IMF
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2000

Mergers, Acquisitions and Alliances
Industry Review and Outlook
Employment Situation
Long-term Vehicle Sales Prospects

Automotive Department
International Metalworkers' Federation

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Introduction

The process of concentration in the auto industry, which was already examined in Auto 98-99, is gathering speed. Since the publication of that report, virtually every week has brought news of some new development in this process. And, in fact, it is difficult to keep up with events. As this report goes to press, there are reports that DaimlerChrysler is sending a high-level delegation to Japan to renegotiate the terms of the "strategic alliance" with Mitsubishi, which had been announced as recently as last March. Reportedly, DaimlerChrysler is seeking a lower share price and bigger influence in the management of Mitsubishi.

Because of the overriding importance of this growing wave of mergers, acquisitions, and alliances, Auto 2000 devotes its opening section this trend. We describe the six emerging alliances, which are likely to dominate the global auto industry and evaluate their relative positions in the key global markets.

However, alliances are strategic not only for the auto companies, but also for their workers. Trade unions must be aware of the new global auto giants that are forming in order to develop strategic responses. Alliances, which are based on cross-shareholdings, require new responses from the world's auto unions.

In the coming years, we will not be confronted simply by new corporate entities such DaimlerChrysler, but by linkages between major auto employers that remain more-or-less independent. Nevertheless, these linkages will entail joint ventures in the areas of vehicle development, production, distribution, financing, etc. All of these will have important repercussions on employment and working conditions, and it is essential that the world's auto unions develop adequate responses to these challenges.

As in earlier editions of the IMF Auto Report, the current issue also contains an overview of vehicle sales, production, and employment in key world regions and major producing countries. In brief, these analyses show that the Asian industry is recovering from the 1997-1998 crisis, that favorable circumstances continue in North America and Western Europe, and that even in Japan the economic outlook is improving. We would caution, however, against excessive optimism. The rise of oil prices, and the central banks' determination to raise interest rates at any hint of inflation is likely to slow or even reverse the current expansion.

Finally, we include a long-term forecast in this issue. Forecast by marketing consultants are often overly optimistic. Consequently, we felt it was important to present a more realistic assessment. Such a forecast also gives us the opportunity to discuss critical factors, which influence future sales such as the rate at which the existing vehicle stock is scrapped and historical trends in vehicle ownership.

Last year we did a reader survey on what improvements might be undertaken in the auto report. The response was not very large, but there was an interest in more graphics to which we responded in this issue. An additional innovation is that this report will be available for downloading from the IMF's website. So, if you require additional copies you can find them at www.imfmetal.org.

I hope that you will find Auto 2000 as useful as its predecessors, and that you will give us more feedback so we can continue to improve the publication.

Marcello Malentacchi
General Secretary

1. Mergers, Acquisitions and Alliances

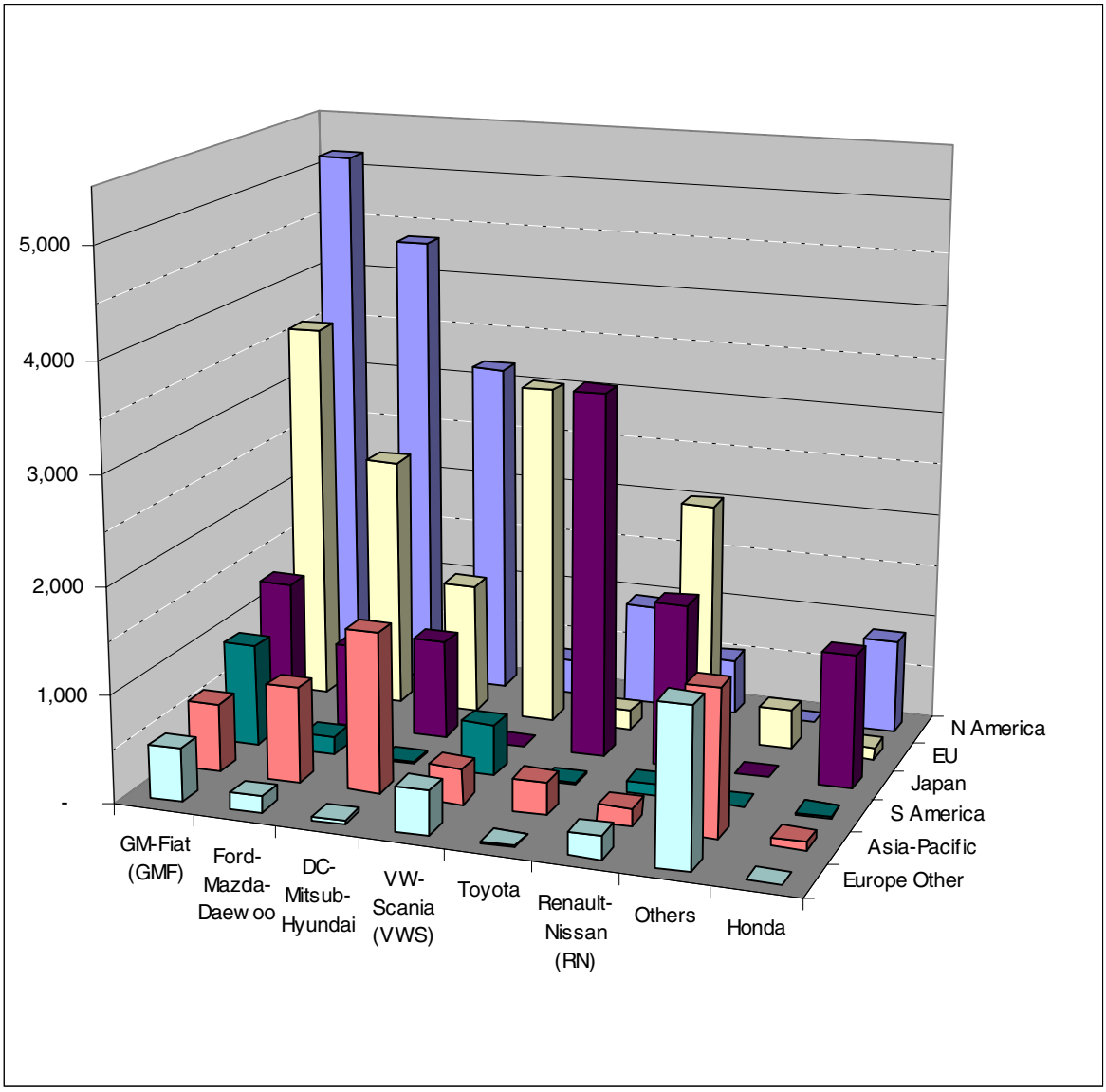
1.1 Introduction

Strategic alliances, rather than mega-mergers -- the trend since 1999

Automobile companies have been making headlines in recent months, but the news are far more frequently about new strategic alliances rather than mega-mergers of the DaimlerChrysler variety. An article, which summarized developments in the 1990s through 1998, and analyzed the pressures for increasing merger and acquisition activity can be found in Auto 98-99. It explained the significance of the **DaimlerChrysler (DC)** merger and predicted a continuation of auto industry tie-ups.

Figure 1.1 Regional Output of Vehicle Alliances*

(1998 unit production in thousands)



* alliances as of July 2000 Source: OICA

NOTE: *Asia-Pacific*, excludes Japan and includes Oceania and the rest of the world. *Europe Other* includes Turkey.

Table 1.1 Production Shares of Global Automotive Alliances

(alliances as of July 2000; production shares, 1998)

Alliances/Partners	Share %	World Total	North America	South America	EU	Europe Oth. \a	Japan	Asia Pacific \b
GM-Fiat (GMF)		**23.9**	**33.3**	**52.7**	**22.2**	**17.6**	**14.3**	**12.0**
GM	100	14.7	31.9	23.7	12.1	0.4	-	3.1
Isuzu	49	0.5	0.7	-	-	0.2	0.9	1.2
Fiat	20	5.1	-	29.0	9.9	14.6	-	0.5
Fuji	20	1.0	0.7	-	-	-	4.6	0.1
Suzuki	10	2.5	0.0	-	0.2	2.3	8.7	7.1
Ford-Mazda-Daewoo (FMD)		**17.2**	**28.2**	**9.2**	**14.7**	**5.4**	**8.4**	**16.6**
Ford-Mazda	**-**	**15.6**	**28.2**	**9.2**	**14.7**	**1.3**	8.4	4.1
Ford	100	12.7	27.5	9.2	11.3	1.2	-	3.4
Volvo Cars	100	0.8	0.0	-	2.4	-	-	0.0
Mazda	33	1.8	0.6	-	-	-	8.4	0.7
Land Rover	100	0.3	-	-	1.0	0.1	-	0.0
Daewoo Alliance	**-**	**1.5**	**-**	**-**	**-**	**4.0**	-	12.5
Daewoo	100	1.5	-	-	-	4.0	-	11.6
Ssangyong	52	0.1	-	-	-	-	-	0.8
DC-Mitsubishi-Hyundai (DCMH)	**	**13.6**	**20.6**	**1.5**	**7.7**	**1.2**	**10.0**	**27.9**
DC-Mitsubishi	**-**	**11.1**	**20.6**	**1.5**	**7.7**	**-**	10.0	5.0
DC	100	8.3	19.6	1.5	7.1	-	-	0.4
Mitusbishi Cars	34	2.8	1.0	-	0.6	-	10.0	4.7
Hyundai Alliance	**-**	**2.5**	**-**	**-**	**-**	**1.2**	-	22.8
Hyundai	100	1.7	-	-	-	1.2	-	16.0
Kia	51	0.7	-	-	-	-	-	6.7
Asia	16	0.0	-	-	-	-	-	0.2
Toyota	**-**	**9.7**	**6.2**	**1.3**	**1.1**	**0.5**	**37.2**	**5.7**
Toyota	100	8.6	6.2	1.3	1.1	0.5	31.4	5.7
Daihatsu	51	1.1	-	-	-	-	5.8	-
Hino	34	-	-	-	-	-	-	-
Renault-Nissan (RN)	**-**	**9.5**	**3.4**	**5.9**	**13.9**	**7.6**	**16.7**	**3.2**
Renault	100	4.3	-	5.9	11.5	7.6	-	0.1
Nissan	37	5.1	3.4	-	2.4	-	16.7	2.3
Samsung	70	0.1	-	-	-	-	-	0.8
VW-Scania (VWS)	**-**	**9.4**	**2.2**	**26.5**	**19.8**	**14.8**	**-**	**6.2**
VW Group	100	9.4	2.2	26.5	19.8	14.8	-	6.2
Scania	19	-	-	-	-	-	-	-
Honda	**-**	**4.6**	**5.7**	**0.9**	**0.7**	**-**	**13.4**	**1.4**
Peugeot-Citroën (PSA)	**-**	**4.4**	**-**	**1.8**	**13.1**	**0.5**	**-**	**1.3**
BMW*	**-**	**1.6**	**0.4**	**-**	**4.5**	**-**	**-**	**0.3**
Listed Companies	**-**	**93.7**	**100.0**	**99.8**	**97.7**	**47.6**	**100.0**	**74.6**
Others	**-**	**6.3**	**0.0**	**0.2**	**2.3**	**52.4**	**0.0**	**25.4**
World Total \c	**-**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

* BMW without Rover

** DC has purchased 9.9% of Hyundai (with an option to buy 5% more in 3 years)
and controls an additional 4.6 % which are owned by Mitsubishi (34% owned by DC)
Mitsubish Truck is owned 19% by Volvo

\a includes Turkey

\b includes Oceania,Asia except Japan and other regions

\c Totals may differ from sum of details because of rounding

A wave of alliances is sweeping the industry

The headline-making developments include startling cross-shareholding alliances and strategic acquisitions:

- **DC** acquired a 34% stake in **Mitsubishi**, and followed this with the acquisition of 9.9% of **Hyundai**.
- **General Motors** (GM) and **Fiat** agreed to a stock swap, which left GM with a 20% interest in Fiat. GM also acquired a 20% stake in **Fuji** Automotive (maker of Subaru) and increased its holdings in **Isuzu** to 49% and **Suzuki** to 10%.
- **Renault** acquired 36.8% of **Nissan** as well as taking over the moribund **Samsung** Motors.[1]
- **Daewoo** has chosen **Ford** as the exclusive bidder for its automotive operations. Ford has also acquired **Land Rover** from BMW.
- After the European competition authorities ruled against **Volvo** in its Scania takeover attempt, Volvo purchased **Renault's** heavy truck operations.
- **Volkswagen** Group acquired 18.7% of truck manufacturer **Scania's** capital and 34% of the voting stock. Volvo is expected to dispose of its Scania holdings.

The current alliances will shape the future of the industry

These developments are summarized in Table 1.1. which lists the "alliances". Bear in mind that the data shown in this table are for calendar year 1998[2] -- a period preceding all of the developments outlined above. But the point of the table, and of Figure 1.1, is not to depict the past, but to shed light on the future constellation of forces in the global automotive industry. And, although there have been some changes in the relative outputs since 1998, the basic picture has undoubtedly remained the same.

An alliance is not a single integrated enterprise

Two notes of caution are in order. First of all, an alliance is not a merger or an acquisition, i.e. it does not result in an integrated corporate structure. The partners' relationship depends primarily on any alliance agreements, the size of the leading partner's stake (and whether it was acquired in a "friendly" or "hostile" manner).

GM, for example, does not at this point control Fiat with its 20% stake, or Suzuki in which it only has a 10% share. In certain Japanese companies where foreign "allies" control more than a third of the equity they have named the CEOs (Mazda, Nissan), but in others where this would be possible, it has not happened so far (Isuzu, Mitsubishi).

Alliances are likely to change

Secondly, alliances are fragile and can break down. In the early 1990s, the Volvo-Renault alliance fell apart (see Auto 98-99). And even acquisitions sometimes do not work out; the recent break-up of BMW-Rover is a prime example. As this is written, some of the

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[1] Samsung started auto production just as the Asian crisis struck.

[2] Although 1999 company production data is now available, the regional breakdown shown in Table 1.1 and Figure 1.1 is not. As a result, we use the earlier data, because the regional strength of the emerging alliances is an important competitive factor, and because 1999 data would not significantly alter the picture.

alliances mentioned still require approval by authorities or stockholders, and the Ford-Daewoo alliance is still under negotiation.

Increasing competition or a downturn will put the emerging alliance structure under stress. Some of the smaller, still independent producers, such as BMW, are likely to be forced to seek shelter, and some of the large ones may separate themselves from certain of their current partners, and perhaps seek new ones. Consequently, the picture presented in this analysis must be regarded as preliminary.

1.2 The Global Vehicle Alliances

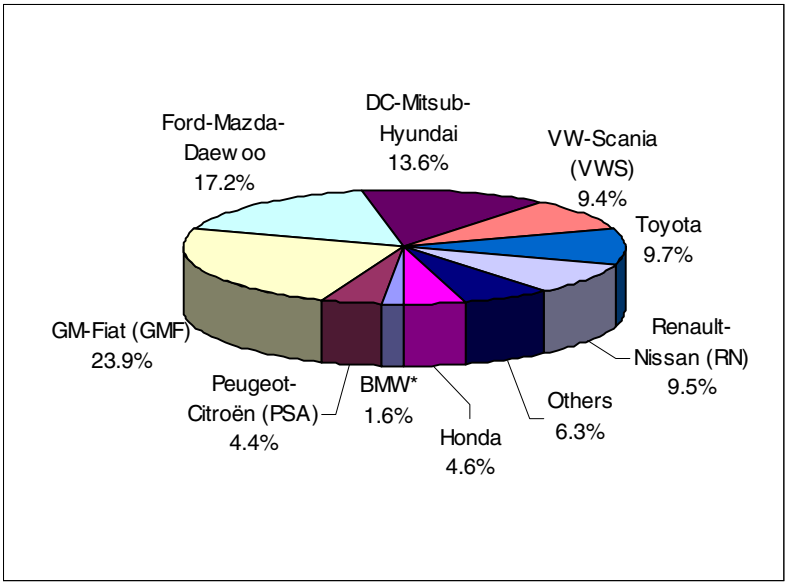
96% of global automotive output are light vehicles

Table 1.1 presents 1998 shares of light vehicle (LV) production for each of the groups. Under LVs, we include passenger cars and light commercial vehicles (LCVs), which account for 96% of world vehicle output (71% cars, 25% LCVs), the rest are heavy vehicles (HVs, i.e. trucks and buses). Often LCVs are based on passenger car platforms, and numerous LCV models are sold for commercial purposes as well as private consumption. In addition, the production processes for cars and LCVs are more similar to each other than to those of HVs. Thus, considering cars and LCVs together gives the most accurate picture of the branch of the automotive industry that is oriented towards mass production.

Figure 1.2
1998 World Light Vehicle Production: 50.1 million units

* Excludes Rover

Source: OICA



Six major alliances will dominate world LV output

Figure 1.2 shows that six major alliances are forming; they produced about 83% of world output in terms of 1998 units. In the order of production share, these are the alliances centered on General Motors, Ford, DaimlerChrysler, Toyota, Renault, and Volkswagen.

Except for Toyota, each alliance includes one or more major allied companies. Volkswagen's principal ally, Scania, exclusively produces heavy trucks and buses. Consequently, the entire LV output of this alliance comes from the Volkswagen Group, but the Scania stake allows Volkswagen to be a player in the HV market, which is considered below.

Table 1.2 Production of Global Automotive Alliances

(alliances as of July 2000; 1998 unit production in thousands)

Alliances/Partners	World Total \c	North America	South America	EU	Europe Oth. \a	Japan	Asia Pacific \b
GM-Fiat (GMF)	**12,192**	**5,157**	**954**	**3,617**	**498**	**1,320**	**645**
GM	7,508	4,932	429	1,968	12	-	166
Isuzu	274	115	-	-	7	87	65
Fiat	2,578	-	525	1,616	413	-	26
Fuji	534	104	-	-	-	426	3
Suzuki	1,298	6	-	33	66	807	385
Ford-Mazda-Daewoo (FMD)	**8,751**	**4,364**	**167**	**2,391**	**151**	**782**	**895**
Ford-Mazda	**7,965**	**4,364**	**167**	**2,391**	**37**	**782**	**223**
Ford	6,484	4,263	167	1,834	35	-	183
Volvo Cars	399	7	-	391	-	-	1
Mazda	914	94	-	-	-	782	38
Land Rover	168	-	-	166	2	-	1
Daewoo Alliance	**786**	**-**	**-**	**-**	**114**	**-**	**672**
Daewoo	741	-	-	-	114	-	627
Ssangyong	45	-	-	-	-	-	45
DC-Mitsubishi-Hyundai (DCMH)	**6,918**	**3,190**	**27**	**1,246**	**33**	**926**	**1,500**
DC-Mitsubishi	**5,658**	**3,190**	**27**	**1,246**	**-**	**926**	**271**
DC	4,226	3,033	27	1,148	-	-	20
Mitusbishi Cars	1,432	157	-	98	-	926	251
Hyundai Alliance	**1,260**	**-**	**-**	**-**	**33**	**-**	**1,229**
Hyundai	891	-	-	-	33	-	860
Kia	359	-	-	-	-	-	359
Asia	10	-	-	-	-	-	10
Toyota	**4,932**	**965**	**23**	**178**	**15**	**3,443**	**308**
Toyota	4,395	965	23	178	15	2,906	308
Daihatsu	537	-	-	-	-	537	-
Hino	-	-	-	-	-	-	-
Renault-Nissan (RN)	**4,828**	**529**	**107**	**2,258**	**215**	**1,546**	**173**
Renault	2,202	-	107	1,872	215	-	6
Nissan	2,584	529	-	386	-	1,546	125
Samsung	42	-	-	-	-	-	42
VW-Scania (VWS)	**4,797**	**339**	**480**	**3,227**	**417**	**-**	**335**
VW Group	4,797	339	480	3,227	417	-	335
Scania	-	-	-	-	-	-	-
Honda	**2,329**	**881**	**16**	**112**	**-**	**1,243**	**76**
Peugeot-Citroën (PSA)	**2,248**	**-**	**33**	**2,129**	**15**	**-**	**69**
BMW*	**808**	**57**	**-**	**736**	**-**	**-**	**15**
Listed Companies	**47,803**	**15,482**	**1,807**	**15,894**	**1,344**	**9,260**	**4,016**
Others	**3,222**	**1**	**3**	**371**	**1,478**	**1**	**1,369**
World Total \c	**51,025**	**15,483**	**1,810**	**16,265**	**2,822**	**9,261**	**5,385**

* BMW without Rover

** DC has purchased 9.9% of Hyundai (with an option to buy 5% more in 3 years)
and controls an additional 4.6 % which are owned by Mitsubishi (34% owned by DC)
Mitsubish Truck is owned 19% by Volvo

\a includes Turkey

\b includes Oceania, Asia except Japan and other regions

\c Totals may differ from sum of details because of rounding

The top three alliances: 1. General Motors 2. Ford 3. DaimlerChrysler

In terms of output, **GM-Fiat** (GMF) is by far the largest -- in 1998 its partners produced a total of 12.2 million LVs -- 3.4 million more than the second-ranked **Ford-Mazda-Daewoo** (FMD) alliance. The latter is 1.9 million units ahead of third-ranked **DaimlerChrysler-Mitsubishi-Hyundai** (DCMH).

