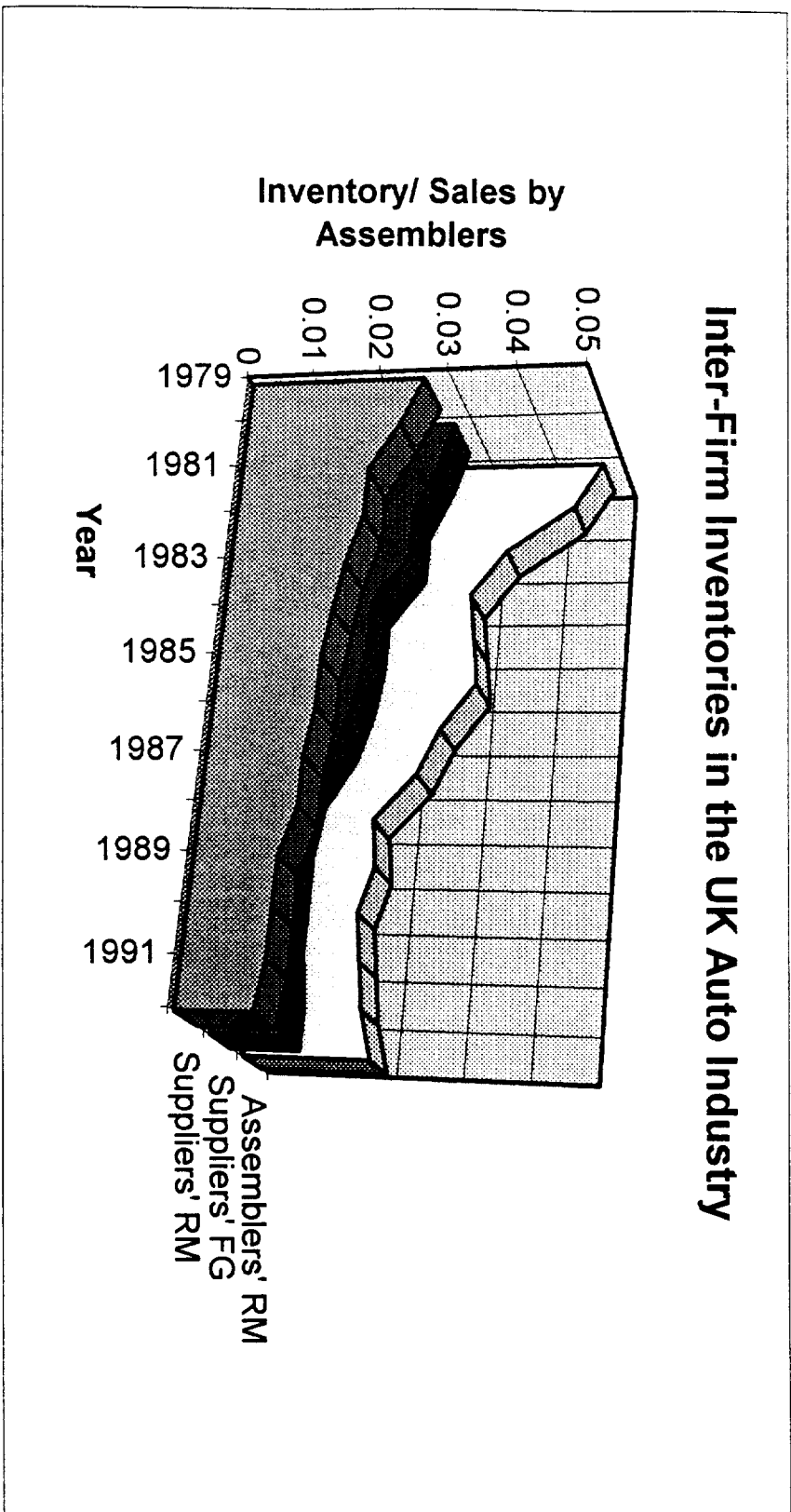
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Table 1

Inventories in the Automotive Supply Chain in the UK  
(as a proportion of final vehicle sales)

	Suppliers			Assemblers			Dealers
	RM	→ WIP	→ FG	→ RM	→ WIP	→ FG	→
<b>1979</b>	<b>0.033</b>	<b>0.045</b>	<b>0.034</b>	<b>0.060</b>	<b>0.116</b>	<b>0.140</b>	
<b>1992</b>	<b>0.014</b>	<b>0.013</b>	<b>0.012</b>	<b>0.024</b>	<b>0.031</b>	<b>0.123</b>	
<b>% change</b>	<b>- 58%</b>	<b>- 71%</b>	<b>- 65%</b>	<b>- 60%</b>	<b>- 73%</b>	<b>- 12%</b>	