Toyota, Renault and VW share 4th place

DCMH had about 2 million units more output than the three alliances, which are just about tied for 4th place – Toyota, Renault-Nissan (RN) and VW-Scania (VWS). Their output falls into the 4.8 - 4.9 million unit range. Year-to-year fluctuations could easily produce changes in the relative ranking of the latter three companies.

Also in the running: Honda, Peugeot-Citroën, BMW

The gap between the 4th ranked alliances, each of which had approximately a 9.5% production share in terms of 1998 output, and the remaining independent producers is enormous. Honda and Peugeot-Citroën each have about a 4.5% share and BMW, after its sale of Rover, has a tiny 1.6% share – what now remains of BMW would have produced just over 800,000 vehicles in 1998.

Who are the "Other Producers"?

Before leaving this overview of alliances, a few words about the "Others" shown in Figure 1.2. Their total share of 6.3% is by no means negligible. Who are these enterprises and where are they located? Primarily, they are nationally controlled producers in Russia, China, India (Maruti), Malaysia (Proton) and other emerging and transition economies (see Figure 1.2).

In the future, these producers will undoubtedly receive increasing attention from major producers in search of additional economies of scale or better market penetration.

1.3 Alliances in Heavy Vehicle Production

Production of heavy trucks and buses is a very different activity

Heavy trucks and buses are considered heavy vehicles (HVs) in this report. As indicated earlier, they amount to about 4% of global vehicle output -- a total of 2.1 million HVs were produced in 1998. The value of this output is of course much greater than this percentage indicates because their prices are much higher than those of LVs. The average price of a Scania vehicle, for example, was almost US$100,000 in 1998.[3]

In addition, the manufacturing processes for HVs are far more labor intensive than those of mass-produced cars and light trucks. HVs are investment, and not consumer goods.

All of the major alliances are present in the HV segment

With the exception of the three smaller independent car producers (Honda, PSA, and BMW), all of the alliances shown in Table 1.1 also produce HVs. But this is not true for all of the individual partners: Volkswagen Group, Renault (after the sale of its heavy truck group to Volvo), Fuji, and Suzuki do not produce HVs.

GMF is the largest producer in the segment

In terms of output share, GMF is the largest with almost 20%, but this is not due to GM's strength in the segment but rather that of its partners -- Isuzu and Fiat (IVECO).

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[3] Based on SKr 39,675 million in sales, 49,670 trucks and buses, and an exchange rate of 8.06 Skr/US$.

DCMH, Toyota and Volvo share 2nd place

Definitely lower, but also very strong, with production shares in the 14-16% range, are the DCMH, Toyota, and Volvo alliances. In the case of DCMH and Toyota, the leading partners produce the vast majority of the output: DaimlerChrysler's Freightliner and Mercedes brands account for more than 90% of DCMH production, and Toyota trucks are more than 85% of the alliance's output.

Volvo: a HV specialist

Volvo recently purchased Renault's HV division, and has an alliance with Mitsubishi Truck. This makes it the world's most important specialty producer in the segment.

Independent producers, PACCAR and NAVISTAR -- an important factor

The importance of independent specialty producers is a distinguishing characteristic of the HV segment. Whereas such independents account for only 6.3% of global LV production, they produce about 25% of global HV output. They are especially prominent in North America where companies such as PACCAR and NAVISTAR produced a total of 200,000 HVs in 1998. Europe and Asia-Pacific (excluding Japan and South Korea) also account for significant independent production in this segment.

Will the HV industry become separate from the LV business?

In view of the very different manufacturing methods and markets of HVs, a number of major manufactureres -- GM, Ford, Renault -- are divesting themselves of the HV business to concentrate on LVs. This indicates that an HV industry, dominated by companies other than the LV producers, is emerging. So far DaimlerChrysler and Fiat have resisted this trend, and VW's acquisition of a stake in Scania goes against it.

FMD and VWS are the smallest of the allied producers

The FMD and VWS alliances have a relatively low presence in the HV segment. **Ford** has disposed of its heavy truck production to Freightliner (a DaimlerChrysler subsidiary), and **Volkswagen** was exclusively an LV producer before acquiring a stake in specialty truck producer **Scania**. Scania, although a strong company, produces only about 2.5% of global HV output.

1.4 Ally or Die?

The importance of economies of scale and a global presence

In Auto 98-99, the fundamental importance of economies scale was discussed. To amortize investment in vehicle development, large numbers of units must be sold, and that holds for vehicle components as well. Hence, the crucial importance of platform and component sharing among different models. The ongoing wave of mergers, acquisitions and alliance formation is a response to the pressures for achieving economies of scale. A second critical factor, which is discussed in more detail later on, is the importance of a global presence as distributor and producer.

Relatively low sales volumes are a handicap

The low global production share of the smaller groups is a crucial handicap. Although each of these smaller companies has been making up for their handicap with appealing vehicles and good management. In the longer run, it is unlikely that they will be able to beat the economic odds against small production runs.

General Motors is the perfect example of a company that has not produced the most attractive vehicles nor had the best management,

but it continues to be number one. Size has a lot to do with this.

Problems for the small producers:

a. lack of potential partners (aside from themselves)

The pressure on the three smaller companies to find "allies" or to grow by acquisition is great. *But, aside from themselves, practically all attractive potential allies already have links to one of the large alliances.* Why would a company that is already linked to one of the Big-Six welcome additional ties to smaller players?

b. big alliances are likely to discriminate against outsiders

Moreover, it seems more than likely that future inter-company cooperation in vehicle development, manufacturing, and distribution is likely to occur within the existing alliances. It will be much more difficult for the smaller companies to find suitable partners in the future.

A Honda-PSA-BMW alliance?

The most logical solution would be a Honda-PSA-BMW alliance. It should come as no surprise that combinations of two of these companies have already been rumored a number of times – and always strenuously denied by the companies concerned. All three are premium passenger car companies. There is a lot of product line overlap (and hence much scope for rationalization) and the geographical fit of the three companies is not bad. PSA and BMW have obvious strengths in Europe, and Honda is strong in Japan and North America. The weakness is in emerging markets, which they would have to struggle to overcome. At the moment there is relatively little indication that the smaller groups are pursuing the "Other Producers" which are strong particularly in Asia.

1.5 The Importance of Regional Production

The world's major vehicle markets are primarily North America and Western Europe with 1999 vehicle volumes of 19.7 million and 17.2 million respectively, and secondarily Asia-Pacific and Japan with volumes of 6.2 million and 5.9 million respectively. Eastern Europe and South America occupy a third tier with sales volumes of about half that size. (See Table 2.1.)

Mature developed markets are large

Despite their size, the "triad" markets (USA, EU, Japan) have a disadvantage, they are mature and sales are primarily for replacement. On the other hand, the emerging and transition[4] markets make up for their smaller size by the fact that they offer better growth opportunities.

Emerging and transition regions offer opportunities

It is important for any vehicle manufacturer to penetrate as many markets as deeply as possible – the mature markets because of their size and the others for the opportunities they offer. But effective penetration of developing markets generally requires local production. Living standards are so much lower in emerging and transition economies that correctly priced vehicles can only be offered by employing local labor in manufacturing and assembly.

We have already pointed to the relative weakness of the smaller automakers in emerging and transition regions. But how do the six

[4] Transition economies are formerly "state socialist" economies that are now transforming in a market direction.

major alliances rate in terms of global presence? Figure 1.1 illustrates regional production for each of the major alliances.

The ordering of alliances and regions may appear illogical, but it is arranged to allow the output in all cells to be observable. Although regional production shares would illustrate the relative strength of the various alliances, we show unit production because it also indicates the importance of the region (for production shares see Table 1.1).

GMF and FMD are globally strong

A key point, which emerges from the table, is that the GMF and FMD alliances are the only ones that are already strong producers in all world regions. As Table 1.1 shows, of the two alliances, GMF is the stronger in all regions except for Asia-Pacific.

RN also is well represented around the globe

The Renault-Nissan alliance has a good presence around the globe, essentially because of Renault strength in the Europe (including Eastern Europe and Turkey), and because of Nissan's strength in Japan, Asia-Pacific and North America. In Japan, as could be expected, RN is stronger than either the GM or Ford alliances.

DCMH, Toyota and VWS have strengths but also weak points

The DC alliance has a strong presence in the triad regions and Asia-Pacific (where it is the strongest of all), but is quite weak in South America and Europe-Other.

The Toyota alliance is the strongest of all in Japan and has a good presence in Asia-Pacific and North America, but is weak elsewhere.

VW has good strength in all regions except for Japan and North America. Given the importance of these markets this is a serious handicap.

1.6 Implications for Workers

Share-holder value and globalization behind M&As and alliances

The fundamental factor driving the ongoing wave of mergers, acquisitions and alliances is the need to produce returns to shareholders in the context of economic globalization. The latter brings competitive pressures as well as opportunities.

The key to success in automotive mass production is to offer as desirable a choice of vehicles as possible in as many markets as possible.

Competition combined with certain protections brings some duplication of functions among producers

Automakers have long followed this principle, with the exception of those dedicated to "niche" market strategies (e.g. Volvo, Saab). The need to produce essentially similar products that are differentiated primarily by the perceptions of consumers resulted in considerable duplication of effort and production capacity.

But, as long as vehicle markets grew strongly, and national producers enjoyed certain protections, most companies thrived or at least survived. Still, it is worth recalling that automotive history is a history of mergers and acquisitions -- what we witness today is not really new.

A caution: some inefficiency may be socially necessary

Before leaving this point, it seems essential to add that competition and regulation (or protection) must go hand-in-hand. In contrast to neo-liberal utopias, a certain amount of economic "waste" or

inefficiency is required in the real world to ensure socially and politically acceptable outcomes.

Bear in mind that rest-periods for workers, health and safety rules or any of the other improvements in working conditions, which workers have historically fought for, can be considered "wasteful" from a viewpoint of strict economic efficiency.

How much inefficiency to accept must in the end be a political and not a market decision. Economic efficiency can at best be a means to an end; good societies, after all, have goals beyond the accumulation of wealth.

Alliances favored by modern communications and issues of "manageability"

Above we pointed to the long history of mergers and acquisitions. The new aspect of current developments is the prevalence of "alliances" rather than full-fledged takeovers. Modern communications technology undoubtedly is partly responsible for facilitating this option. In addition, automotive corporate empires are already so huge that many a manager rightly pauses before undertaking to create yet more gigantic and consequently harder-to-manage bureaucracies.

Slow market growth encourages cost-cutting and rationalization

In any event, the maturation of triad economies, the continuing underdevelopment of much of the world, the lowering of trade barriers and other protections have created a new situation. As rapid output growth is not in the cards, cost cutting and rationalization have become a principal means of surviving and generating "share-holder" value.

And that is the basic reason for the alliances. The partners seek to rationalize and bring about synergies in

- vehicle development and platforms,
- engine and transmission manufacturing,
- component purchasing,
- and vehicle distribution and servicing.

Alliances expand rationalization beyond the confines of a single enterprise

Since the 1980s, autoworkers around the world have experienced a wave of corporate restructuring aimed at producing "lean" enterprises that are focused on the "core" business. But these rationalization strategies were mostly confined to particular corporate structures. Alliances will allow similar efforts throughout the various partner-enterprises, even if limited by agreements, consensus and the degree of influence of the leading partners.

Eliminating jobs and intensifying work is the bottom line for workers

But rationalization and synergies, by definition, imply eliminating work and existing productive capacity. As documented in preceding issues of the IMF Auto Report, the earlier wave of corporate restructuring resulted in massive job losses, increasing work pressures (stress, overtime, etc.), and a reversal of certain gains in social benefits and the quality of working life. There is no reason to believe that the current wave of alliances will bring different results for workers.

Box 1

The General Motors-Fiat Alliance

The principal terms:

- An exchange of shares valued at $2.4 billion will give GM 20% of Fiat, while the latter will own 5.1% of GM.
- Fiat will have the right to force GM to buy the remaining 80% of its shares during a 5 and 1/2 year period beginning in 2004.
- The partners will set up a 50-50 joint venture to manage their engine and transmission operations in Europe and Latin America.
- Purchasing and some finance operations will be combined.
- GM will adopt two Fiat platforms for its principal European models: Corsa, Astra, Vectra and Omega.
- GM will help Alfa Romeo return to the US market.

Adapted from Automotive News, March 20, 2000

The repercussions:

On May 2 trade union and works-council representatives from GM/Opel and Fiat met.

By May 11th, the GM Europe Employee Forum (EEF) had met with management and been informed of their intention to combine GM/Opel powertrain and purchasing operations. The EEF formulated a set of demands and principles that was later expanded to include:

- Continuous and timely information about developments in the alliance.
- The alliance must not lead to workforce reductions, plant closings or the worsening of working conditions.
- Existing collective bargaining agreements must continue in force.
- The right to remain and return for workers subject to transfer.
- Recognition of the current national or EU wide representation bodies and unions in any new enterprises that may be formed.

Management was reluctant to provide clear information and to enter meaningful negotiations on these issues, and consequently a series of workplace confrontations, including work stoppages, erupted at the Bochum plant in Germany in early June.

At the same time, and for similar reasons, unions in Brazil began demanding information and negotiations. They contacted their European and North American colleagues through an IMF Action network. In early July, lack of management response led to workplace actions in Brazil. Support messages from throughout the GM Action network arrived in Brazil, including a strong letter of support from the GM/Opel European Employee Forum, which had just successfully completed negotiation of an agreement based on its demands.

In the absence of strongly growing markets, corporate synergies and rationalization will result in fewer jobs because functions, which had been duplicated among the partners, are eliminated.

RN reduces its workforce, and GM is reorganizing it in Europe and Brazil

Nissan, for example, will reduce its workforce by more than 20,000 over the next few years. It should be emphasized that, as a result of negotiations with its unions, this will be achieved through transfer and attrition, but in the end, Nissan will offer fewer job opportunities to young workers than before. General Motors workers in Europe and Brazil have already entered into what is likely to be the first of many conflicts with their employer over attempts to realize corporate synergies (see Box 1).

International unions structures needed to confront global employer alliances

Korean workers fiercely resisted foreign takeovers because they feared layoffs and wanted to be included in the negotiations that decided the fate of their industry. As the GM-Fiat example shows, more and more effective international communication and cooperation will become increasingly important in meeting the challenges posed by global employer alliances.

2. Vehicle Sales: The Current Situation and Outlook

2.1 The World in Brief

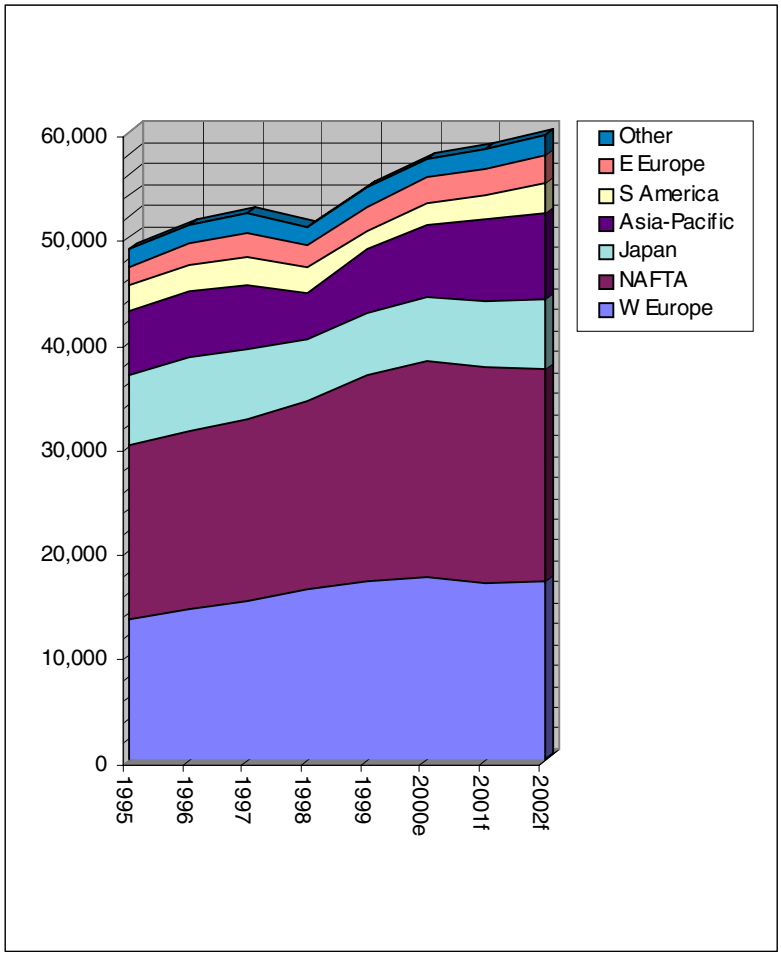
1999 world vehicle sales set a new record but are slowing

World vehicle sales[5,6] reached a new record of more than 54.7 million units in 1999. Sales volume increased by 3.8 million units or 7.4% over the year-earlier figure,[7] which is by far the strongest performance since 1995. It also represents a rebound from the 2.6% sales decline of 1998, which was due to the impact of the Asian crisis on Japan, and emerging and transition markets.

Figure 2.1 World Vehicle Sales (units in thousands)

e = estimate
f = forecast

Source: EIU, forecast IMF



In 1999, volume grew everywhere but in South America and Japan

In 1999, sales grew by 36.4% in the Asia-Pacific[8] region, up by 1.6 million units over a year earlier, and continued strongly in North America (plus 1.6 million) and Western Europe (up 878,000). East

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5 Vehicle figures are the sum of car and commercial vehicle figures.

6 Throughout this report the term "sales" is used; in most countries the figures are for "new registrations". Sales (or registrations) are not available for certain countries, and therefore regional or world totals contain estimates. See Annex: *Note on Data*.

7 1999 regional and world data and, in certain cases, country data should be regarded as preliminary estimates which will undergo future revision.

8 In this report, Asia-Pacific always excludes Japan and includes Oceania (Australia, N Zealand, etc.), unless otherwise noted.

European made up for the sales decline of 1998.

World sales will continue to grow in 2000 but more slowly than in 1999

Judging from the year-to-date figures available in mid-2000, world vehicle sales will increase by an estimated 2.7 million units, which would be at a lower rate than in 1999. Sales will be particularly strong in South America (which is finally recovering from the slump during 1998-99) and Asia-Pacific where the Chinese economy is growing more strongly than in 1999.

A number of forecasters had predicted a world vehicle sales decline for 2000, but continued economic strength in North America and Western Europe combined with recoveries in South America and Asia will make 2000 a positive year.

Table 2.1 World Vehicle Sales by Region, 1995-2002

	Actual Data*					Forecast		
	1995	**1996**	**1997**	**1998**	**1999**	**2000e**	**2001**	**2002**
	Units in thousands							
W Europe	13,549	14,437	15,174	16,289	17,167	17,395	16,939	17,064
NAFTA	16,480	17,013	17,419	18,028	19,659	20,788	20,561	20,353
S America	2,383	2,496	2,805	2,335	1,799	2,110	2,439	2,853
Japan	6,848	7,061	6,725	5,874	5,861	6,054	6,397	6,649
Asia-Pacific**	6,117	6,363	6,049	4,518	6,163	6,935	7,743	8,294
E Europe	1,719	2,089	2,301	2,225	2,320	2,437	2,531	2,736
Other	1,690	1,775	1,840	1,684	1,743	1,795	1,850	1,910
World Total	**48,786**	**51,234**	**52,313**	**50,953**	**54,712**	**57,513**	**58,460**	**59,858**
	Year-to-Year Changes (thousands)							
W Europe	194	888	737	1,115	878	228	-456	125
NAFTA	-792	533	406	609	1,631	1,129	-228	-208
S America	168	113	309	-470	-536	311	329	413
Japan	339	213	-336	-851	-13	193	343	252
Asia-Pacific**	595	246	-314	-1,531	1,645	772	809	551
E Europe	-23	370	212	-76	95	117	94	205
Other	275	85	65	-156	59	52	55	60
World Total	**755**	**2,448**	**1,079**	**-1,360**	**3,759**	**2,801**	**946**	**1,399**
	Year-to-Year Percent Changes							
W Europe	1.4	6.6	5.1	7.3	5.4	1.3	-2.6	0.7
NAFTA	-4.6	3.2	2.4	3.5	9.0	5.7	-1.1	-1.0
S America	7.6	4.7	12.4	-16.8	-23.0	17.3	15.6	17.0
Japan	5.2	3.1	-4.8	-12.7	-0.2	3.3	5.7	3.9
Asia-Pacific**	10.8	4.0	-4.9	-25.3	36.4	12.5	11.7	7.1
E Europe	-1.3	21.6	10.1	-3.3	4.3	5.0	3.9	8.1
Other	19.4	5.0	3.7	-8.5	3.5	3.0	3.1	3.2
World Total	**1.6**	**5.0**	**2.1**	**-2.6**	**7.4**	**5.1**	**1.6**	**2.4**

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* includes some estimates

** excludes Japan; includes Australia and New Zealand

The outlook beyond 2000 appears positive …

Even with slowdowns in major markets such as Western Europe and North America, continued growth elsewhere could offset these downward pressures.

Signs now point to a "soft landing" for the US economy, i.e. a gradual slowing of the strong economic expansion of the preceding years. Some forecasters even suggest that Western Europe (perhaps aided by recovery in Japan) will be able to replace the USA as the

locomotive pulling the world economy. But this is a very optimistic view. What is important is that a relatively mild cyclical recession on the two sides of the Atlantic would not spell disaster for world vehicle sales.

Table 2.2 Vehicle Sales in Countries of the Asia-Pacific Region, 1995-2002

	Actual Data					Forecast		
Countries*	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
Japan	6,865.0	7,077.7	6,725.0	5,874.2	5,861.2	6,054.1	6,396.7	6,648.6
China	1,592.3	1,512.9	1,615.9	1,641.3	1,847.5	2,046.4	2,232.5	2,350.7
S Korea	1,555.9	1,644.1	1,512.9	779.9	1,273.0	1,479.6	1,666.7	1,781.9
India	584.4	698.3	701.5	604.8	822.6	923.0	993.2	1,034.6
Australia	641.2	650.0	722.4	807.7	651.7	744.8	809.0	811.5
Taiwan	542.4	461.8	472.7	474.0	431.5	456.1	495.7	506.1
Malaysia	285.8	364.8	404.8	163.2	296.0	345.7	389.1	415.5
Thailand	569.7	588.4	363.2	144.1	218.4	296.8	386.5	463.7
Indonesia	384.4	337.4	392.2	68.8	125.5	161.4	222.9	323.7
Philippines	124.6	162.9	138.1	76.8	73.4	93.6	122.3	153.6
N Zealand	80.5	79.1	71.4	66.0	72.2	70.1	73.0	72.9
	Year-to-Year Changes (thousands)							
Japan	338.3	212.7	-352.7	-850.8	-13.0	192.9	342.6	251.9
China	-20.1	-79.4	103.0	25.3	206.2	198.9	186.2	118.2
S Korea	0.3	88.2	-131.2	-733.0	493.1	206.6	187.1	115.1
India	148.4	113.9	3.3	-96.7	217.8	100.4	70.2	41.4
Australia	25.0	8.8	72.4	85.2	-155.9	93.1	64.2	2.5
Taiwan	-33.2	-80.6	10.9	1.3	-42.5	24.6	39.6	10.4
Malaysia	94.2	79.0	40.0	-241.6	132.8	49.7	43.4	26.4
Thailand	84.0	18.7	-225.2	-219.1	74.3	78.4	89.7	77.2
Indonesia	56.1	-47.1	54.8	-323.4	56.7	35.9	61.5	100.7
Philippines	20.7	38.3	-24.9	-61.3	-3.4	20.2	28.8	31.3
N Zealand	-11.8	-1.4	-7.7	-5.4	6.3	-2.1	2.8	-0.0
	Year-to-Year Percent Changes							
Japan	5.2	3.1	-5.0	-12.7	-0.2	3.3	5.7	3.9
China	-1.2	-5.0	6.8	1.6	12.6	10.8	9.1	5.3
S Korea	0.0	5.7	-8.0	-48.5	63.2	16.2	12.6	6.9
India	34.0	19.5	0.5	-13.8	36.0	12.2	7.6	4.2
Australia	4.0	1.4	11.1	11.8	-19.3	14.3	8.6	0.3
Taiwan	-5.8	-14.9	2.4	0.3	-9.0	5.7	8.7	2.1
Malaysia	49.2	27.6	11.0	-59.7	81.4	16.8	12.6	6.8
Thailand	17.3	3.3	-38.3	-60.3	51.6	35.9	30.2	20.0
Indonesia	17.1	-12.2	16.2	-82.5	82.3	28.6	38.1	45.2
Philippines	20.0	30.8	-15.3	-44.4	-4.4	27.5	30.7	25.5
N Zealand	-12.7	-1.7	-9.8	-7.6	9.5	-2.9	4.0	-0.0

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1999 vehicle sales

… but a severe crisis, caused by financial markets, remains a possibility

All depends, of course, on the severity of any economic slowdown or downturn. If a financial crisis erupts in the USA, which then quickly spreads around the world, a global recession with strongly negative impacts on vehicle sales is likely to result.

In this connection, it is worth noting that although in the year 2000 the speculative growth on equity markets has subsided, volatility has increased. Equity market valuations remain extremely high and a financial crisis cannot be ruled out.

2.2 Asia Recovers

In 1999, Asia-Pacific adds as many vehicles to world sales as NAFTA

In *Auto 1998-99*, Asia provided the main story, and in this report it again is the focus, but this time strong recovery rather than crisis is the theme. As a result of recovery in the crisis economies, the Asia-Pacific region (excluding Japan) contributed as many vehicles to the 1999 world sales increase as the entire NAFTA region -- 1.6 million units.

Figure 2.2 Sales Growth in Emerging and Transition Economies, 1995-2000 (percent)

* excludes Japan; includes Oceania
e = estimate

Source: EIU, forecast IMF

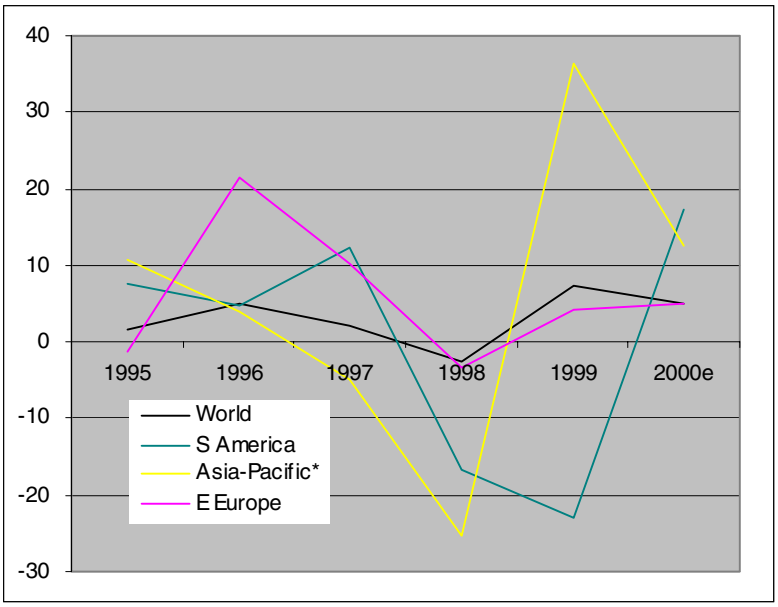
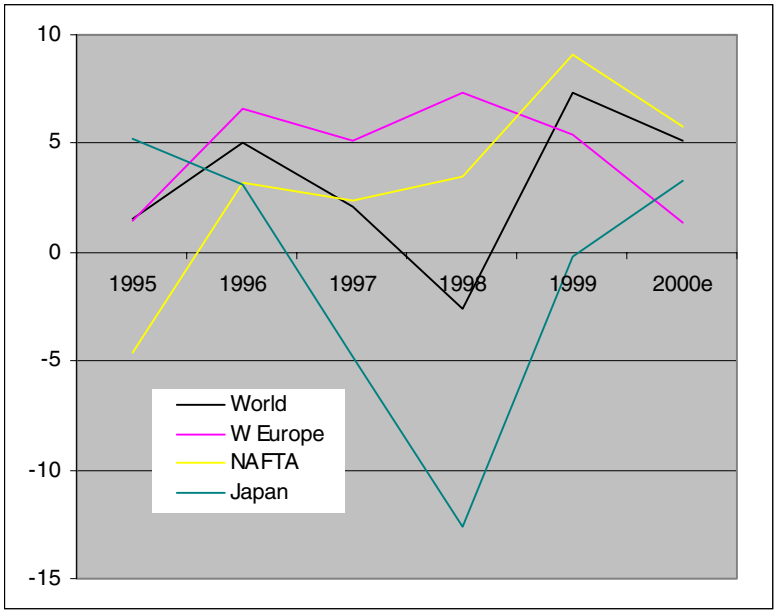


Figure 2.3 Sales Growth in Principal Producing Regions, 1995-2000 (percent)

e = estimate

Source: EIU, forecast IMF



Emerging and transition markets subject to strong swings

The recovery of the Asia-Pacific vehicle markets is shown in Figure 2.2. In the 1998-99 period, vehicle sales went from a 25% decline to a 36% gain -- a 61-point swing. This behavior was replicated by a 40-point swing in South America during 1999-2000. Eastern Europe also shows the higher volatility of emerging and transition markets compared to those of the "triad": W Europe, N America and Japan (see Figure 2.3). For the period shown, the largest swing, almost 18 percentage points, occurred in Japan between 1995 and 1998.

1999 sales recoveries in excess of 50% in the Asian Crisis economies

As Table 2.2 shows, 1999 saw sales recoveries exceeding 50% in all of the economies directly implicated in the Asian Crisis (South Korea, Malaysia, Thailand, Indonesia). Sales in China also grew at a strong, 12.6%, rate -- the best performance since 1995. Australia, on the other hand experienced a 19% decline, while in Japan sales fell for the third year in a row, albeit at a lower rate.

Asia-Pacific regional sales outlook continues positive

In the absence of a global economic crisis, vehicle sales in Asia Pacific are expected to continue growing in the 2000-2002 period although at a significantly lower rate than in 1999.

Table 2.3 West European Unit Vehicle Sales, 1995-2002

	Actual Data					Forecast		
Countries*	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
Germany	3,574.6	3,745.5	3,792.1	4,036.2	4,112.7	3,658.1	3,606.0	3,757.6
France	2,288.3	2,510.1	2,068.2	2,342.1	2,577.5	3,243.5	3,196.6	3,105.9
Spain	1,019.8	1,113.7	1,256.5	1,471.0	1,752.8	1,855.1	1,855.1	1,765.9
Italy	1,879.2	1,885.1	2,569.5	2,544.2	2,545.5	2,420.3	2,337.2	2,437.9
UK	2,195.3	2,282.3	2,445.0	2,541.6	2,485.7	2,516.3	2,427.6	2,464.2
Netherlands	512.6	557.5	574.7	657.9	728.5	699.0	654.8	675.0
Belgium	404.7	445.5	453.3	515.2	562.3	559.4	514.3	524.7
Portugal	271.7	306.5	322.0	372.7	408.0	405.1	401.2	408.0
Austria	308.9	337.6	305.9	330.2	350.7	339.1	319.0	308.1
Switzerland	288.1	292.8	292.3	322.0	343.5	329.7	314.9	319.3
Sweden	184.6	201.2	250.9	284.0	330.4	331.9	326.3	327.7
Greece	131.0	150.2	179.0	197.1	285.6	325.4	294.8	292.9
Ireland	103.3	134.4	159.8	177.1	212.8	269.0	270.7	262.3
Denmark	166.4	174.4	188.0	192.4	179.5	152.2	147.6	153.7
Finland	90.5	108.9	121.0	145.3	156.2	154.3	142.6	127.0
Norway	128.5	161.8	161.9	151.5	134.1	136.4	135.5	136.0
Luxembourg	30.9	28.9	30.2	34.9	44.0	44.1	38.8	40.4
	Year-to-Year Changes (thousands)							
Germany	104.5	171.0	46.6	244.1	76.4	-454.5	-52.2	151.6
France	-10.6	221.8	-441.9	273.9	235.4	666.0	-46.8	-90.7
Spain	-61.0	93.8	142.9	214.5	281.8	102.3	-	-89.2
Italy	90.3	5.9	684.5	-25.3	1.3	-125.2	-83.0	100.7
UK	56.3	87.0	162.6	96.6	-55.8	30.6	-88.8	36.7
Netherlands	24.2	44.9	17.1	83.3	70.5	-29.4	-44.2	20.2
Belgium	-22.8	40.8	7.8	61.9	47.1	-2.9	-45.1	10.4
Portugal	-63.5	34.8	15.5	50.7	35.3	-2.9	-3.9	6.8
Austria	6.5	28.8	-31.7	24.3	20.5	-11.5	-20.2	-10.8
Switzerland	4.3	4.7	-0.5	29.7	21.5	-13.8	-14.8	4.4
Sweden	17.9	16.6	49.7	33.1	46.4	1.4	-5.5	1.4
Greece	7.7	19.2	28.8	18.0	88.5	39.9	-30.6	-1.9
Ireland	7.4	31.1	25.4	17.2	35.8	56.1	1.7	-8.4
Denmark	2.4	8.0	13.5	4.5	-12.9	-27.4	-4.6	6.2
Finland	17.6	18.4	12.1	24.3	11.0	-1.9	-11.7	-15.6
Norway	13.2	33.3	0.1	-10.4	-17.4	2.3	-1.0	0.5
Luxembourg	-1.0	-2.0	1.3	4.7	9.1	0.1	-5.3	1.6

e = estimate based on data available at mid-year 2000

* Countries listed in order of 1999 vehicle sales

In 2000, major vehicle markets will see increasing sales

In the year 2000, with the possible exception of New Zealand, all countries shown in Table 2.2 are likely to see vehicle sales increase. Growth is expected to be strongest in Thailand, Indonesia and the Philippines.

A moderate upturn in Japan expected

Even in Japan and Taiwan single-digit sales upturns are expected. The improving sales outlook for Japan reflects positive signs in the Japanese economy, but it is too early to tell whether the decade of stagnation has finally ended. Japan is unlikely to become a motor of world economic growth in the near term.

Chinese sales may continue to grow

Although some forecasters had projected a sales decline for China in the year 2000, strong economic growth in the first half of 2000, suggests that vehicle sales are likely to match the gains of 1999.

The positive regional trends of the year 2000 are expected to continue in the following years.

2.3 Western Europe

1999 another record year for West European sales

Western Europe and North America continued to be the engines of global growth in 1999 and so far in 2000. After a 1.1 million unit increase in 1998, West European vehicle sales grew by another 878,000 in 1999 to top the 17 million mark for the first time. Sales in the region have set new records in each of the last three years.

Table 2.4 Year-to-Year Percent Change in West European Unit Vehicle Sales

	Actual Data					Forecast		
Countries*	1995	1996	1997	1998	1999	2000e	2001f	2002f
Germany	3.0	4.8	1.2	6.4	1.9	-11.1	-1.4	4.2
France	-0.5	9.7	-17.6	13.2	10.0	25.8	-1.4	-2.8
Spain	-5.6	9.2	12.8	17.1	19.2	5.8	-	-4.8
Italy	5.0	0.3	36.3	-1.0	0.0	-4.9	-3.4	4.3
UK	2.6	4.0	7.1	4.0	-2.2	1.2	-3.5	1.5
Netherlands	4.9	8.8	3.1	14.5	10.7	-4.0	-6.3	3.1
Belgium	-5.3	10.1	1.7	13.7	9.1	-0.5	-8.1	2.0
Portugal	-18.9	12.8	5.1	15.7	9.5	-0.7	-1.0	1.7
Austria	2.1	9.3	-9.4	7.9	6.2	-3.3	-5.9	-3.4
Switzerland	1.5	1.6	-0.2	10.2	6.7	-4.0	-4.5	1.4
Sweden	10.7	9.0	24.7	13.2	16.3	0.4	-1.7	0.4
Greece	6.3	14.6	19.2	10.1	44.9	14.0	-9.4	-0.7
Ireland	7.7	30.1	18.9	10.8	20.2	26.4	0.6	-3.1
Denmark	1.5	4.8	7.8	2.4	-6.7	-15.2	-3.0	4.2
Finland	24.1	20.4	11.1	20.1	7.6	-1.2	-7.6	-10.9
Norway	11.5	25.9	0.1	-6.4	-11.5	1.7	-0.7	0.4
Luxembourg	-3.0	-6.5	4.4	15.7	26.1	0.2	-12.0	4.1

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1999 vehicle sales

France, Spain and most of the smaller markets fuel growth

All markets, with the exception of Norway, Denmark and the UK, grew in 1999 (see Tables 2.3 and 2.4). France and Spain were the chief contributors to the strong 1999 performance of the region, with sales of 235,400 and 281,800 respectively.

In terms of growth rates, the smaller markets outperformed the large ones. Sales in Greece grew at almost 45%, while Ireland and Sweden enjoyed increases of 20.2% and 16.3% respectively (see Table 2.4).

Among the large markets Germany with a 1.9% sales increase and Italy with flat sales were the worst performers.

2000 and beyond look less positive

The outlook for 2000 is less positive. Based on 6 months of data for 2000, regional sales are expected to grow no more than 1.5%, and future years may even see a downturn. Spanish and, particularly, French sales continue to power ahead, but Italy and, especially, Germany are expected to register significant declines. Of the smaller markets, only Ireland and Greece look set to continue the upward trends.

Beyond 2000, the picture becomes increasingly problematic. Our forecast assumes that the slowdown of sales observed in mid-2000 will continue. Year 2000 sales for Spain are expected to be lower than a year earlier, and it is unlikely that French sales will be able to continue the pace of early 2000. UK sales have been lackluster since 1999. A regional vehicle sales downturn after 2000 appears to be in the cards.