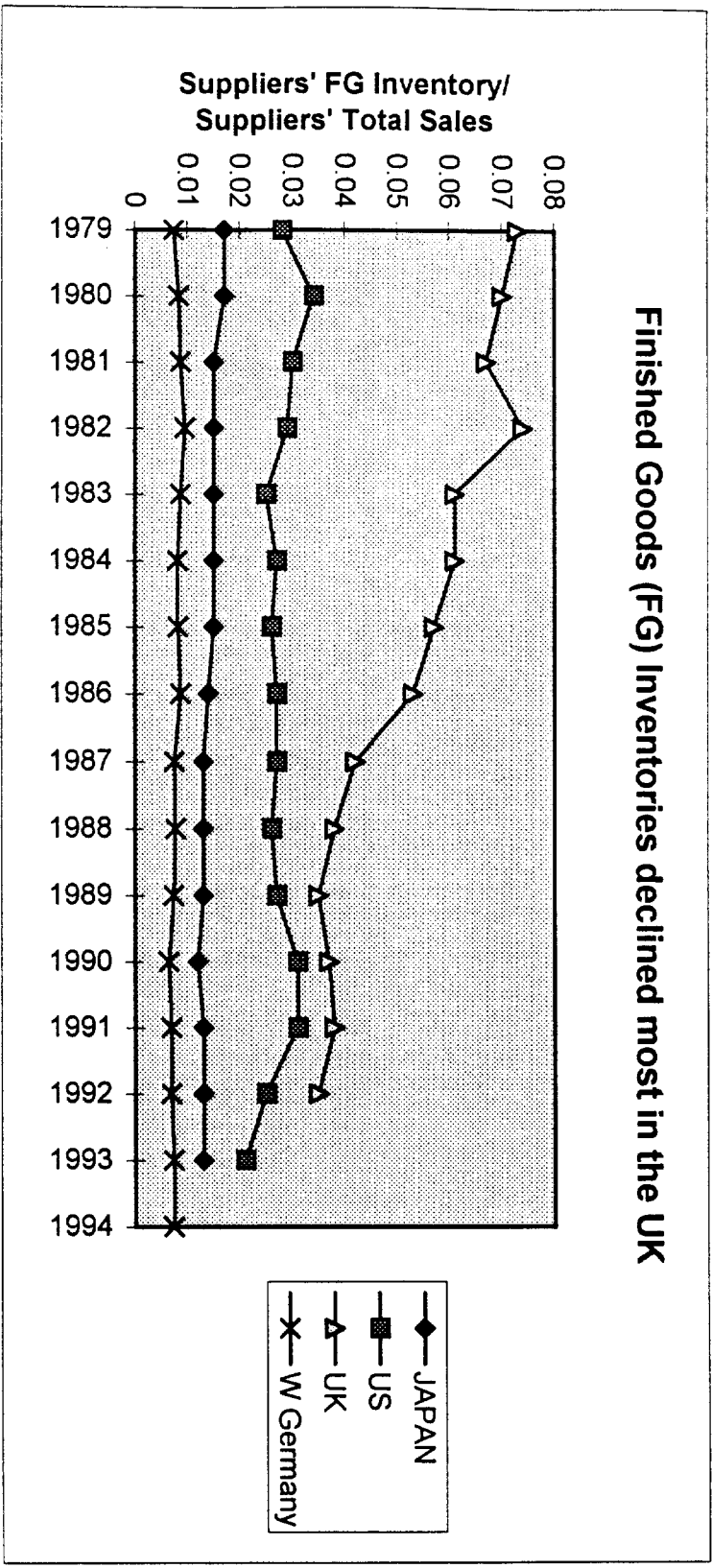
Figure 1



Source: UK Census of Production

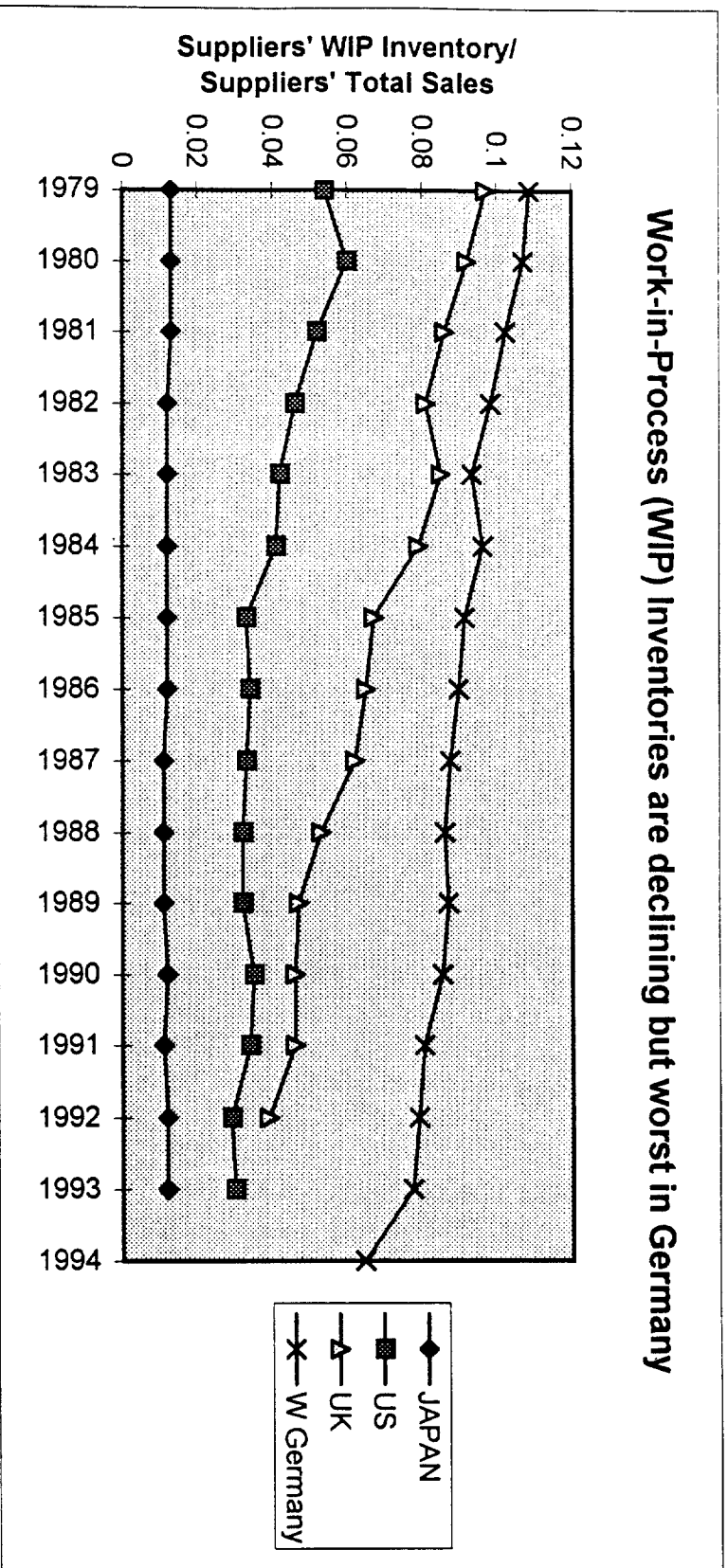


Figure 2



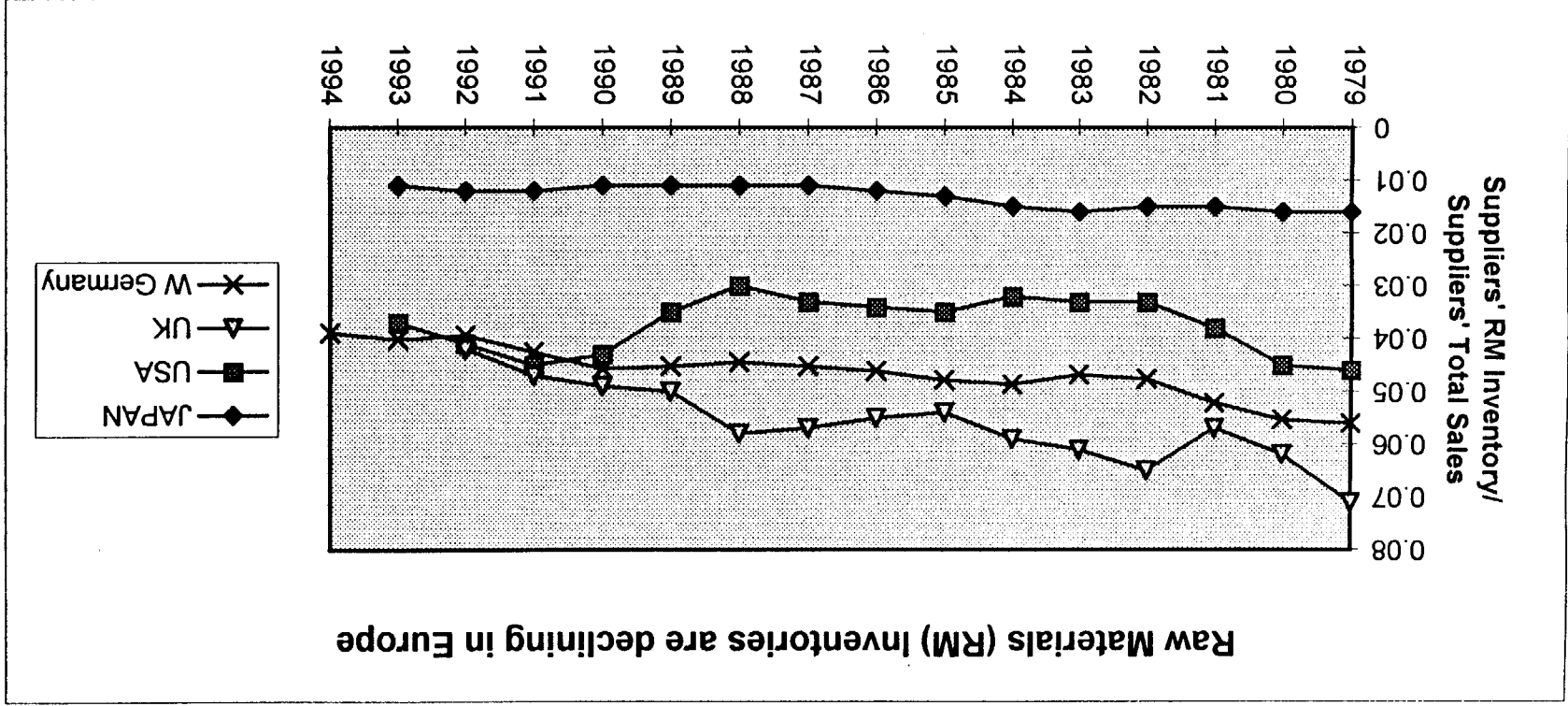
Sources: National Production Census Data