Table 2.5 Vehicle Sales in the USA, Canada and Mexico (NAFTA), 1995-2002

	Actual Data					Forecast		
Countries*	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
USA	15,172	15,498	15,537	16,027	17,480	18,354	17,986	17,719
Canada	1,138	1,180	1,394	1,390	1,501	1,596	1,641	1,646
Mexico	187	334	486	643	680	839	934	988
	Year-to-Year Changes (thousands)							
USA	-244.3	326.0	38.6	490.4	1,452.5	874.0	-367.7	-267.1
Canada	-94.2	41.7	214.5	-4.3	111.2	94.9	44.6	5.4
Mexico	-436.9	147.3	151.8	157.6	36.3	159.1	95.5	54.0
	Year-to-Year Percent Changes							
USA	-1.6	2.1	0.2	3.2	9.1	5.0	-2.0	-1.5
Canada	-7.6	3.7	18.2	-0.3	8.0	6.3	2.8	0.3
Mexico	-70.1	79.0	45.4	32.5	5.6	23.4	11.4	5.8

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1999 vehicle sales

2.4 NAFTA (USA, Canada and Mexico)

Vehicle sales have set records in every year since 1997

In 1999, regional vehicle sales grew by an astounding 1.6 million units (9%) to reach a new record of 19.7 million. The USA alone contributed 1.5 million to the regional increase as sales in this huge market grew by 9.1% -- almost tripling the 1998 sales growth.

Canadian 1999 sales were up by 111,000 units (8%) after declining slightly in 1998. Mexico registered a healthy 5.6% increase in 1999 after the torrid 32.5% pace of the preceding year.

In 2000, growth of regional sales will continue

Based on 6 months of data, it appears that the positive trends observed in 1999 will continue into 2000. Nevertheless, growth is likely to slow in the USA and Canada. But in Mexico, the smallest of the three markets, sales growth looks set to exceed 20%.

Table 2.6 Unit Vehicle Sales in Major South American Markets, 1991-2002

	Actual Data					Forecast		
Countries*	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
Brazil	1,470.9	1,730.5	1,878.9	1,495.9	1,227.3	1,419.5	1,666.4	1,972.5
Argentina	328.0	376.1	426.3	455.4	380.1	391.8	430.9	484.3
Venezuela	88.9	66.9	177.9	175.8	97.8	106.4	119.6	136.1
	Year-to-Year Changes (thousands)							
Brazil	71.0	259.6	148.4	-383.0	-268.6	192.2	247.0	306.1
Argentina	-180.2	48.2	50.2	29.0	-75.2	11.7	39.1	53.4
Venezuela	23.0	-21.9	110.9	-2.1	-78.0	8.6	13.2	16.5
	Year-to-Year Percent Changes							
Brazil	5.1	17.6	8.6	-20.4	-18.0	15.7	17.4	18.4
Argentina	-35.5	14.7	13.3	6.8	-16.5	3.1	10.0	12.4
Venezuela	34.9	-24.7	165.7	-1.2	-44.4	8.8	12.4	13.8

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1999 vehicle sales

Beyond 2000, a slowdown seems inevitable

The US economy appears to be slowing. Optimists hope for a "soft landing", and that may well happen. Nevertheless, any slowdown or downturn in the USA is bound to have repercussions on the closely integrated economies of its neighbors. Consequently, vehicle demand throughout the region is likely to ease.

2.5 South America

The aftereffects of the Asian flue cause steep declines in the South American vehicle market

After setting a new record in 1997, South American vehicle sales declined by almost 17% in 1998. The Brazilian economy had caught the Asian flue late in 1997, and vehicle sales showed the full impact in the following year.

1999 brought no relief as regional vehicle sales declined by more than half a million units (-23%). This fall was the result of other markets joining in Brazil's decline; Argentine and Venezuelan sales were down by 16.5% and 44.4% respectively.

Recovery expected in the year 2000

Forecasters expect some recovery in the year 2000 and beyond. The dominant Brazilian market is expected to grow especially strongly -- double-digit increases are projected through 2002.

2.6 Eastern Europe

In 1999, East European vehicle sales recover from 1998 downturn

In 1999, estimated regional vehicle sales of 2.3 million edged 19,000 units ahead of the peak reached two years earlier. In 1998 stagnation in Russia and 6.3% decline in Czech contributed to a 3.3% decline for the region. Strong sales increases in Poland and Hungary are behind the 1999 recovery, but Russian sales failed to advance. Although, sketchy data make forecasting more uncertain for this region than elsewhere, some growth in sales is expected in 2000 and the years to follow.

Table 2.7 Unit Vehicle Sales in Major East European Markets, 1991-2002

Countries*	Actual Data					Forecast		
	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
Russia	939.0	946.6	1,027.1	1,034.6	1,034.0	1,083.1	1,142.3	1,250.0
Poland	297.0	425.4	533.3	571.8	705.2	687.7	700.7	744.2
Czech Rep	140.2	215.8	210.4	197.2	na	na	na	na
Hungary	82.2	87.8	98.5	131.8	156.9	177.9	188.9	197.4
Slovak Rep	29.3	80.8	69.6	76.9	na	na	na	na
Slovenia	65.6	64.3	65.3	72.3	65.0	77.4	na	na
	Year-to-Year Changes (thousands)							
Russia	-62.6	7.6	80.5	7.5	-0.6	49.1	59.2	107.6
Poland	22.8	128.4	107.9	38.5	133.4	-17.4	12.9	43.5
Czech Rep	30.4	75.6	-5.4	-13.2	na	na	na	na
Hungary	-21.2	5.6	10.7	33.2	25.1	21.1	10.9	8.5
Slovak Rep	8.1	51.5	-11.3	7.4	na	na	na	na
Slovenia	16.0	-1.2	0.9	7.0	-7.3	12.4	na	na
	Year-to-Year Percent Changes							
Russia	-6.3	0.8	8.5	0.7	-0.1	4.7	5.5	9.4
Poland	8.3	43.2	25.4	7.2	23.3	-2.5	1.9	6.2
Czech Rep	27.7	53.9	-2.5	-6.3	na	na	na	na
Hungary	-20.5	6.8	12.2	33.7	19.0	13.5	6.1	4.5
Slovak Rep	38.1	175.8	-13.9	10.6	na	na	na	na
Slovenia	32.2	-1.8	1.4	10.7	-10.0	19.1	na	na

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1998 vehicle sales

3. Vehicle Production: Current Situation and Outlook

3.1 Production, Employment and Trade

Production trends strongly impact employment

To metalworkers in vehicle-producing countries, production[9] is of great interest because of its direct link to employment. Vehicle distribution and servicing is, of course, also an important source of employment, especially now that companies are increasingly involved in financing and other services linked to the automotive industry.

Nevertheless, the areas which "precede" distribution -- including production of raw material and component inputs, design and development, and vehicle assembly itself -- still account for the lion's share of employment due to the automotive sector. And, because vehicle markets are still primarily regional rather than global (notwithstanding a significant global vehicle trade, see below), much of the pre-distribution activity is located in the regions and countries where vehicles are produced.

Component sourcing is a critical issue

Indeed, the question of, how much of a vehicle is "sourced" in the country where assembly plant(s) are located, is an important issue for autoworkers, because assembly plants by themselves only represent a relatively small part of the value-added chain.

Production relocation implies dislocation of workers

Nor does the regional nature of production preclude employment problems due to the increasingly common relocation of production. A variety of "national" factors including exchange rates, investment incentives, government regulations, and relative wages influence automakers' decisions on plant locations and sourcing. In short, whenever production is relocated, whether within the same country or a region, workers are dislocated. Consequently, adjustment assistance for the affected workers is an increasingly important aspect of public policy.

Important imbalances in sales and production

On the global level, sales and production are kept roughly in balance because manufacturers keep a keen eye on market developments and adjust production to keep vehicle inventories in check. But, because of economic regionalization and globalization there are significant imbalances in sales and production among certain regions.

As already indicated above (and dealt with at much greater length in Auto 98-99) there is a very significant global trade in vehicles and components. Although the analysis presented there covers the years 1991-1996, data for more recent years (see Figures 2.1 and 2.3) confirm the trends identified earlier.

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[9] Unfortunately, production statistics are problematic. For many countries, they are updated more slowly than sales data; figures for the most recent full year are subject to revision and may be estimates based on partial year data. In addition, they are subject to double counting (see Annex: *Note on Data*).

Japan and South Korea remain net-exporters while the USA still is consumer of last resort

In 1999,

- Asia-Pacific and Japan together accounted for almost a third (30.2%) of world production but only a little over a fifth (22.6%) of all sales.
- NAFTA, on the other hand, consumed almost 35.9% of world vehicle output while producing only 31.1% of it.

But this regional focus still obscures the full extent of the imbalance. In fact, the world's chief vehicle net-exporters are Japan and South Korea, whereas in the NAFTA region only the USA is a net-importer.

Figure 3.1 Regional Shares of World Vehicle Production, 1999

* excludes Japan; includes Oceania

Source: EIU, forecast IMF

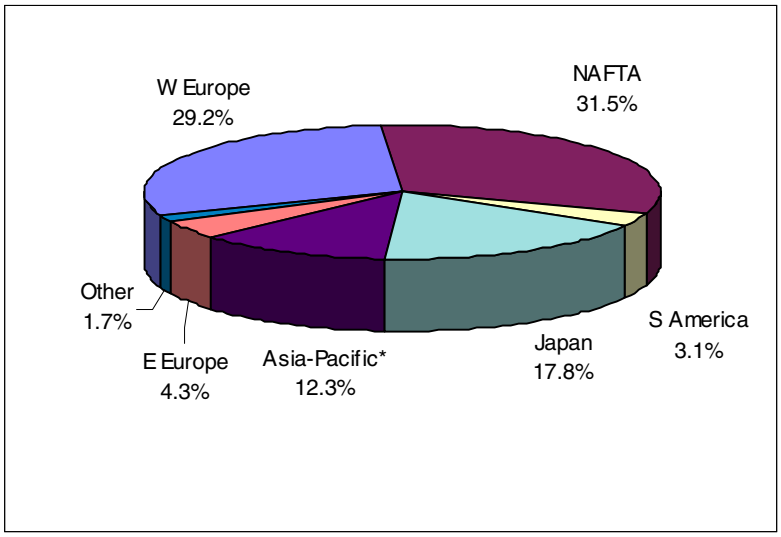
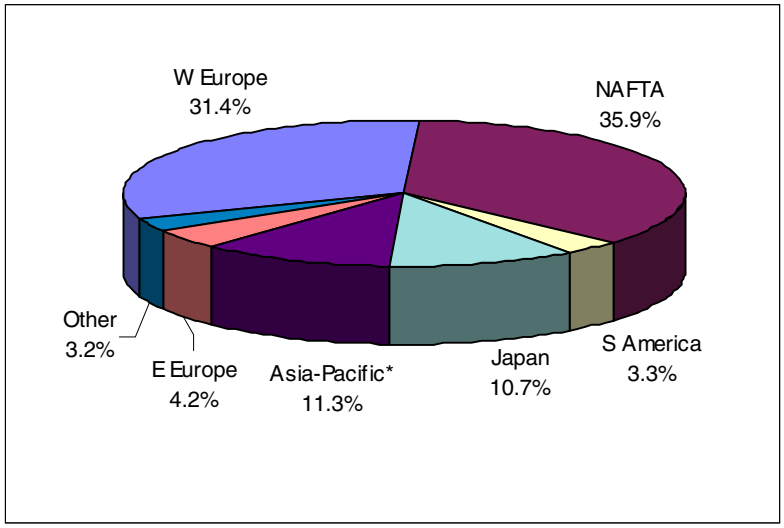


Figure 3.2 Regional Shares of World Vehicle Sales, 1999

* excludes Japan; includes Oceania

Source: EIU, forecast IMF



3.2 Vehicle Production Overview

A new global output record was set in 1999

The production figures currently available for 1999 should be treated as preliminary. Nevertheless, it appears that world vehicle output recovered strongly in 1999 from the sharp decline it had suffered as a result of the Asian Crisis and the continuing economic stagnation in Japan. World production grew 4.7% (2.4 million units), to reach a new record of 53.8 million units.

Table 3.1 World Vehicle Production by Region, 1995-2002

	Actual Data*					Forecast		
	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in thousands							
W Europe	14,930	15,192	15,916	16,332	16,273	16,886	16,924	17,028
NAFTA	15,264	15,392	15,786	15,801	17,538	18,524	18,402	18,230
S America	1,921	2,148	2,590	2,195	1,735	2,158	2,425	2,876
Japan	10,197	10,346	10,976	10,050	9,895	10,572	10,650	10,476
Asia-Pacific**	6,317	7,121	6,476	5,481	6,870	7,498	8,015	8,453
E Europe	2,014	2,078	2,368	2,453	2,412	2,549	2,633	2,782
Other	829	873	891	912	937	958	1,000	1,000
World Total	**48,985**	**51,366**	**53,153**	**51,374**	**53,810**	**57,295**	**58,199**	**58,997**
	Year-to-Year Changes (thousands)							
W Europe	648	262	724	416	-59	613	38	105
NAFTA	-491	128	394	15	1,737	986	-123	-171
S America	-69	227	442	-395	-460	423	267	451
Japan	-357	149	630	-926	-155	677	78	-174
Asia-Pacific**	852	804	-645	-995	1,389	628	517	438
E Europe	94	64	290	85	-41	137	84	149
Other	99	44	18	21	25	21	42	0
World Total	**547**	**2,381**	**1,787**	**-1,779**	**2,436**	**3,485**	**904**	**798**
	Year-to-Year Percent Changes							
W Europe	4.5	1.8	4.8	2.6	-0.4	3.8	0.2	0.6
NAFTA	-3.1	0.8	2.6	0.1	11.0	5.6	-0.7	-0.9
S America	-3.5	11.8	20.6	-15.3	-21.0	24.4	12.4	18.6
Japan	-3.4	1.5	6.1	-8.4	-1.5	6.8	0.7	-1.6
Asia-Pacific**	15.6	12.7	-9.1	-15.4	25.3	9.1	6.9	5.5
E Europe	4.9	3.2	14.0	3.6	-1.7	5.7	3.3	5.7
Other	13.6	5.3	2.1	2.4	2.7	2.2	4.4	0.0
World Total	**1.1**	**4.9**	**3.5**	**-3.3**	**4.7**	**6.5**	**1.6**	**1.4**

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* includes some estimates

** excludes Japan; includes Australia and New Zealand

Production booms in NAFTA and Asia-Pacific, but slumps in South America

The 1999 gains were due to strong output increases in the NAFTA and Asia-Pacific regions, where production grew by 1.7 million units (11%) and 1.4 million (25.3%) respectively. These increases more than offset a severe fall in South American output (-21%). Production stagnated in Western Europe, while Japan and Eastern Europe suffered production declines in the 1-2% range.

The Asian Crisis produced the sharpest drop in output since 1991

In 1998, world vehicle output shrank by 1.8 million units or 3.3% as a result of the Asian crisis and its global repercussions. The crisis caused the largest decline since 1991, when the collapse of production in the transition economies combined with recession in the USA and Western Europe to produce a 3.5% fall in production. In terms of vehicle units the 1998 decline was actually slightly larger than the earlier one.

Strong demand in Europe and the USA plus recovery from crisis in Asia fuels production boom

The principal factors behind 1999 output growth was strong demand for vehicles in the recovering crisis economies, Western Europe and North America. The latter provide export opportunities for Asia-Pacific producers, as does Japan, where production is declining more rapidly than sales.

Production in 2000 to grow as strongly as a year earlier; in the long-term growth is positive but weaker

As for the sales outlook, production trends are favorable for the year 2000 with output growth expected to exceed 1999 levels. The biggest contribution of units will again come from North America (about 1 million), but the strongest percentage increase, 24.4%, is expected from South America. All world regions should enjoy growing production. Beyond 2000 -- barring a global recession -- output should continue to increase, but at a much lower rate than that of the 1999-2000 period.

Table 3.2 Vehicle Production in Japan and Asia-Pacific, 1995-2002

Countries*	Actual Data					Forecast		
	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
Japan	10,197.4	10,345.8	10,975.7	10,049.7	9,895.5	10,436.2	10,513.3	10,341.9
S Korea	2,526.4	2,812.7	2,818.3	1,951.5	2,843.1	2,929.0	3,020.2	3,111.7
China	1,434.8	1,456.2	1,558.0	1,627.7	1,830.3	2,024.7	2,199.3	2,345.2
India	629.2	762.1	746.2	627.8	803.3	950.0	1,010.0	1,070.0
Thailand	533.2	506.4	366.6	158.1	254.0	367.0	460.0	593.3
Malaysia	304.3	370.8	409.0	153.5	294.3	363.8	399.2	423.0
Australia	329.1	342.9	328.0	374.7	337.0	328.0	374.7	340.0
Taiwan	406.5	366.2	382.6	410.1	388.0	393.0	370.0	345.0
Indonesia	379.3	322.5	361.4	49.5	40.0	78.0	105.0	140.0
Philippines	107.0	140.0	122.1	78.8	59.5	70.8	86.0	98.6
	Year-to-Year Changes (thousands)							
Japan	-356.7	148.4	629.9	-926.0	-154.2	540.7	77.1	-171.4
S Korea	214.7	286.3	5.6	-866.8	891.6	85.9	91.3	91.5
China	81.4	21.4	101.8	69.7	202.6	194.3	174.6	145.9
India	90.5	132.9	-16.0	-118.3	175.5	146.7	60.0	60.0
Thailand	84.9	-26.8	-139.8	-208.5	95.9	113.0	93.0	133.3
Malaysia	82.0	66.5	38.2	-255.5	140.8	69.5	35.4	23.8
Australia	-8.8	13.8	-14.9	46.7	-37.7	-9.0	46.7	-34.7
Taiwan	-16.8	-40.3	16.4	27.5	-22.1	5.0	-23.0	-25.0
Indonesia	55.1	-56.8	38.9	-311.9	-9.5	38.0	27.0	35.0
Philippines	24.8	33.0	-17.9	-43.3	-19.3	11.3	15.2	12.6
	Year-to-Year Percent Changes							
Japan	-3.4	1.5	6.1	-8.4	-1.5	5.5	0.7	-1.6
S Korea	9.3	11.3	0.2	-30.8	45.7	3.0	3.1	3.0
China	6.0	1.5	7.0	4.5	12.4	10.6	8.6	6.6
India	16.8	21.1	-2.1	-15.9	28.0	18.3	6.3	5.9
Thailand	18.9	-5.0	-27.6	-56.9	60.7	44.5	25.3	29.0
Malaysia	36.9	21.9	10.3	-62.5	91.7	23.6	9.7	6.0
Australia	-2.6	4.2	-4.4	14.2	-10.1	-2.7	14.2	-9.3
Taiwan	-4.0	-9.9	4.5	7.2	-5.4	1.3	-5.9	-6.8
Indonesia	17.0	-15.0	12.1	-86.3	-19.2	95.0	34.6	33.3
Philippines	30.2	30.8	-12.8	-35.5	-24.5	19.0	21.5	14.7

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1999 vehicle production

3.3 Asia-Pacific and Japan

In 1999, Asia-Pacific output rebounds

As noted earlier, sales and production rebounded powerfully in the Asian crisis economies in 1999. The region as a whole (excluding Japan) contributed an additional 1.4 million units to world vehicle output in 1999, and raised regional output to 6.9 million units. Production is well on the way to surpassing the record of 7.1 million units achieved in 1996 (the last full year before the crisis). In part,

this undoubtedly reflects the fact that the crisis was largely a speculator-induced panic that bore little relation to economic fundamentals. It must also be noted that, although the crisis economies are recovering, workers wages and living standards remain severely depressed.

Japanese output is under 10 million units for the first time in 20 years

After a drop of 926,000 units in 1998 output, Japan suffered another 154,000 unit decline in 1999, which lowered production below the 10 million mark for the first time in 20 years. Output in Japan has declined by 27% since reaching a peak of 13.5 million units in 1990.

Table 3.3 Vehicle Production in the USA, Canada and Mexico, 1995-2002

	Actual Data					Forecast		
Countries*	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
USA	11,991.5	11,832.6	12,114.4	11,935.4	13,055.5	13,465.1	13,195.8	12,948.9
Canada	2,403.1	2,394.0	2,568.9	2,532.8	3,006.5	3,075.4	3,017.5	3,014.6
Mexico	935.0	1,219.3	1,323.2	1,417.8	1,476.4	1,746.1	1,952.1	2,033.0
	Year-to-Year Changes (thousands)							
USA	-379.7	-158.9	281.8	-179.0	1,120.1	409.6	-269.3	-246.9
Canada	99.8	-9.1	174.9	-36.1	473.7	68.9	-57.8	-3.0
Mexico	-187.2	284.3	103.9	94.7	58.5	269.7	206.0	80.9
	Year-to-Year Percent Changes							
USA	-3.1	-1.3	2.4	-1.5	9.4	3.1	-2.0	-1.9
Canada	4.3	-0.4	7.3	-1.4	18.7	2.3	-1.9	-0.1
Mexico	-16.7	30.4	8.5	7.2	4.1	18.3	11.8	4.1

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1999 vehicle production

1999 vehicle production in Korea sets a new record

The biggest single contribution to Asia-Pacific's 1999 rebound came from South Korea, where production increased by 892,000 units (45.7%) -- more than making up for the 867,000 unit decline a year earlier. 1997 output had grown, but at a very low rate due to the onset of the crisis.

Production rebounds in all crisis economies except Indonesia

Malaysian and Thai production skyrocketed in 1999; increases were 91.7% (141,000 units) and 60.7% (95,900 units), respectively. Of the countries directly involved in the Asian crisis, Indonesia is the only one where vehicle production declined again (-19.2%) in 1999. It had already fallen by 86.3% a year earlier. The continuing political turmoil in Indonesia is taking a toll on the auto industry.

For the Philippines, 1999 was the third consecutive year of decline. In that year output fell to a mere 60,000 units from a high of 140,000 in 1996 -- a decline of 73%.

Output in China and India surges in 1999

Vehicle output surged in China and India, two major regional production locations, which were spared direct involvement in the crisis. China's 1999 production accelerated to a 12.4% growth rate, contributing 202,000 units to the regional total. India recorded a strong increase of 175,500 units (28%).

3.4 NAFTA

In 1999 vehicle production set new records in all three NAFTA countries

Although the Asia-Pacific region grew most strongly in 1999, NAFTA had the largest unit production increase – more than 1.7 million units. This amounts to an 11% increase which raised regional output to 17.5 million units.

The USA (NAFTA's largest producer) had experienced a small production downturn in 1998, but increased its output by 1.1 million units (9.4%) in 1999 to a record 13.1 million units. The story was similar for Canada, where an 18% production increase boosted output over the 3 million mark. Mexico's 4.7% increase raised 1999 production to just short of the 1.5 million unit level – a record for Mexico.

Mexican output will grow fastest in 2000

These positive trends look set to continue in 2000, but Mexico, with an expected output growth of 18%, is likely to become the new growth champion. This would mark the fifth continuous year of increases for Mexico and boost production to 1.7 million units as compared to fewer than 1 million in 1995. Production growth in the USA and Canada will slow markedly to the 2-3% range.

Free trade agreement boosts Mexican exports

The free trade agreement has provided a huge spur to production for export to the North. In 1994, i.e. before NAFTA, Mexican net-exports stood at 499,000 units, in the year 2000 they are expected to reach the 900,000 units, which would represent an 80% increase.

Table 3.4 Vehicle Production in Western Europe, 1995-2002

	Actual Data					Forecast		
Countries*	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
Germany	4,667.4	4,842.9	5,022.9	5,726.8	5,687.6	5,489.7	5,341.9	5,466.6
France	2,178.0	2,390.6	2,571.1	2,944.6	3,035.7	3,279.1	3,344.7	3,280.6
Spain	2,333.8	2,412.3	2,562.1	2,826.0	2,679.3	2,840.4	2,938.0	2,966.8
UK	1,765.1	1,924.4	1,935.7	1,975.7	1,972.5	2,019.6	1,983.1	1,943.5
Italy	1,667.3	1,545.4	1,816.5	1,668.5	1,701.1	1,723.5	1,701.6	1,673.5
Belgium	1,272.5	1,234.0	1,101.3	1,065.2	1,016.4	1,107.1	1,183.0	1,237.5
Sweden	490.1	463.2	502.5	482.8	493.7	486.4	527.5	532.8
Portugal	158.9	233.1	267.2	271.0	na	na	na	na
Netherlands	117.7	163.1	217.7	263.0	284.0	274.8	239.2	267.8
Austria	68.4	106.1	108.0	103.2	na	na	na	na
Finland	22.0	29.0	34.1	31.6	na	na	na	na
	Year-to-Year Changes (thousands)							
Germany	311.2	175.6	180.0	703.9	-39.2	-197.9	-147.8	124.7
France	na	212.6	180.5	373.4	91.2	243.4	65.6	-64.1
Spain	191.5	78.5	149.8	264.0	-146.8	161.2	97.5	28.8
UK	70.4	159.4	11.2	40.0	-3.2	47.1	-36.4	-39.7
Italy	135.2	-121.9	271.1	-148.1	32.7	22.4	-21.9	-28.1
Belgium	-19.3	-38.6	-132.7	-36.2	-48.7	90.6	75.9	54.5
Sweden	55.1	-27.0	39.3	-19.7	10.9	-7.3	41.2	5.3
Portugal	33.7	74.2	34.0	3.9	na	na	na	na
Netherlands	13.9	45.4	54.5	45.3	21.0	-9.2	-35.6	28.7
Austria	15.8	37.7	1.9	-4.8	na	na	na	na
Finland	3.6	7.0	5.1	-2.5	na	na	na	na

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1998 vehicle production

Table 3.5 Year-to-Year Percent Changes in West European Vehicle Production

	Actual Data					Forecast		
Countries*	1995	1996	1997	1998	1999	2000e	2001	2002
Germany	7.1	3.8	3.7	14.0	-0.7	-3.5	-2.7	2.3
France	na	9.8	7.6	14.5	3.1	8.0	2.0	-1.9
Spain	8.9	3.4	6.2	10.3	-5.2	6.0	3.4	1.0
UK	4.2	9.0	0.6	2.1	-0.2	2.4	-1.8	-2.0
Italy	8.8	-7.3	17.5	-8.2	2.0	1.3	-1.3	-1.7
Belgium	-1.5	-3.0	-10.8	-3.3	-4.6	8.9	6.9	4.6
Sweden	12.7	-5.5	8.5	-3.9	2.3	-1.5	8.5	1.0
Portugal	26.9	46.7	14.6	1.4	na	na	na	na
Netherlands	13.4	38.6	33.4	20.8	8.0	-3.3	-13.0	12.0
Austria	30.0	55.2	1.8	-4.4	na	na	na	na
Finland	19.4	32.0	17.5	-7.4	na	na	na	na

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1998 vehicle production

3.5 Western Europe

Production in Western Europe grows for the sixth year in a row

As indicated earlier, production data are more problematic than sales or registration figures, and the available 1999 data are still subject to revision. No clear trend emerges for Western Europe. Car production apparently increased, but commercial vehicles declined, causing the regional total to dip below the 16.3 million unit record set in 1998.

The picture for individual countries was quite mixed with France, Italy, Sweden, and the Netherlands showing gains and the other countries either stagnating or declining.

In 2000, West European output is expected to grow …

For the year 2000, the outlook is better with growth of 3.8% forecast on the basis of figures for the early months of the year. Such growth would boost total output to just short of the 17 million unit level, which would represent a new record.

… but growth will be uneven

Individual country performance is expected to continue quite mixed, however. French output is expected to surge ahead at an 8% rate while Spanish production trends will turn around and more than make up for the 1999 decline. Production in the UK and Belgium is also expected to resume growth. On the other hand, a 3.5% output drop is forecast for Germany, and Swedish and Dutch production are also expected to fall. Beyond 2000, output is likely to stagnate across Western Europe.

3.6 South America

In 1998-99, output slumps by more than 35%

South American markets caught the Asian flue with a vengeance in 1998, suffering a production decline of 15.3% for the year, and a further 21% decline in 1999. In the two year period, production fell by 855,000 units to 1.7 million -- a level last seen in 1993.

All major producers were drawn into the decline

The three countries shown in Table 3.6 account for virtually all of South American output.[10] Although Argentina still managed a 2.6% growth in 1998, all three major producing countries experienced double-digit downturns in 1999.

A positive outlook for 2000 and beyond

The outlook for the year 2000 and beyond is considerably brighter. Based on figures for early 2000, South American production is expected to grow by close to 25%. The outlook continues positive in the longer term, although growth is likely to be slower. All three countries shown in Table 3.6 are expected to share in this positive trend.

Table 3.6 Vehicle Production in Major South American Countries, 1995-2002

	Actual Data					Forecast		
Countries*	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
Brazil	1,634.3	1,804.3	2,067.5	1,585.6	1,343.6	1,612.4	1,816.2	2,189.2
Argentina	285.4	313.2	446.3	458.0	304.9	419.6	465.0	522.6
Venezuela	96.4	71.2	152.9	135.7	78.6	88.3	100.1	111.9
	Year-to-Year Changes (thousands)							
Brazil	52.9	170.0	263.1	-481.8	-242.0	268.7	203.8	373.0
Argentina	-123.3	27.7	133.2	11.7	-153.0	114.7	45.4	57.5
Venezuela	24.5	-25.2	81.7	-17.2	-57.1	9.7	11.8	11.8
	Year-to-Year Percent Changes							
Brazil	3.3	10.4	14.6	-23.3	-15.3	20.0	12.6	20.5
Argentina	-30.2	9.7	42.5	2.6	-33.4	37.6	10.8	12.4
Venezuela	34.0	-26.1	114.7	-11.2	-42.1	12.3	13.4	11.8

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1999 vehicle production

3.7 Eastern Europe

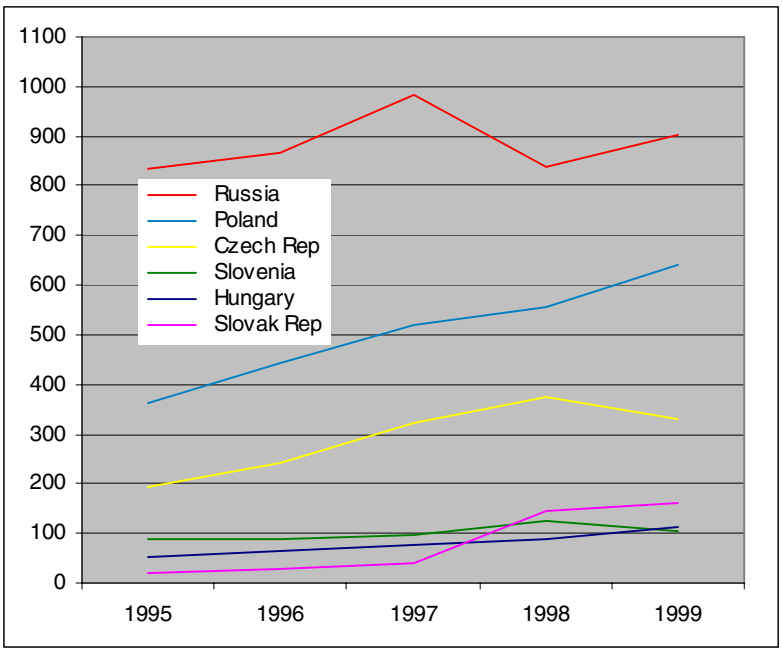
1999 regional output is marginally lower but the biggest producers gain

Table 3.1 shows that East European vehicle production declined slightly in 1999. This, however, masks very contradictory trends. The biggest producers, Russia and Poland, increased their output by 42,000 and 89,500 units respectively, and car production was up in all of the countries shown in Figure 3.3, except for the Czech Republic and Slovenia (the third and fourth largest producers). This suggests that shrinking output of trucks (see below) and in countries not shown in Table 3.7, such as Romania, were responsible for the regional output decline.

[10] In most of the other countries of the region, production is confined to the assembly of kits, which is normally counted as production in the country where the components are produced rather than where final assembly takes place.

Figure 3.3 Car Production in Selected East European Countries, 1995-99
(units in thousands; see Annex 6.2 for underlying data)

Source: EIU



Truck production declines sharply in the wake of the Communist collapse

Indeed, truck production was one of the chief victims of the collapse of the Soviet Block. Russia, for example, produced 772,000 trucks in 1990 but only 164,000 in 1999 (see Annex 6.2). All of the other countries for which we have data, except for Poland, suffered declines in commercial vehicle production from which they have, at best, only partially recovered. In Slovenia, Hungary and the Slovak Republic, truck production seems to be disappearing.

Table 3.7 Vehicle Production in Eastern Europe, 1995-2002

Countries*	Actual Data					Forecast		
	1995	1996	1997	1998	1999	2000e	2001	2002
	Units in Thousands							
Russia	1,023.7	1,041.1	1,176.0	1,026.1	1,068.2	1,101.0	1,139.1	1,197.8
Poland	394.7	486.2	583.9	615.5	705.0	685.5	701.5	726.2
Czech Rep	217.6	273.9	370.2	411.8	362.5	363.4	375.5	419.1
Slovenia	na	90.2	na	na	na	na	na	na
Hungary	53.0	64.7	78.5	90.3	114.1	131.7	138.3	142.5
Slovak Rep	22.6	32.1	42.4	145.4	na	na	na	na
	Year-to-Year Changes (thousands)							
Russia	-5.3	17.4	134.9	-149.9	42.1	32.7	38.1	58.8
Poland	30.6	91.5	97.7	31.6	89.5	-19.5	16.0	24.7
Czech Rep	36.2	56.3	96.3	41.6	-49.3	0.9	12.1	43.6
Slovenia	na	na	na	na	na	na	na	na
Hungary	19.7	11.7	13.8	11.8	23.8	17.6	6.6	4.2
Slovak Rep	13.7	9.5	10.2	103.1	na	na	na	na
	Year-to-Year Percent Changes							
Russia	-0.5	1.7	13.0	-12.7	4.1	3.1	3.5	5.2
Poland	8.4	23.2	20.1	5.4	14.5	-2.8	2.3	3.5
Czech Rep	20.0	25.8	35.2	11.3	-12.0	0.2	3.3	11.6
Slovenia	na	na	na	na	na	na	na	na
Hungary	59.2	22.1	21.3	15.0	26.4	15.4	5.0	3.0
Slovak Rep	154.1	42.1	31.9	243.4	na	na	na	na

e = estimate based on data available at mid-year 2000 SOURCE: EIU, forecast IMF

* Countries listed in order of 1996 vehicle production

Car production is growing since the mid-1990s

The picture is quite different for car production (see Figure 3.3). In Russia and Poland output declined sharply in the early 1990s, while output stagnated in the Czech Republic and Slovenia. But no later than 1994 saw upturns in all of the countries under consideration. But by the end of the 1990s output was higher in all countries shown, except for Russia, where production is recovering, but with interruptions (1998), and whose output is not likely to reach Communist era levels until the early years of the new century.

Poland and the Czech Republic show the strongest gains

Poland is the star performer, its car production almost quadrupled between 1991 and 1999, and its truck production has recovered to exceed 1989 levels. In the Czech Republic, despite the downturn in 1999, car production still was more than double 1994 levels. Hungary and Slovakia, which produced no cars before the 1990s, are now turning out cars in significant volumes.

Russian output is likely to continue expanding

In the year 2000, East European production may grow by about 6%. A small decline in Polish vehicle production and little change in the Czech Republic is likely to be more than compensated by strong growth in Russia and Hungary. The possibility of more stable political conditions in Russia, and growing interest of western automakers are improving the outlook for production in the region.

4. Employment

4.1 Introduction

Employment data for 1998 is scarce and subject to revision

Last year's IMF Auto Report presented an extensive discussion of employment trends in the 1990s. Unfortunately, not much can be added at this point.

In Auto 98-99, we pointed to a number of definitional problems with employment statistics. The lack of 1998 data for many countries as of this writing leads us to add that employment numbers are slow to be updated, especially for emerging and transition economies. In addition, data for recent years are frequently revised, even for developed industrial countries.

Revisions can significantly alter conclusions

These revisions can significantly change the picture. For example, last year, the 1997 motor vehicle and parts employment for the listed West European countries totaled 1,842,300 (Table 4.2, Auto 98-99), which meant a job gain of 56,700 over 1995. Based on the revised figures now available, the 1997 employment turns out to be 1,803,700 (see Table 4.1 below), indicating a job gain of only 18,100 over the same period, which is only 1/3rd of that indicated by last year's figures.

Table 4.1 Employment in Motor Vehicle and Parts Manufacturing
(1993 -1998; units in thousands)

	Industry Definition	1993	1994	1995	1996	1997	1998
China	motor vehicles and parts	1,933.0	1,969.0	1,952.0	1,951.0	na	na
Japan	motor vehicles and parts	799.9	789.2	770.3	771.3	770.5	na
S Korea	motor vehicles and trailers	193.0	210.0	224.0	239.0	na	na
Austria	motor vehicles and parts	23.6	24.3	23.2	23.6	23.8	25.1
Belgium	motor vehicles and parts	na	52.0	53.6	53.9	53.3	54.5
Finland	motor vehicles and parts	na	na	6.7	6.7	5.8	6.0
France	motor vehicles and parts	na	288.4	290.4	283.3	279.3	277.9
Germany	motor vehicles and parts	na	704.3	757.0	746.2	761.2	801.2
Italy	motor vehicles and parts	na	184.1	181.1	181.0	173.3	202.7
Netherlands	motor vehicles and parts	na	17.8	18.8	19.4	na	na
Portugal	motor vehicles and parts	na	21.1	23.6	24.5	23.4	23.5
Spain	motor vehicles and parts	na	137.7	139.6	142.5	150.3	153.6
Sweden	motor vehicles and parts	64.2	61.1	67.0	67.4	78.2	93.6
UK	motor vehicles and parts	213.9	219.5	224.6	231.8	235.1	237.6
Czech Rep	means of transportation	123.0	110.0	90.0	90.0	91.0	na
Hungary	motor vehicles and parts	27.0	24.0	23.0	na	na	na
Romania	motor vehicles and parts	na	100.0	105.0	105.0	105.0	na
Slovenia	means of transportation	na	12.3	8.5	7.7	7.5	na
Canada	motor vehicles and parts	na	148.8	153.8	160.4	159.9	na
USA	motor vehicles and parts	892.4	953.6	989.5	959.4	1,003.0	na
Turkey	motor vehicles and parts	56.9	50.6	49.8	54.6	62.3	na
Memo Items							
Western Europe, listed countries*			1,717.0	1,785.6	1,780.3	1,803.7	1,896.2
USA and Canada			1,102.4	1,143.3	1,119.8	1,162.9	na

* Estimated: Netherlands 1997, 1998; Finland 1994 SOURCE: VDA

In last year's report we attempted to estimate employment figures for 1998. The preliminary figures for 1998 that are now available and our estimates do not agree very closely (the preliminary figures are of course subject to future revision). In any event, in this report, we will confine ourselves to reported figures.