Figure 3



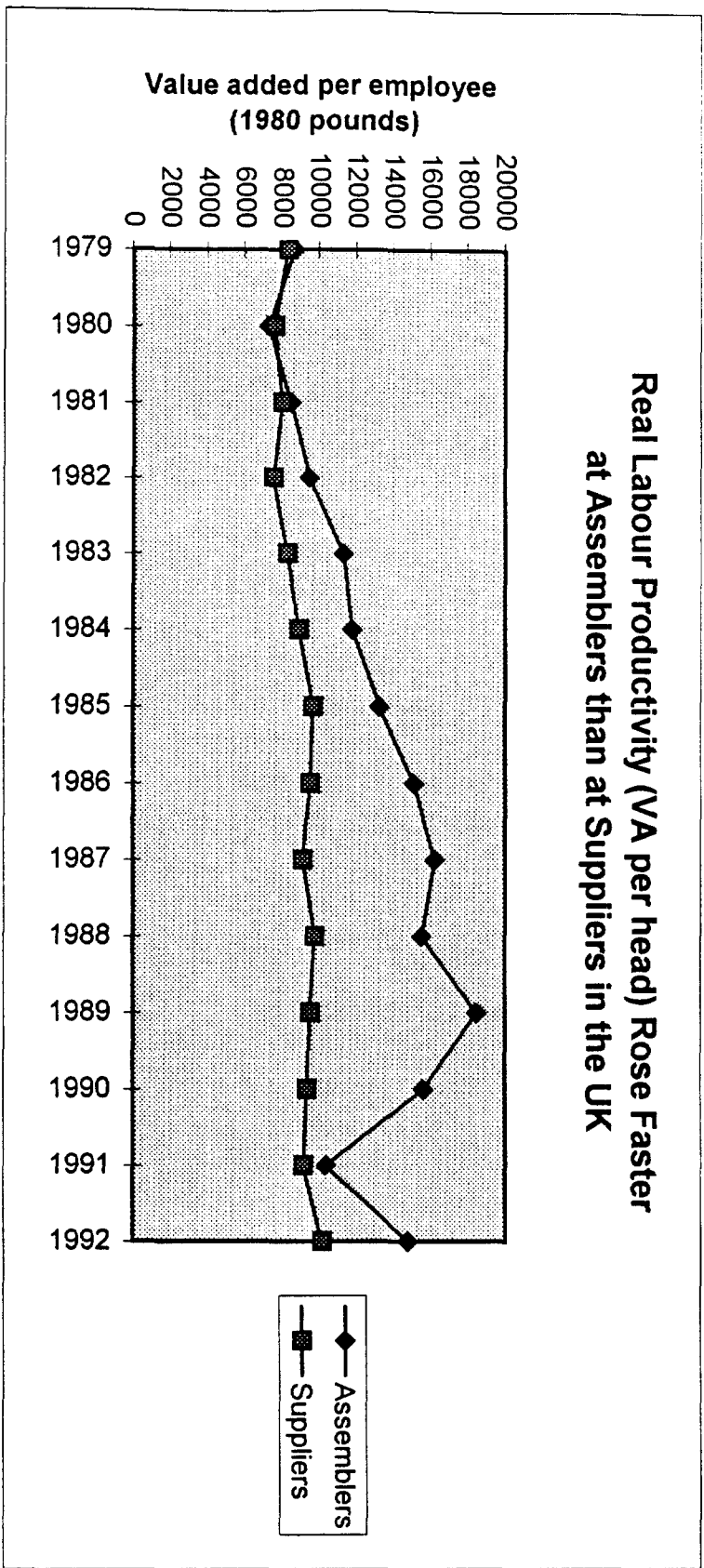
Sources: National Production Census Data

Figure 4



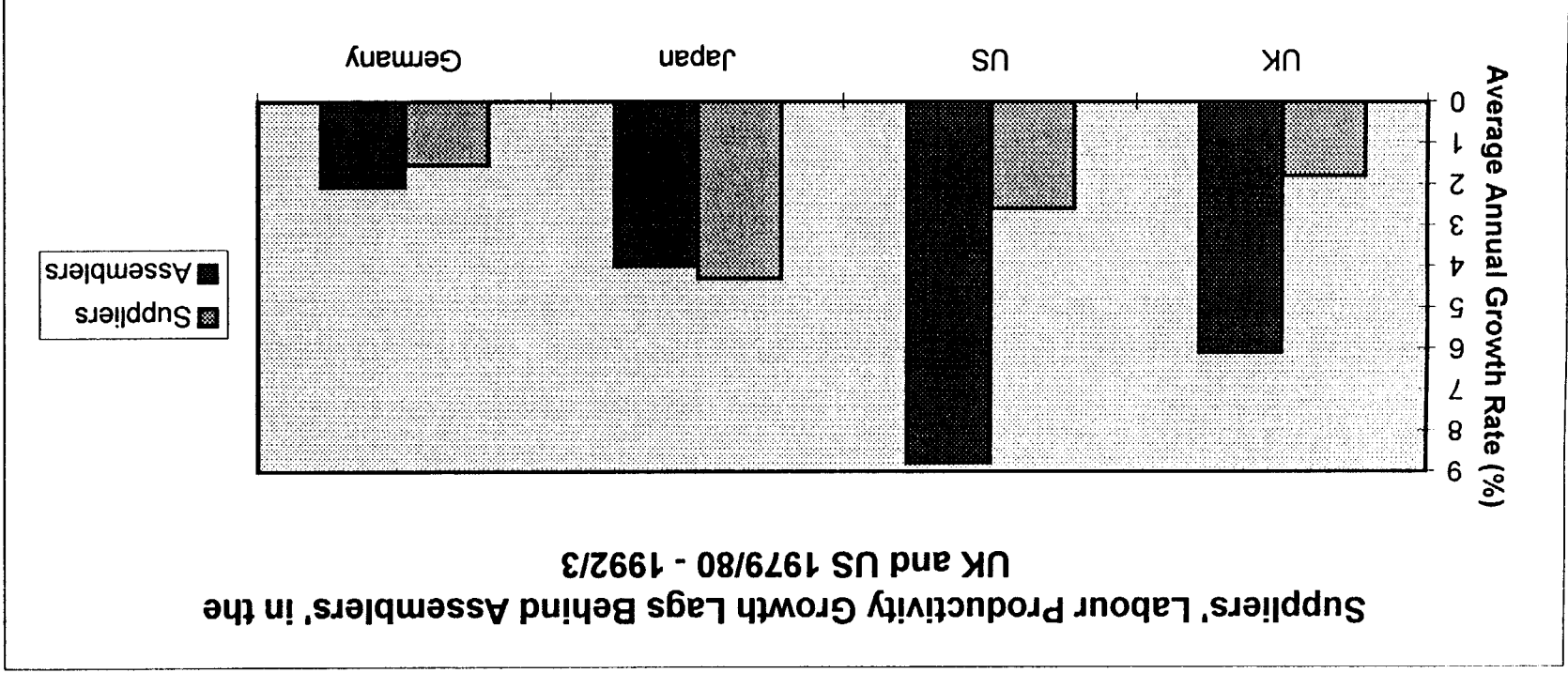
Sources: National Production Census Data