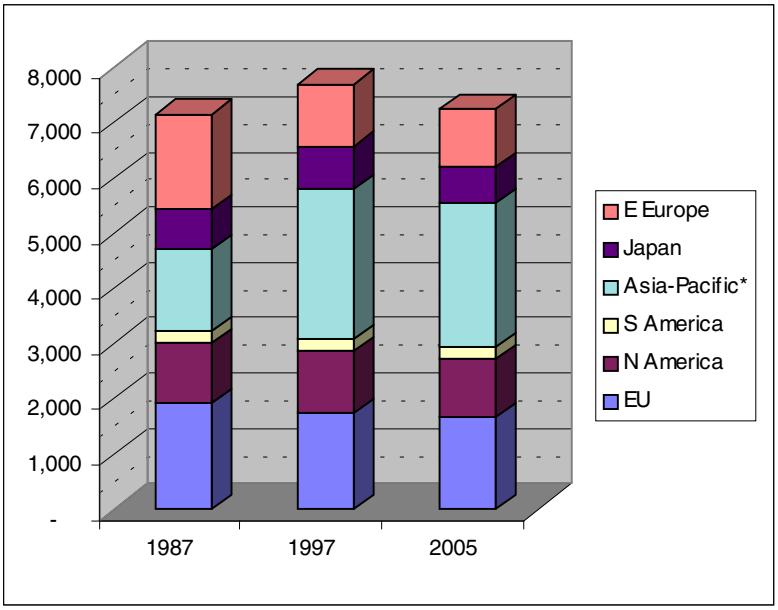
Output changes are just one of several factors that influence employment

Estimating employment is complicated by the fact that a number of interdependent factors influence it. Employment obviously should depend on output, but there are other critical factors including hours worked, productivity, and how easily enterprises can adjust their labor forces.

Short- and long-term factors: working hours and productivity

Generally, the easiest way for employers to adjust for output variation is by adjusting working hours. But there are limits to this; usually, there are both legal or contractual restrictions on working hours. Real productivity is very difficult to change in the short run, but there is the interesting fact that productivity figures often increase when output grows and decline when output falls. It is important to emphasize that productivity is not "improved" by lengthening working hours or intensifying work.[11]

Figure 4.1 Regional Employment in the Motor Vehicle Industry, 1987-2005



* Asia-Pacific includes Oceania and excludes Japan

Source: Prognos

Productivity follows swings in output

The fact that productivity follows output variations indicates that employers try to get more output from an hour's work when demand is strong, but that in downswings they do not reduce hours worked as much as output falls. As already mentioned, often there are legal and contractual rules on working hours and layoffs. In addition, employers are often concerned about finding suitable workers later on (skilled workers, for example) when output turns up again.

Attrition and legal or contractual constraints

It should also be noted that workforces will shrink in downturns even when there are restrictions on layoffs. Employers simply do not replace those who leave the workforce (quits, illness, retirement,

[11] Productivity correctly defined is output per unit of input. In the case of labor, input is measured in hours of work, but the effort put forth in the hours of work should remain the same for proper comparisons. See Auto 98-99, p. 35 for more details.

death). Clearly, legal and contractual constraints, which vary nationally, are an important constraint on how employment responds to changes in output.

4.2 Global Automotive Employment Outlook

1997 motor vehicle and parts employment is estimated at 8 million plus …

Using the partial country data available, we would estimate that global employment in 1997 for the motor vehicle and parts industry lies somewhere above 8 million. The long-term forecast discussed below puts it at 7.7 million, which in our view is somewhat too low. Indeed, a comparison of the individual country figures of the Prognos forecast (see Table 4.2) with the data in Table 4.1 shows that the Prognos figures are systematically lower. This indicates that Prognos is using a somewhat different statistical series.

Table 4.2 Forecast Employment in the Automobile Industry, 1987-2005 (000)

	Thousands				Annual Percent Change			
	1987	1997	2001	2005	87/97	97/05	97/01	01/05
World	7,203	7,723	7,395	7,280	0.7	-0.7	-1.1	-0.4
EU (15)	1,918	1,735	1,714	1,666	-1.0	-0.5	-0.3	-0.7
Germany	810	696	685	663	-1.5	-0.6	-0.4	-0.8
France	350	289	282	275	-1.9	-0.6	-0.6	-0.6
Italy	198	188	186	186	-0.5	-0.1	-0.3	-
UK	256	246	235	224	-0.4	-1.2	-1.1	-1.2
N America	1,078	1,122	1,069	1,039	0.4	-1.0	-1.2	-0.7
USA	945	984	930	904	0.4	-1.1	-1.4	-0.7
Mexico	82	84	85	88	0.3	0.6	0.3	0.9
S America	219	221	217	223	0.1	0.1	-0.5	0.7
MERCOSUR	133	132	127	129	-0.1	-0.3	-1.0	0.4
Asia	2,225	3,488	3,324	3,258	4.6	-0.8	-1.2	-0.5
Japan	737	775	672	659	0.5	-2.0	-3.5	-0.5
Australia	60	55	49	47	-0.9	-1.9	-2.8	-1.0
China	1,099	1,950	1,950	1,950	5.9	-	-	-
Africa	na	na	na	na	na	na	na	na
South Africa	35	37	39	40	0.6	1.0	1.3	0.6
CEE	1,702	1,120	1,033	1,054	-4.1	-0.8	-2.0	0.5
Memo Items								
OECD	3,953	3,953	3,742	3,651	-	-1.0	-1.4	-0.6
World excl. CEE	5,470	6,603	6,362	6,226	1.9	-0.7	-0.9	-0.5
Asia excl. Japan	1,487	2,713	2,652	2,599	6.2	-0.5	-0.6	-0.5

SOURCE: Prognos

… but employment declines are expected

In any event the precise employment levels are of less interest than the trends indicated by the forecast, and these are not favorable. The Prognos forecast indicates that global automotive employment is likely to decline by 328,000 jobs between 1997 and 2001, and a further 115,000 over the four following years. For the 1997-2005 period the total decline amounts to 1.5%.

The more detailed evaluation of the Prognos forecast presented in the next section indicates that in the 1997-2001 period, the forecast may be too pessimistic for Western Europe and North America. This would mean that global employment declines will be less severe during this 4-year period than forecast. On the other hand, the

likelihood of a post-2000 recession in these two key regions is will greatly increase the chances of more severe employment losses than forecast for the 2001-2005 period.

4.3 Regional Overview

1998: significant employment growth in W Europe

The only world region for which preliminary 1998 data is available for most countries is **Western Europe.** These figures indicate a very significant increase of 92,500 jobs (5.1%) in the manufacture of motor vehicles and parts. Because output stagnated in 1999, it is unclear whether gains continued in that year. Given the positive outlook for production in the year 2000, it is likely that some jobs will be added.

But growth is unequally distributed

The 1998 employment gains were not spread evenly throughout Western Europe, however. The biggest job gain occurred in Germany, 40,000 or 5.3%. Italian and Swedish employment also increased, by 17% and 19.7% respectively. In all of the other countries for which we have 1998 data, with the exception of France, employment also increased. The French case is interesting because employment actually declined slightly even as output shot up by 14.5%!

Through 2001, employment is likely to do better than forecast by Prognos

As a result, the negative Prognos predictions concerning Western Europe may not be born out -- by 2001 employment may match or slightly exceed the 1997 level. What happens beyond 2001 may be a very different story though. A downturn in the 2000-2005 period is quite likely, and consequently, the employment outlook may turn negative as Prognos indicates.

Employment growth continues in N America, but less rapidly than in Europe

Although we do not have 1998 data for **North America,** it is very likely that some employment growth will have continued in 1998 in spite of a slowdown in output. In 1997, total employment growth for the USA and Canada was 3.8%.

1999 saw an 11% gain in production, which indicates that further employment gains were very likely for that year. This trend is expected to continue into 2000. It should be noted that NAFTA output has grown every year since 1995. This means that working hours (and overtime) of US workers have been very long for a long time. This makes it difficult to schedule more overtime, which encourages hiring.

NAFTA jobs outlook through 2001 better than forecast

As in the case of Western Europe, the negative trends forecast by Prognos for North America through 2001 are unlikely to be realized. Employment in the dominant US economy appears to be growing, and Prognos actually forecasts gains for Mexico. But in North America as in Western Europe the decline forecast by Prognos is a very real possibility in the 2000-2005 period, and for the same reasons.

S American data lacks, but output falls make employment declines in 1998-99 inevitable

Last year we estimated that 1998 employment would decline in **South America**. Although we have no new figures for the region, in view of the 15% drop in 1998 output, this prediction undoubtedly came true. 1999 saw an even larger output decline, and

consequently, additional workforce reductions were likely. This negative employment trend is expected to bottom out and perhaps even turn around in 2000 as a result of a double-digit rebound in output.

Table 4.3 Changes in Employment in Motor Vehicle and Parts Manufacturing
(1994 -1998; units in thousands)

	Industry Definition*	Units in Thousands					Percent				
		1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
China	mv and parts	36.0	-17.0	-1.0	na	na	1.9	-0.9	-0.1	na	na
Japan	mv and parts	-10.7	-18.9	1.0	-0.8	na	-1.3	-2.4	0.1	-0.1	na
S Korea	mv and parts	17.0	14.0	15.0	na	na	8.8	6.7	6.7	na	na
Austria	mv and parts	0.7	-1.1	0.4	0.2	1.3	3.0	-4.5	1.7	0.8	5.5
Belgium	mv and parts	na	1.6	0.3	-0.6	1.2	na	3.1	0.6	-1.1	2.3
Finland	mv and parts	na	na	0.1	-0.9	0.2	na	na	1.3	-13.6	3.4
France	mv and parts	na	2.0	-7.1	-4.0	-1.4	na	0.7	-2.4	-1.4	-0.5
Germany	mv and parts	na	52.7	-10.8	15.0	40.0	na	7.5	-1.4	2.0	5.3
Italy	mv and parts	na	-3.0	-0.1	-7.7	29.4	na	-1.6	-0.1	-4.3	17.0
Netherlands	mv and parts	na	1.0	0.6	na	na	na	5.6	3.2	na	na
Portugal	mv and parts	na	2.5	0.9	-1.1	0.1	na	11.8	3.8	-4.5	0.4
Spain	mv and parts	na	1.9	2.9	7.8	3.3	na	1.4	2.1	5.5	2.2
Sweden	mv and parts	-3.1	5.9	0.4	10.8	15.4	-4.8	9.7	0.6	16.0	19.7
UK	mv and parts	5.6	5.1	7.2	3.3	2.5	2.6	2.3	3.2	1.4	1.1
Czech Rep	means of transport	-13.0	-20.0	-	1.0	na	-10.6	-18.2	-	1.1	na
Hungary	mv and parts	-3.0	-1.0	na	na	na	-11.1	-4.2	na	na	na
Romania	mv and parts	na	5.0	-	-	na	na	5.0	-	-	na
Slovenia	means of transport	na	-3.8	-0.8	-0.2	na	na	-30.9	-9.4	-2.6	na
Canada	mv and parts	na	5.0	6.6	-0.5	na	na	3.4	4.3	-0.3	na
USA	mv and parts	61.2	35.9	-30.1	43.6	na	6.9	3.8	-3.0	4.5	na
Memo Items											
Western Europe, listed countries*		na	68.6	-5.2	23.4	92.5	na	4.0	-0.3	1.3	5.1
USA and Canada		na	40.9	-23.5	43.1	na	na	3.7	-2.1	3.8	na

* mv = motor vehicles

SOURCE: VDA

* Estimated: Netherlands 1997, 1998; Finland 1994

Beyond 2000, S America is likely to experience employment falls even as output rises

By 2001, Prognos forecasts a very small employment decline in motor vehicle manufacturing for the MERCOSUR region, which includes South America's largest autoproducing countries -- Brazil and Argentina. Because of the output rebound mentioned above, the decline may remain limited. But the history of the regions dominant economy, does not give reason to be optimistic -- between 1990 and 1998, Brazilian vehicle output almost tripled even as employment fell by more than 10%. Consequently, a larger decline than the Prognos forecast is likely by 2001, and the marginal increase Prognos projects for 2005 is likely to turn out to be a reduction.

1998: The Asian crisis and its devastating impact on output is bound to cause employment declines

The comments we made above for South America for 1998 also apply to **Asia**, where very significant employment declines certainly took place in that year.

With a 25% increase in output in **Asia- Pacific**, 1999 may be a different story. Employment declines probably have bottomed out. Forecast output growth of close to 10% for the year 2000 makes some employment gains likely for that year.

Japan continues in the doldrums

In **Japan**, employment continues to decline. It is noteworthy that the preliminary employment figures that were available last year for 1997 (which had showed gains in the vehicle assembly sector) were revised downward in the meantime. The more definite data now available show that employment in motor vehicles and parts actually declined marginally in a year in which output grew by 6%.

Renault-Nissan and DC-Mitsubishi links are likely to hasten employment declines due to restructuring

More recent data are not available, but the output declines of 1998 and 1999 leave no room for optimism with respect to employment. Moreover, the powerful influence that Renault and DaimlerChrysler have acquired over their Japanese partners (see section 1. of this report) is likely to increase pressures for a faster restructuring of the Japanese industry and more workforce reductions.

Asia is unlikely to see rapid job growth post-2000

For the four years from 1997 to 2001, Prognos predicts an employment decline of a 164,000 for Asia, including Japan,. Most of this is due to Japan, where a decline of 103,000 is forecast during the same period. Given the impact of the Asia crisis and the ongoing restructuring of the Japanese industry, this is may not be far off the mark, but it is almost three times as high than the job loss experienced during 1993-1997.

Prognos estimates that employment in China will remain unchanged in the 1997-2005 period. Our view is that this may be overly optimistic, considering the productivity led employment declines in other emerging and transition economies even as output rises.

In Eastern Europe productivity improvements likely to continue more than offsetting output growth

Little can be added to what was said about **Eastern Europe** last year. Post-1995 employment data for the largest producer, Russia, are still not available, and the optimism expressed last year, which was based on the production growth of 1997 has to be reversed as a result of the even bigger output decline in 1998 (see Table 3.7 of this report). Although production grew in 1999 and the outlook for 2000 continues positive, employment gains are highly unlikely. As we discussed in Auto 98-99, the experience of virtually all East European countries is that productivity gains due to new production methods introduced by the TNCs who are taking over domestic industries outpace output increases and thereby result in employment declines.

1997 figures are available only for Poland, the Czech and Slovak Republics, Romania, and Slovenia. These figures indicate stable or slightly declining employment – and this despite double-digit output increases for most of these countries (and the region as a whole).

Given this experience, the job outlook was even less favorable in 1998, when regional output slowed, and in 1999, when it declined slightly. The upturn forecast for the year 2000 will only bring employment gains if the longstanding trend in productivity growth, which we referred to above, breaks down.

Post-2000 regional employment in E Europe is likely to continue declining

Prognos forecasts a decline of 87,000 jobs for this region during the 1997-2001 period. For all of the reasons mentioned above, we regard such a decline as very likely. On the other hand, the Prognos forecast of a marginal employment increase during 2001-2005 is unlikely to be realized, because we expect the output and productivity trends that have produced negative results in the past to continue.

4.4 Assembly and Parts Industry Employment

The USA, Western Europe, and Japan, for which we have reasonably up-to-date figures, exhibit an interesting trend. As Table 4.4 shows, between 1994 and the late 1990s, employment trends in the parts industry were more favorable (in Japan, less negative) than in the assembly industry.

Parts industry jobs grow more rapidly than assembly jobs in W Europe and N America

In **Western Europe** parts industry employment grew by an average annual rate exceeding 5% between 1994 and 1998 and added a total of 115,600 jobs during that period. Assembly employment, on the other hand, increased less than 1% a year for a total of 45,700 jobs over the period. In the **USA**, from 1994 to 1997, employment in parts manufacturing grew at 3% per annum as compared to 2.1% for the assembly sector.

But W Europe outperforms N America in job growth!

Over the period under consideration (note that it is a year shorter than that for W Europe) N America added a total of 101,000 jobs. Western Europe, on the other hand added a total of 161,000 jobs -- 60,000 more than the USA. In terms of job creation in the auto industry, Western Europe outperformed the USA in the mid- to late-1990s.

Table 4.4 Trends in Assembly and Parts Employment

	Assembly	Parts Mfg	
	Average Annual Rate of Change (%)		Period
W Europe	0.9	5.1	1994-98
USA	2.1	3.0	1993-97
Japan	-1.4	-0.7	1993-97

Source: EIU

In Japan, job cuts are slower in the parts industry

In **Japan**, neither sector saw growth, but during the 1993-97 period employment in parts manufacturing fell at only half the rate of job loss in the assembly sector.

Some of the parts employment growth is due to outsourcing from the assembly companies

At least part of the explanation for this growth discrepancy in the USA and Western Europe is that the vehicle assembly companies are outsourcing more and more of their parts operations. Consequently, at least some of the employment gains of the parts sector are almost certainly due to employment losses in the assembly sector. This trend is bound to continue. In fact, General Motors and Ford reorganized their parts plants into separate subsidiaries (Delphi and Visteon, respectively), which already are, or soon will be independent parts companies.

It is unclear what accounts for the discrepancy in Japan. The Japanese assemblers are considered models of "leanness"; i.e. the have long had much less in-house parts production than their Western counterparts. Consequently there is little scope for outsourcing. One possible explanations is that parts exports, especially to Japanese assembly operations in Asia were on the rise while vehicle assembly in Japan stagnated. Another has to do with the character of the Japanese parts industry, below the first-tier of suppliers there are others which have many small, even family owned shops, and quite possibly there is more resistance to employment declines at that level.

Table 4.5 Employment in Motor Vehicle Manufacturing
(1994 -1998; units in thousands)

	Industry Definition*	1994	1995	1996	1997	1998
Argentina	motor vehicles	25.7	21.4	22.7	26.3	na
Brazil	motor vehicles	107.1	104.6	101.9	106.1	na
China	motor vehicles and engines	756.0	748.0	na	na	na
Indonesia	motor vehicles and engines	53.6	61.1	61.4	59.0	na
Japan	motor vehicles and bodies	242.8	239.6	236.6	237.8	na
Malaysia	motor vehicles and engines	26.4	31.3	37.1	na	na
S Korea	motor vehicles and engines	90.0	93.0	105.0	na	na
Austria	mv, engines and bodies	17.9	17.0	17.4	17.6	na
Belgium	mv, engines and bodies	44.6	45.9	45.9	44.8	44.8
Finland	mv, engines and bodies	na	5.6	5.5	4.8	5.0
France	mv, engines and bodies	205.0	205.0	205.8	203.0	202.4
Germany	mv, engines and bodies	523.3	524.5	515.0	521.5	548.4
Italy	mv, engines and bodies	129.6	119.2	119.2	114.1	127.4
Netherlands	mv, engines and bodies	15.3	16.1	16.6	na	na
Portugal	mv, engines and bodies	10.4	10.2	10.6	10.2	10.2
Spain	mv, engines and bodies	87.7	86.0	86.4	91.8	93.2
Sweden	mv, engines	48.8	52.8	51.6	53.8	na
UK	mv, engines and bodies	136.5	137.9	143.8	145.8	147.4
Poland	mv, trailers & semi-trailers	102.0	99.0	101.0	102.0	na
Russia	motor vehicles	814.0	778.0	na	na	na
Serbia	motor vehicles	80.0	76.1	73.0	67.3	na
Slovak Rep	motor vehicles	13.2	12.7	13.2	13.4	na
Ukraine	motor vehicles	85.0	76.0	67.0	na	na
Canada	mv, engines and bodies	65.0	65.7	68.2	67.7	na
Mexico	motor vehicles	78.6	73.0	74.4	83.8	91.9
USA	mv, engines and bodies	554.1	574.7	553.9	568.8	na
S Africa	motor vehicles	37.5	38.5	38.6	37.1	na
Memo Items						
Western Europe, listed countries**		1,224.7	1,220.3	1,217.7	1,224.4	1,270.4
USA, Canada and Mexico		697.7	713.4	696.5	720.3	na

* mv = motor vehicles SOURCE: VDA

** Estimated: Netherlands 1997, Finland 1994, W Europe total 1998

Table 4.6 Changes in Employment in Motor Vehicle Manufacturing
(1994 -1998; units in thousands)

	Industry Definition*	Units in Thousands					Percent				
		1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
Argentina	motor vehicles	2.7	-4.4	1.4	3.6	na	11.9	-17.0	6.4	15.7	na
Brazil	motor vehicles	na	-2.5	-2.7	4.2	na	na	-2.3	-2.6	4.1	na
China	mv and engines	14.0	-8.0	na	na	na	1.9	-1.1	na	na	na
Indonesia	mv and engines	9.6	7.5	0.3	-2.4	na	21.8	14.0	0.5	-3.9	na
Japan	mv and bodies	-9.5	-3.2	-3.0	1.2	na	-3.8	-1.3	-1.3	0.5	na
Malaysia	mv and engines	4.1	4.9	5.8	na	na	18.4	18.6	18.5	na	na
S Korea	mv and engines	11.0	3.0	12.0	na	na	13.9	3.3	12.9	na	na
Austria	mv, engines and bodies	0.1	-0.9	0.4	0.2	na	0.4	-5.0	2.2	1.3	na
Belgium	mv, engines and bodies	na	1.3	-	-1.1	-	na	2.9	-	-2.4	-
Finland	mv, engines and bodies	na	na	-0.0	-0.7	0.1	na	na	-0.4	-13.2	2.9
France	mv, engines and bodies	na	-	0.8	-2.8	-0.6	na	-	0.4	-1.4	-0.3
Germany	mv, engines and bodies	na	1.2	-9.5	6.5	26.9	na	0.2	-1.8	1.3	5.2
Italy	mv, engines and bodies	na	-10.4	-	-5.1	13.3	na	-8.0	-	-4.3	11.7
Netherlands	mv, engines and bodies	na	0.8	0.5	na	na	na	5.2	3.2	na	na
Portugal	mv, engines and bodies	na	-0.2	0.3	-0.4	0.0	na	-1.8	3.3	-3.7	0.4
Spain	mv, engines and bodies	na	-1.7	0.3	5.5	1.3	na	-1.9	0.4	6.3	1.4
Sweden	mv, engines and bodies	-4.0	4.0	-1.2	2.2	na	-7.5	8.3	-2.3	4.3	na
UK	mv, engines and bodies	1.5	1.4	5.9	2.0	1.6	1.1	1.0	4.3	1.4	1.1
Poland	motor vehicles	na	-3.0	2.0	1.0	na	na	-2.9	2.0	1.0	na
Russia	motor vehicles	-96.0	-36.0	na	na	na	-10.5	-4.4	na	na	na
Serbia	motor vehicles	na	-3.9	-3.1	-5.7	na	na	-4.9	-4.1	-7.8	na
Ukraine	motor vehicles	-7.0	-9.0	-9.0	na	na	-7.6	-10.6	-11.8	na	na
Canada	mv, engines and bodies	na	0.7	2.5	-0.5	na	na	1.1	3.8	-0.7	na
Mexico	motor vehicles	na	-5.6	1.4	9.4	8.1	na	-7.1	1.9	12.6	9.7
USA	mv, engines and bodies	29.3	20.6	-20.8	14.9	na	5.6	3.7	-3.6	2.7	na
S Africa	motor vehicles	0.3	1.0	0.1	-1.5	na	0.8	2.7	0.3	-3.9	na
Memo Items											
Western Europe, listed countries**			-4.4	-2.5	6.6	46.0	na	-0.4	-0.2	0.5	3.8
USA, Canada and Mexico		697.7	15.7	-16.9	23.8	na	na	2.3	-2.4	3.4	na

* mv = motor vehicles

SOURCE: VDA

** Estimated: Netherlands 1997, Finland 1994, W Europe total 1998

Table 4.7 Employment in Parts Manufacturing
(1994 -1998; units in thousands)

	Industry Definition*	1994	1995	1996	1997	1998
China	mv parts and accessories	752.0	769.0	na	na	na
Japan	mv parts and accessories	546.4	530.7	534.7	532.7	na
S Korea	motor vehicle parts	120.0	131.0	134.0	na	na
Austria	mv parts and accessories	6.4	6.2	6.2	6.3	na
Belgium	mv parts and accessories	7.4	7.6	8.1	8.5	9.6
Finland	mv parts and accessories	na	1.1	1.2	1.0	1.1
France	mv parts and accessories	83.4	85.5	77.5	76.2	75.4
Germany	mv parts and accessories	181.1	232.5	231.2	239.6	252.8
Italy	mv parts and accessories	54.5	61.8	61.8	59.2	75.2
Netherlands	mv parts and accessories	2.5	2.7	2.8	na	na
Portugal	mv parts and accessories	10.7	13.3	13.8	13.3	13.3
Spain	mv parts and accessories	50.0	53.5	56.2	58.5	60.4
Sweden	mv parts and accessories	12.3	14.2	15.0	17.4	20.8
UK	mv parts and accessories	83.0	86.8	88.0	89.3	90.2
Canada	mv parts and accessories	83.8	88.1	92.2	92.2	na
USA	mv parts and accessories	399.5	414.8	405.5	434.2	na
Memo Items						
Western Europe, listed countries**		492.4	565.2	561.8	572.1	608.2
USA and Canada		483.3	502.9	497.7	526.4	na

* mv = motor vehicles SOURCE: VDA

** Estimated; Netherlands 1997, 1998; Finland 1994; Austria 1998

Table 4.8 Changes in Employment in Parts Manufacturing
(1994 -1998; units in thousands)

	Industry Definition*	Units in Thousands					Percent				
		1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
China	mv, parts & accessories	38.0	17.0	na	na	na	5.3	2.3	na	na	na
Japan	mv, parts & accessories	-1.2	-15.7	4.0	-2.0	na	-0.2	-2.9	0.8	-0.4	na
S Korea	motor vehicle parts	6.0	11.0	3.0	na	na	5.3	9.2	2.3	na	na
Austria	mv, parts & accessories	0.6	-0.2	0.0	0.1	na	10.9	-3.2	0.1	0.8	na
Belgium	mv, parts & accessories	na	0.2	0.5	0.4	1.1	na	2.7	6.6	4.9	12.9
Finland	mv, parts & accessories	na	na	0.1	-0.2	0.1	na	na	10.9	-15.6	5.8
France	mv, parts & accessories	na	2.1	-8.0	-1.3	-0.8	na	2.5	-9.4	-1.7	-1.0
Germany	mv, parts & accessories	na	51.4	-1.3	8.4	13.2	na	28.4	-0.6	3.6	5.5
Italy	mv, parts & accessories	na	7.3	-	-2.6	16.0	na	13.4	-	-4.2	27.0
Netherlands	mv, parts & accessories	na	0.2	0.1	na	na	na	7.2	3.7	na	na
Portugal	mv, parts & accessories	na	2.6	0.5	-0.5	0.1	na	24.4	3.4	-3.8	0.4
Spain	mv, parts & accessories	na	3.5	2.7	2.3	1.9	na	7.0	5.0	4.1	3.2
Sweden	mv, parts & accessories	0.8	1.9	0.8	2.4	3.4	7.1	15.5	5.4	16.1	19.5
UK	mv, parts & accessories	4.2	3.8	1.2	1.3	0.9	5.3	4.6	1.4	1.5	1.0
Canada	mv, parts & accessories	-4.2	4.3	4.1	-	na	-4.8	5.1	4.7	-	na
USA	mv, parts & accessories	31.9	15.3	-9.3	28.7	na	8.7	3.8	-2.2	7.1	na
Memo Items											
Western Europe, listed countries**			72.8	-3.4	10.3	35.9	na	14.78	-0.61	1.84	6.28
USA and Canada		27.7	19.6	-5.2	28.7	na	6.08	4.06	-1.03	5.8	na

* mv = motor vehicles SOURCE: VDA

** Estimated; Netherlands 1997, 1998; Finland 1994; Austria 1998

5. A Long-term Sales Forecast

5.1 Introduction

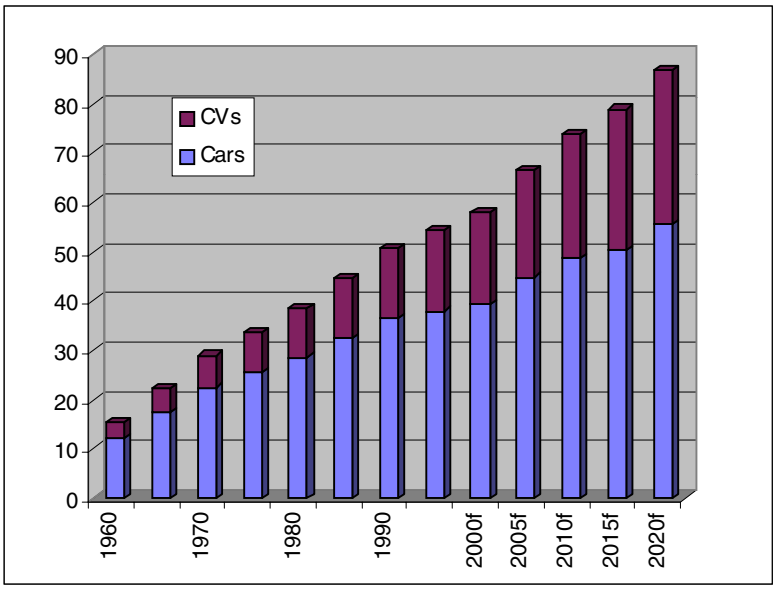
Are long term forecasts really useful?

It is sometimes said that any economic forecast beyond 4 quarters is worthless. So, why devote an article in Auto 2000 to a long-term forecast?

The answer is that a forecast's worth depends on what one expects of it. If we want a precise estimate of what level vehicle sales will actually reach in say 2020, then we are unlikely to be satisfied with the results of current forecasting techniques. If, on the other hand, we reformulate the question, and say, "Assuming long-term trends continue, what will the trend-level sales be in 2020?" Then we will get some more reasonable answers.

Figure 5.1 Car and Commercial Vehicle Sales (1960-1990 actual, 2000-2020 IMF optimistic forecast; units in millions)

Source: Pemberton (data), IMF (forecast)



LT forecasts give an idea of the base level around which sales will fluctuate in the future

First of all, we will not expect a precise figure for the year 2020. Automobile sales are cyclical, i.e. they have a definite relationship to the boom-bust cycle of market economies, and they also respond to crises in financial markets. 1998, the year following the Asian Crisis, world vehicle sales dropped by 1.4 million units. The following year they rose by almost 3.8 million. No one can accurately predict the size and timing of such swings or when the current cyclical expansions in Western Europe and North America will end – not to mention the size and timing of future crises and cycles.

But vehicle sales are also influenced by long-term trends such as population growth and changes in purchasing power. By asking for the "trend-level" we avoid the problem of having to predict economic crises and cycles, but we will still get an idea of the level around which future sales will fluctuate.

Table 5.1 Assumptions Behind Forecast Scenarios

Forecasting Factors	Optimistic Scenario	Pessimistic Scenario
Vehicle Ownership	Projection of exponential growth trend 1960-2000	97% of optimistic scenario
Vehicle Scrappage	Slightly lower than straight line projection of 1980-2000 trend	Considerably lower than straight line projection of 1980-2000 trend
Population	Straight line projection of 1970-2000 trend	Straight line projection of 1980-2000 trend (i.e. slower growth)

5.2 Optimistic and Pessimistic Scenarios

An LT forecast is not simply the linear projection of past sales trends

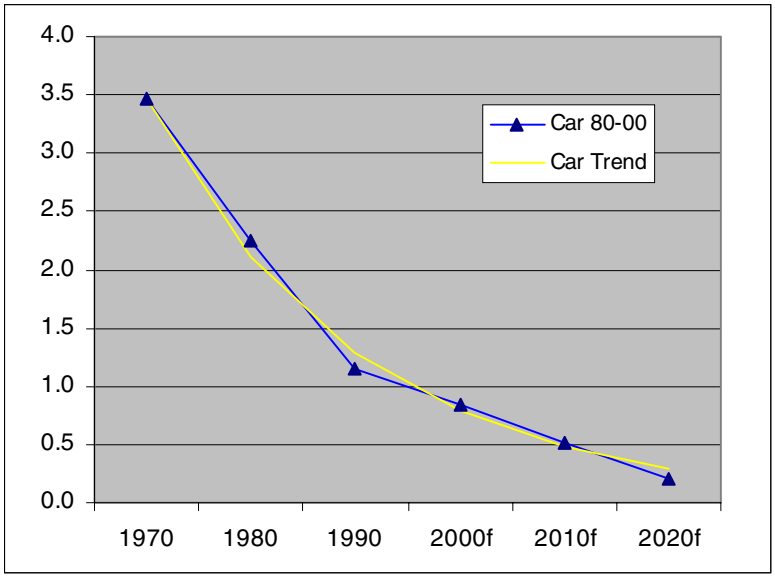
The sales forecast we present below is not a simple projection of past sales trends. Sales depend on 1. population growth, 2. trends in vehicle ownership, and 3. the rate at which existing vehicles are scrapped.

In addition, we mentioned purchasing power trends. In our forecast, these are not separately considered, but are presumed to be reflected in vehicle ownership trends.

All actual data for the years 1960-2000[12] are from an article based on a forecast prepared by Pemberton Associates [AW Automotive World, May 2000]. Figures for years beyond 2000 are IMF forecasts. Data for all assumptions will be found in Table 5.2.

Figure 5.2 Growth Rate[13] of Car Stock per 1000 Persons
(1960-2020, percent)

Source: Pemberton (data), IMF (forecast)



[12] The year 2000 is indicated as a forecast but is almost certainly a close estimate based on data available in early 2000. As noted in the text, the Pemberton vehicle sales figure for 2000 closely matches the IMF estimate given in section 3. The Pemberton year 2000 "forecast" figures are treated as "actual" in the IMF forecast, which covers the years beyond 2000.

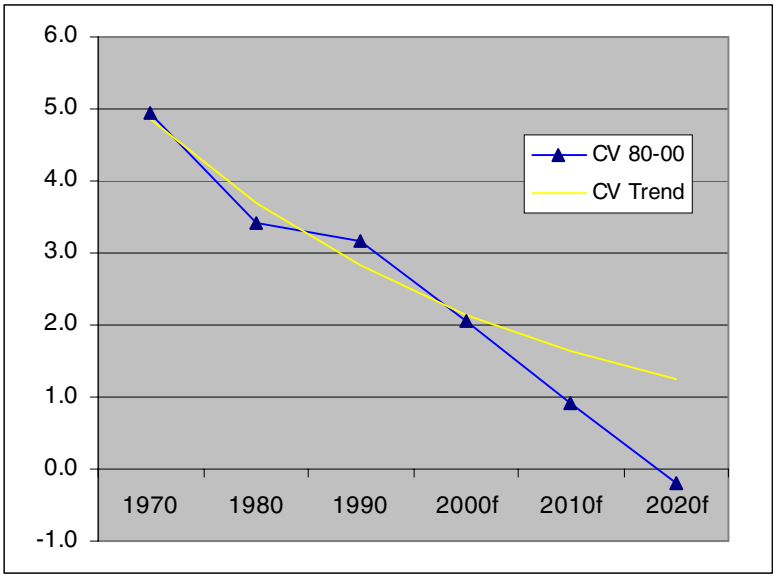
[13] The curves labelled Car 80-00 and CV 80-00 in Figure 5.2 and 5.3 show historical and projected growth rates. Each data point represents the average annual growth rate for the **preceding** decade. The projection is based on Pemberton stocks/1000 persons for the years 1990 and 2000 (i.e. actually the change in the growth rate from the 80s to the 90s).

Table 5.1 outlines two scenarios: 1. an optimistic one which assumes that long-term historical trends will continue, and 2. a pessimistic scenario which assumes slower population growth and revises our optimistic assumptions downward.

Figure 5.3 Growth Rate[14] of CV Stock per 1000 Persons
(1960-2020, percent)

f = forecast

Source: Pemberton (data), IMF (forecast)



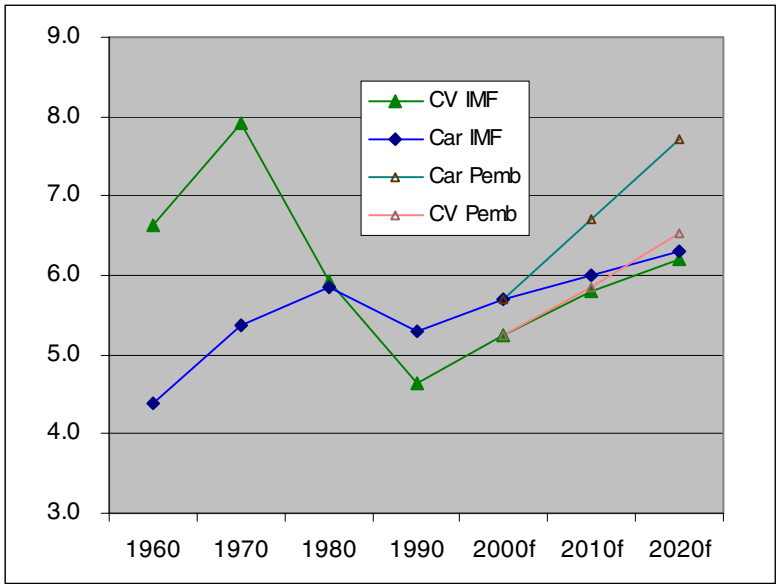
Trends in vehicle ownership determine new vehicle demand

In our model, vehicle ownership is measured by vehicle stock per 1000 persons. As Figure 5.2 shows, the trend[15] for changes in **car ownership** almost perfectly matches the historical data plus the straight-line projection of the last 20 years into the future (curve Car 80-00, Figure 5.2).

Figure 5.4 Vehicle Scrappage Rates
(1960-2020, percent)

f = forecast

Source: Pemberton (data), IMF (forecast)



The trend curve for CVs is not quite as good a match. In Figure 5.3 the *CV 80-00* and *CV Trend* curves are very close in the year 2000 and all further points are forecasts. Which of the two projections is more likely? In view of the increasing use of small CVs for personal use, it is highly unlikely that the rate at which people own CVs will

[14] See footnote 12.

[15] An exponential trend fit is used for ownership data.

actually decline,[16] as the CV 80-00 curve suggests. The *CV Trend* curve declines but growth stays in positive territory. For these reasons, we use the curves, *Car Trend* and *CV Trend* (see Figures 5.2 and 5.3) for our optimistic forecast and lower the predictions somewhat for the pessimistic one.