Figure 5



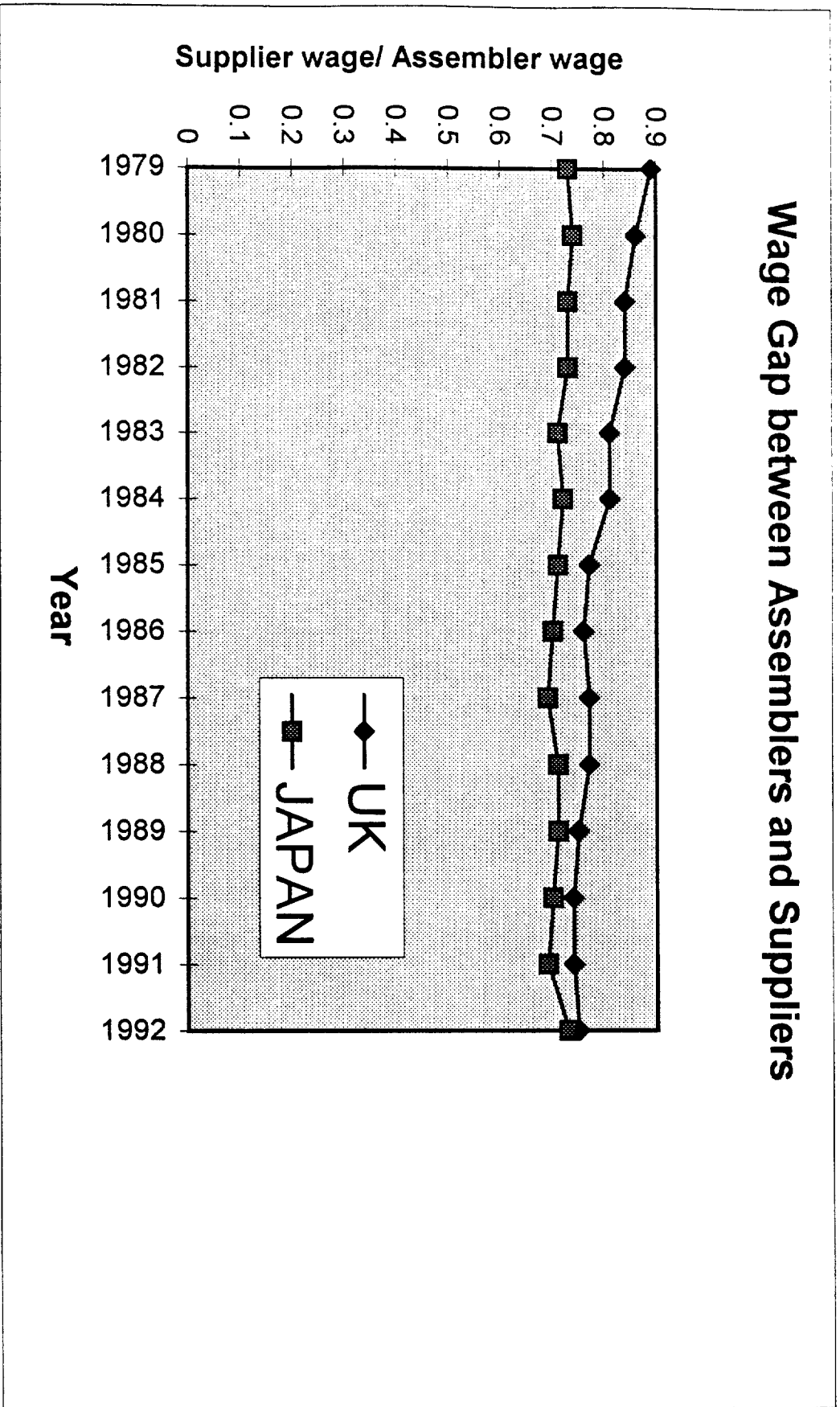
Source: Business Monitor Census of Production

Figure 6



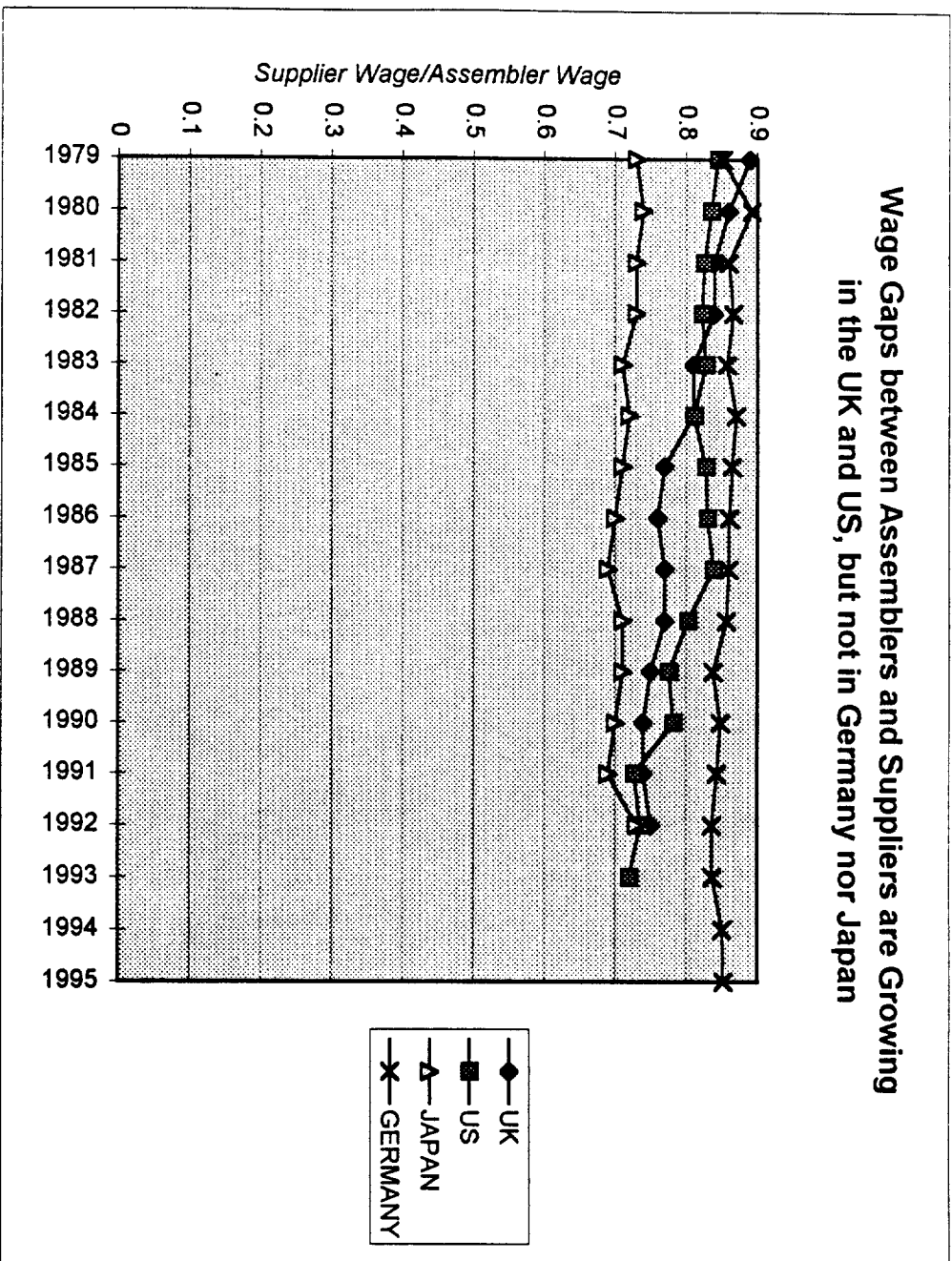
Sources: National Production Census Data  
N.B. Real Labour Productivity at 1980 Constant Producer Prices

Figure 7



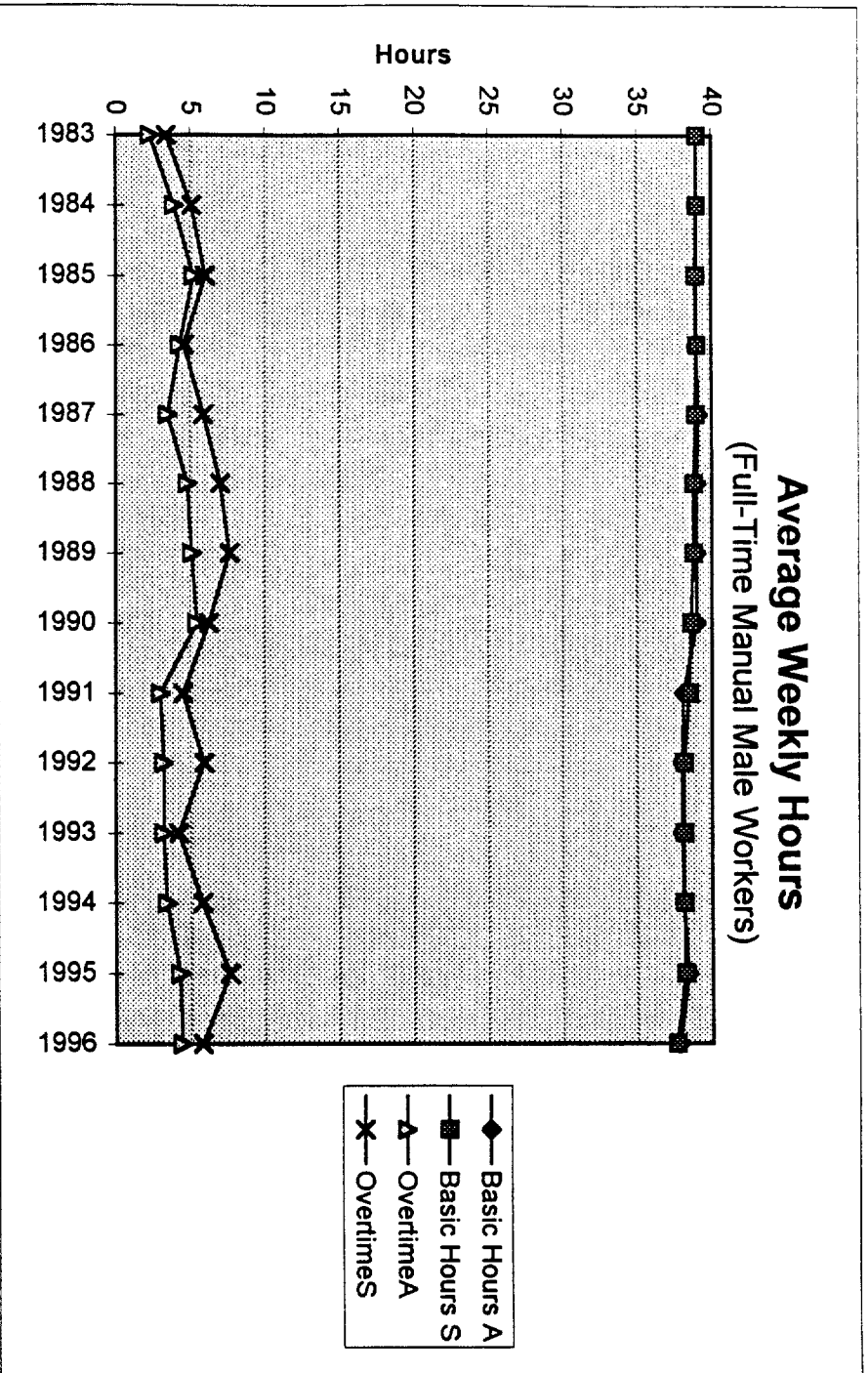
Source: National Production Census Data

Figure 8



Source: National Production Census Data

Figure 9

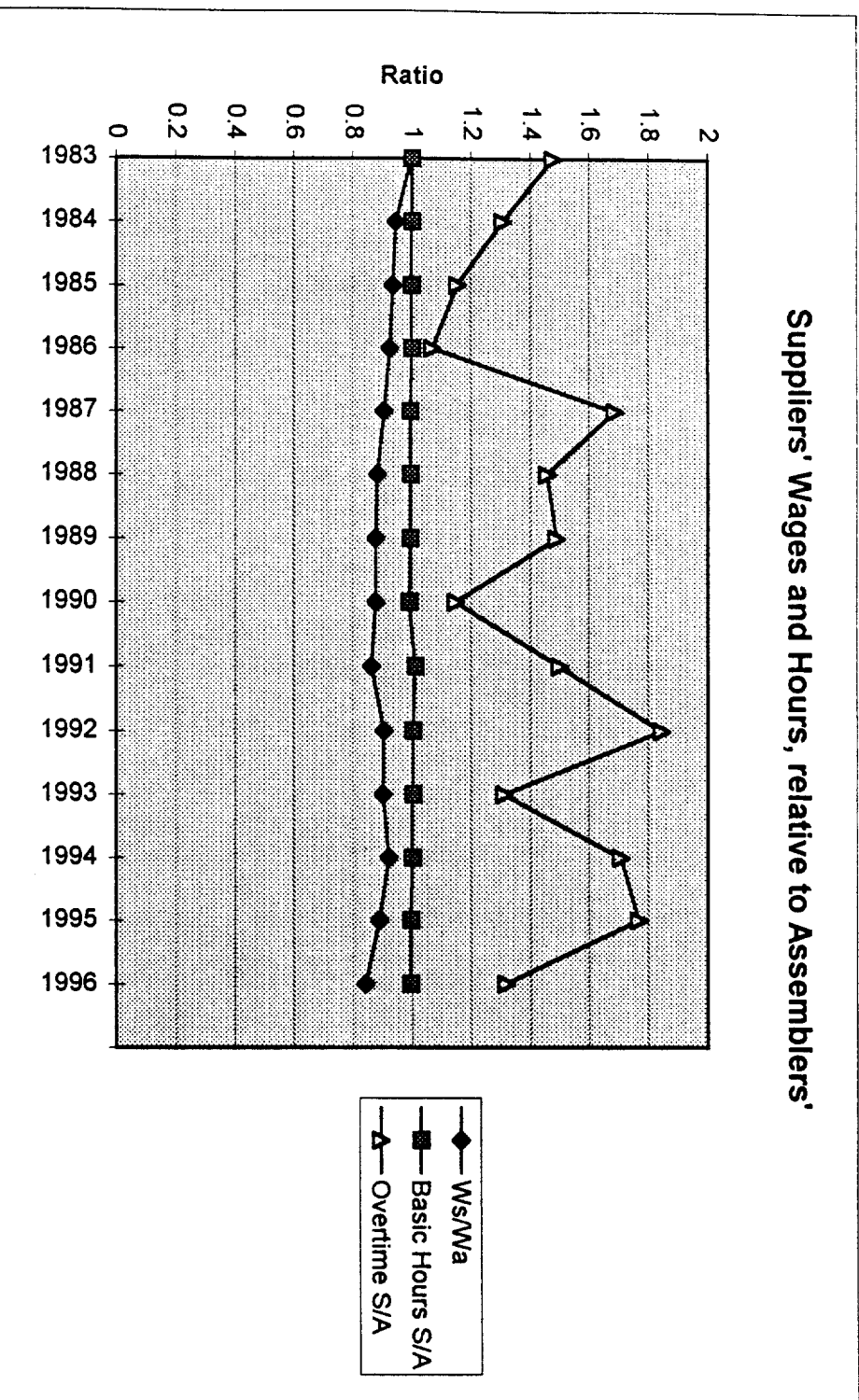


N.B. A = assemblers; S = suppliers

Source: UK New Earnings Surv



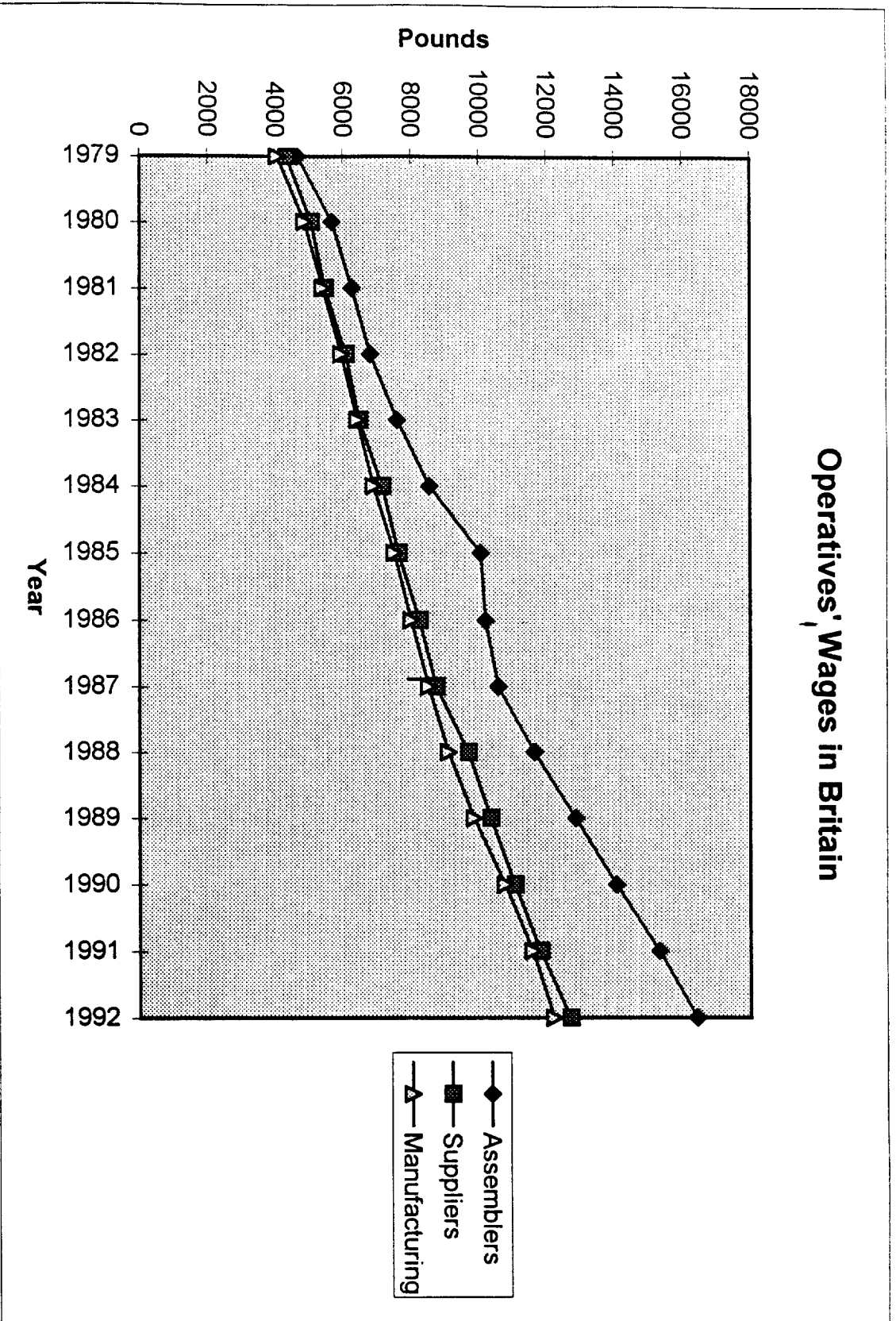
Figure 10



N.B.  $W_a$  = Hourly earnings of assembly workers  
 $W_s$  = Hourly earnings of supplier workers  
 $S/A$  = ratio of suppliers to assemblers

Source: UK New Earnings Survey

Figure 11



Source: British Monitor Census of Production, UK