Table 5.2 IMF Vehicle Sales Forecast

	Actual Data				Forecast				
	1960	**1970**	**1980**	**1990**	**2000**	**2005**	**2010**	**2015**	**2020**
Vehicle Sales	(units in millions)				(units in millions)				
Cars -- optimistic	12.3	22.5	28.6	36.4	39.3	44.8	48.7	50.2	55.4
pessimistic	12.3	22.5	28.6	36.4	39.3	42.0	45.5	45.5	47.3
CVs -- optimistic	3.1	6.5	9.8	14.2	18.8	21.7	25.1	28.6	31.4
pessimistic	3.1	6.5	9.8	14.2	18.8	20.2	22.9	24.0	26.6
Total -- optimistic	15.3	29.1	38.4	50.6	58.1	66.5	73.8	78.8	86.8
pessimistic	15.3	29.1	38.4	50.6	58.1	62.2	68.3	69.5	73.8
CVs/Vehicle Ratio	(percent)				(percent)				
optimistic	20.1	22.5	25.5	28.0	32.3	32.7	34.0	36.3	36.1
pessimistic	20.1	22.5	25.5	28.0	32.3	32.4	33.5	34.5	36.0
Stock/1000 persons	(units)				(units)				
Cars -- optimistic	34.7	53.3	69.4	79.0	86.6	89.4	91.6	93.4	94.8
pessimistic	34.7	53.3	69.4	79.0	86.6	89.4	91.5	93.2	94.6
CVs -- optimistic	6.7	12.8	19.4	28.3	35.7	39.2	42.6	45.7	48.7
pessimistic	6.7	12.8	19.4	28.3	35.7	39.2	42.4	45.5	48.4
Total -- optimistic	41.4	66.1	88.8	107.4	122.4	128.7	134.2	139.1	143.4
pessimistic	41.4	66.1	88.8	107.4	122.4	128.5	133.9	138.8	143.0
Scrap Rate	(percent)				(percent)				
Cars -- optimistic	4.4	5.4	5.9	5.3	5.7	5.8	6.0	5.9	6.3
pessimistic	4.4	5.4	5.9	5.3	5.7	5.5	5.7	5.6	5.6
CVs -- optimistic	6.6	7.9	5.9	4.6	5.2	5.5	5.8	6.2	6.2
pessimistic	6.6	7.9	5.9	4.6	5.2	5.1	5.3	5.2	5.4
Total -- optimistic	4.8	5.9	5.9	5.1	5.6	5.7	5.9	6.0	6.3
pessimistic	4.8	5.9	5.9	5.1	5.6	5.4	5.6	5.5	5.5
Vehicle Density	(units per square kilometer)				(units per square kilometer)				
Cars -- optimistic	0.8	1.5	2.4	3.3	4.1	4.5	4.9	5.3	5.7
pessimistic	0.8	1.5	2.4	3.3	4.1	4.5	4.9	5.2	5.5
CVs -- optimistic	0.2	0.4	0.7	1.2	1.7	2.0	2.3	2.6	2.9
pessimistic	0.2	0.4	0.7	1.2	1.7	2.0	2.3	2.5	2.8
Total -- optimistic	1.0	1.9	3.1	4.4	5.8	6.5	7.2	7.9	8.6
pessimistic	1.0	1.9	3.1	4.4	5.8	6.5	7.1	7.7	8.3
World Population	(millions)				(millions)				
optimistic	3,060	3,747	4,503	5,347	6,164	6,572	6,980	7,360	7,741
pessimistic	3,060	3,747	4,503	5,347	6,164	6,531	6,898	7,195	7,493

Source: Pemberton (data), IMF forecast

Scrapping of old vehicles determines "replacement" sales

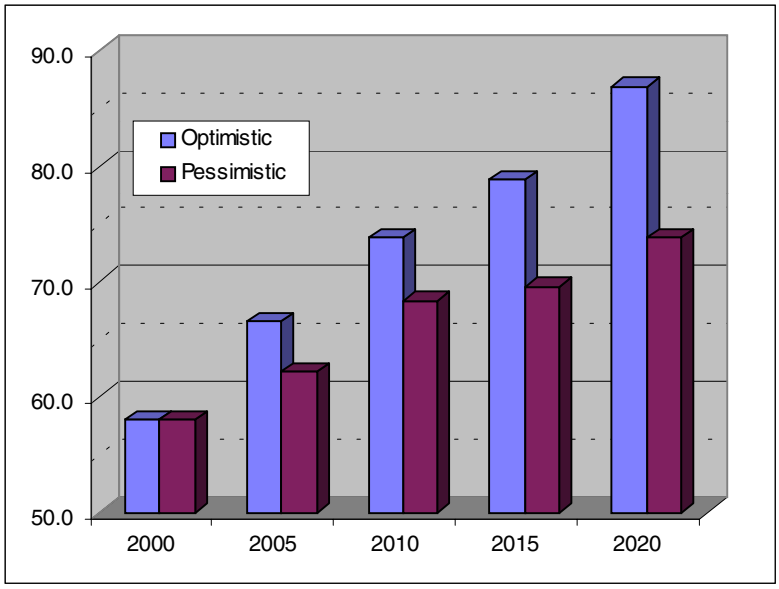
Scrappage rates (the percentage of the total vehicle stock that is scrapped in a given year) influence vehicle sales strongly. As long as the vehicle stock is growing, it is clear that all scrapped vehicles are in fact replaced. These rates respond readily to short-term

[16] The composition of the CV segment is changing as a result of the trend towards personal use of small CVs (since the 1980s in the US and Canada, and only since the mid-nineties in Western Europe). It is likely that commercial demand and larger commercial vehicles too heavily influence the early data.

economic fluctuations. If there is a recession or a crisis, individuals and businesses tend to hold on to their vehicles, and when the economic situation improves they tend to buy new ones.

Figure 5.5 Optimistic and Pessimistic Sales Forecasts
(2000-2020, percent)

Source: Pemberton (data), IMF (forecast)



From the Pemberton data, it appears that in the year 2000 scrap rates were considerably higher than in 1990 (a recession year in North America). As a result, our optimistic scenario assumes that scrap rates will continue to increase, but not quite as fast as between 1990 and 2000.[17] Our pessimistic scenario assumes small declines in 2005 and 2015 and small increases in 2010 and 2020. The optimistic values on average exceed historical values, while the pessimistic ones are about at the historical average (i.e. not very pessimistic).

A growing population means more potential vehicle owners

Our optimistic scenario assumes that the straight-line projections of the **population growth** trend of the last 30 years will continue in the future to yield a 2020 population of 7.7 billion.[18] But population growth is actually slowing down, and therefore we use the trend over the last 20 years for our "pessimistic" scenario. This yields a 2020 population some 247 million lower than our optimistic projection. Although slower population growth would actually be desirable, it will impact vehicle sales negatively.

Assuming trends for the three factors discussed above enables us to make a long-term forecast. First we estimate the vehicle stocks for future years from the ownership trends. Then we calculate the increase in stocks from one year to the next to get “new vehicle demand". To this we add the number of scrapped vehicles that must be replaced.[19]

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[17] We did not use a linear projection of the 1990-2000 trend because for cars it would have generated scrap rates considerably higher than historical values, which was too "optimistic" in our opinion.

[18] This projection very closely matches the population projection of the original Pemberton forecast.

[19] Scrapped Vehicles = Vehicle-Stock x Scrap-Rate = Replacement Sales.

5.3 The Sales Trend to 2020

Optimistic projection: sales to grow as in the past

Figure 5.1 shows how our optimistic projection fits with the historical data. By the year 2020 trend-level vehicle sales are likely to reach about 87 million units. This would be 29 million units more than the 58 million, which are expected to be sold in the current year (2000). The 58 million is part of the Pemberton forecast, but it corresponds quite closely to the 57.5 million sales we estimate on the basis of partial year data for 2000 (see section 2 of this report). Consequently, we take it as the basis of our long-term forecast.

The predicted 2020 sales are 49.5% higher than current sales. By comparison sales grew 51.1% in the 20-year period ending in 2000. Thus our optimistic scenario foresees sales growth continuing as in the past 20 years, at a rate of about 2% per year.

But productivity will outpace sales growth, and employment shrink

In section 4, we discussed employment growth and suggested that the outlook was in general negative. It would be important to add here that our forecast indicates that this is very likely to hold in the long term. Productivity growth in the vehicle producing industry will certainly exceed the 2% growth projected by our optimistic scenario. The conclusion that employment will fall is therefore unavoidable.

Pessimistic projection: sales will grow at barely above 1% per year

Our **pessimistic scenario** results in 2020 vehicle sales of only 74 million units – a mere 16 million higher than in the year 2000. This would represent an annual growth rate of only 1.2%. Slower population growth reduces sales by about 4.7 million units, and a slower increase of vehicle ownership and lower scrap rates account for the rest of the 13 million unit difference with the optimistic scenario.

Historically, growth rates were much higher than those we forecast: 6.6% in the sixties, and 2.8% in the 70s and 80s. This was the period when the automobile markets in Western Europe, North America, and Japan were young and millions of people bought cars for the first time.

Table 5.3 IMF Forecast of Increases in Vehicle Sales
(1980-2000 actual)

	Total Increase				Annual Change	
	1980-00	2000-20	1980-00	2000-20	1980-00	2000-20
	(units in millions)		(percent)		(percent)	
Cars -- optimistic	10.7	16.2	37.3	41.1	1.6	1.7
pessimistic	10.7	8.0	37.3	20.3	1.6	0.9
CVs -- optimistic	9.0	12.6	91.3	67.1	3.3	2.6
pessimistic	9.0	7.8	91.3	41.5	3.3	1.8
Total -- optimistic	19.6	28.8	51.1	49.5	2.1	2.0
pessimistic	19.6	15.8	51.1	27.1	2.1	1.2

Growth in the pessimistic forecast is only a bit lower than actual growth in the 1990s

In the 1990s, the growth rate fell to 1.4% -- only half that of the preceding decade. In part, this can be explained by the maturing of markets in the developed world, but there were also a series of economic crises. The Japanese bubble burst at the end of the 80s, initiating a period of stagnation that may now finally be ending. The US economy began the nineties in recession. The West European economies fell into the doldrums soon thereafter, and Mexico, South America, and Asia all experienced crises during the 1990s.

Some of these developments were part of the "normal" cyclical behavior of market economies, but others are due to the continuing deregulation of financial markets and the resulting explosion of speculation. This instability is likely to continue and even to grow. A global economic crisis that originates in the financial markets cannot be ruled out for the next twenty years. Indeed, some would say it is likely. Here*, it is important to emphasize that such a global economic meltdown is not included in our assumptions.*

5.4 Is the IMF forecast too conservative?

Some long term forecasts are much higher than the IMF's

Many long-term forecasts arrive at much higher 2020 vehicle sales than the IMF's. For example, the Pemberton forecast, whose historical data we use, projects 2020 sales to be 102.6 million units, or about 15 million higher than the IMF's optimistic forecast.

Other forecasting models may be more sophisticated than the one we presented here, but, *if we use assumptions that match population, ownership and scrap rate values of say, the Pemberton forecast, then our model arrives at the same results*. Consequently, the difference lies in our assumptions.

The IMF forecast uses trend growth in vehicle ownership

The IMF's optimistic forecast assumes that vehicles per 1000 persons will grow at 0.61% per year on average between 2000 and 2020, which is the exponential trend. The Pemberton forecast, on the other hand, shows ownership rates increasing at 0.81%, which is more than 30% higher than the IMF figure. Over a twenty year span, such a difference in rates will make a considerable difference in end results.

World GDP is unlikely to grow at more than twice the rate of the last 20 years

Perhaps the Pemberton forecast is so optimistic about future growth of vehicle ownership because of the strong GDP growth presented along with the vehicle forecast; GDP is expected to grow at 2.47% per year on average between 2000 and 2020. Strong GDP growth would mean rising per capita incomes that could translate into more vehicle purchases. Bear in mind though that the current trend towards growing income inequality will limit the income gains for those who would be most likely to purchase new vehicles.

But our real problem with the GDP projection cited above is that the GDP data for the past 20 years shows a growth rate of 1.03%. It is possible that the average GDP growth rate will more than double, but in our view it is not likely.

The IMF assumes growing scrap rates that stay within the historical range

Other significant factors that lower the IMF forecast are more conservative scrappage rates. As we indicated earlier these rates depend on economic fluctuations. The highest historical rate for cars shown in the Pemberton data is 5.9% (1980), but in the Pemberton forecast, scrap rates reach 6.4% by 2005 and continue upwards to 7.7% by 2020. The situation is similar for CV scrap rates. (See *Car Pemb* and *CV Pemb* in Figure 5.4).

Again, expectations of smartly rising incomes might lead one to expect that people and businesses will get rid of their vehicles faster, but the IMF has preferred to allow car scrap rates to rise almost as fast as they did in the 1990s, but to only slightly exceed historical maxima. Our CV scrap rates are constructed in similar fashion.

6. Annex

6.1 Note on Data

Vehicle Classifications

There are a variety of definitional problems with both sales and production data. Commercial vehicles (CVs) pose special problems. In some cases, 4-wheel drive, sport-utility-vehicles, “people carriers” or light trucks/commercial vehicles are classified as cars. In some country statistics, commercial vehicles include only to "heavy trucks" and may or may not include "buses" and in others some light CVs are included.

Data Sources

The historical figures in this report (1995-1999) are primarily from the Economist Intelligence Unit (EIU) database and thus use the categorization developed by EIU. In certain cases these have been supplemented by figures from the German automobile industry association (VDA).

Forecasts

Forecasts for all major producing countries are produced by the IMF based on the sales and production figures available in July. For countries on which current year data are not available, the EIU forecasts (sometimes adjusted according to generally available reports) are used.

Sales

For most countries, what is referred to as "sales" in the report are actually "registrations" of new vehicles. For certain countries only "domestic" sales/registrations, which exclude imported vehicles, are available. Sales or registration data are not available for certain countries. As a result estimates are included in regional or world totals.

Production

The 1999 data shown in this report should be regarded as preliminary estimates that are likely to be revised. For many countries, production data are updated more slowly than sales. This means that figures for the most recent full year may be estimates based on partial year data and are subject to revision.

The *double-counting* problem arises whenever vehicle components produced in one country are packaged into a kit and exported for assembly in another. Often, such production is counted in both countries, hence the term *double counting*. Usually, but not always, kit exports occur within one region, but, in any event, they are one reason why world and regional totals do not correspond to the sum of the output of individual countries.

6.2 Car and Truck Sales and Production

Table 6.1 Regional Car and Truck Unit Sales (thousands)

	Actual Data					Forecast		
	1995	1996	1997	1998	1999	2000e	2001f	2002f
Cars								
World	**33,535**	**35,199**	**36,161**	**35,081**	**37,165**	**38,843**	**39,044**	**40,040**
W Europe	12,021	12,790	13,408	14,331	15,049	15,200	14,737	14,927
NAFTA	9,424	9,390	9,333	9,357	10,023	10,659	10,313	10,198
S America	1,898	1,938	2,215	1,768	1,395	1,643	1,897	2,223
Japan	4,444	4,669	4,492	4,093	4,154	4,279	4,480	4,611
Asia-Pacific*	3,267	3,533	3,599	2,468	3,333	3,764	4,220	4,494
E Europe	1,409	1,729	1,906	1,820	1,900	1,953	2,016	2,167
Other	1,072	1,150	1,208	1,244	1,311	1,345	1,380	1,420
Trucks								
World	**15,251**	**16,035**	**16,152**	**15,872**	**17,547**	**18,671**	**19,416**	**19,818**
W Europe	1,528	1,647	1,766	1,958	2,118	2,194	2,202	2,137
NAFTA	7,056	7,623	8,086	8,671	9,636	10,130	10,247	10,155
S America	485	558	590	567	404	467	542	630
Japan	2,404	2,392	2,233	1,781	1,707	1,775	1,917	2,038
Asia-Pacific*	2,850	2,830	2,450	2,050	2,830	3,171	3,523	3,800
E Europe	310	360	395	405	420	484	515	569
Other	618	625	632	440	432	450	470	490

* Asia-Pacific excludes Japan and includes Oceania Source: EIU (actual), IMF (forecast)

Table 6.2 Regional Car and Truck Unit Production (thousands)

	Actual Data					Forecast		
	1995	1996	1997	1998	1999	2000e	2001f	2002f
Cars								
World**	**33,735**	**35,361**	**37,386**	**35,851**	**37,175**	**39,312**	**39,785**	**40,420**
W Europe	13,180	13,365	14,166	14,214	14,345	14,811	14,844	15,009
NAFTA	8,361	8,147	8,103	8,001	8,255	8,628	8,615	8,733
S America	1,529	1,739	2,055	1,675	1,369	1,692	1,866	2,199
Japan	7,612	7,864	8,492	8,056	8,100	8,698	8,624	8,329
Asia-Pacific*	3,667	4,071	4,197	3,445	4,644	4,898	5,175	5,360
E Europe	1,779	1,863	2,123	2,200	2,200	2,323	2,391	2,521
Other	93	96	100	110	112	113	120	120
Trucks								
World	**15,250**	**16,005**	**15,767**	**15,523**	**16,634**	**17,983**	**18,413**	**18,576**
W Europe	1,750	1,827	1,750	2,118	1,927	2,075	2,079	2,020
NAFTA	6,903	7,245	7,683	7,800	9,283	9,897	9,787	9,498
S America	392	409	535	520	366	467	559	677
Japan	2,585	2,482	2,484	1,994	1,795	1,874	2,026	2,148
Asia-Pacific*	2,650	3,050	2,279	2,036	2,226	2,600	2,841	3,093
E Europe	235	215	245	253	212	225	242	261
Other	736	777	791	802	825	845	880	880

* Asia-Pacific excludes Japan and includes Oceania Source: EIU (actual), IMF (forecast)
** net of estimated double counting NOTE: Actual data may include some estimates.

Table 6.3 Car Sales by Country (thousands)

	Actual Data					Forecast		
Countries	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
W Europe								
Germany	3,314.1	3,496.3	3,528.2	3,740.3	3,787.8	3,333.2	3,287.6	3,452.0
Italy	1,731.4	1,732.2	2,411.9	2,364.2	2,349.2	2,208.2	2,119.9	2,225.9
UK	1,945.4	2,025.5	2,170.7	2,247.4	2,197.6	2,219.6	2,130.8	2,173.4
France	1,930.5	2,132.1	1,713.0	1,943.6	2,148.4	2,792.9	2,737.1	2,652.4
Spain	834.4	910.9	1,014.1	1,191.0	1,408.1	1,500.0	1,500.0	1,425.0
Netherlands	446.4	473.5	478.3	543.1	611.8	581.2	540.5	568.7
Belgium	358.9	397.4	396.2	452.1	489.6	489.6	448.0	458.4
Switzerland	268.0	272.2	270.6	300.4	317.9	302.0	286.7	291.8
Austria	279.6	307.7	275.0	295.6	315.1	302.5	282.3	272.3
Sweden	169.8	180.2	225.3	253.4	295.2	295.2	289.2	292.1
Portugal	201.5	217.9	213.4	248.4	273.2	256.8	247.0	256.8
Greece	125.4	139.6	162.3	179.0	261.7	301.0	270.9	270.9
Ireland	86.9	115.1	136.7	145.7	174.2	226.5	226.5	219.7
Denmark	135.7	142.3	152.6	158.1	142.3	113.9	109.7	118.1
Finland	79.9	95.8	104.5	125.8	136.3	136.3	126.6	112.0
Norway	90.5	125.0	127.7	118.0	101.1	101.1	99.1	101.1
Luxembourg	23.2	26.7	27.8	32.1	40.4	40.4	35.2	36.9
NAFTA								
USA	8,653.4	8,528.1	8,289.5	8,186.1	8,750.0	9,187.5	8,728.1	8,553.5
Canada	672.8	660.8	739.9	745.5	810.7	891.7	936.3	955.8
Mexico	114.7	200.1	303.5	430.2	463.6	579.4	649.0	688.7
Japan	**4,443.9**	**4,668.7**	**4,492.0**	**4,093.1**	**4,154.1**	**4,278.7**	**4,480.1**	**4,610.9**
Asia-Pacific*								
S Korea	1,149.4	1,238.9	1,151.3	568.1	910.7	1,065.5	1,232.7	1,326.7
India	360.9	431.1	470.8	482.5	665.8	720.0	780.0	820.0
China	460.9	440.8	506.2	526.0	570.4	616.0	659.2	698.7
Australia	488.4	492.1	540.4	584.4	407.5	510.0	565.0	570.0
Taiwan	413.3	359.5	355.4	360.1	323.5	345.0	380.0	390.0
Malaysia	225.0	275.7	307.9	137.7	245.0	280.0	310.0	330.0
Thailand	160.8	174.4	132.1	46.4	66.6	115.0	155.0	185.0
N Zealand	65.7	64.4	58.5	54.2	58.2	57.0	58.5	59.0
Philippines	71.2	89.0	73.4	33.2	27.6	35.0	50.0	70.0
Indonesia	37.9	43.9	73.2	13.3	11.0	20.0	30.0	45.0
S America								
Brazil	1,144.4	1,405.2	1,544.6	1,195.9	1,001.1	1,141.2	1,336.7	1,581.0
Argentina	279.8	299.2	321.4	322.0	274.0	306.9	338.7	381.0
Venezuela	46.5	36.8	109.0	108.4	60.4	63.4	69.7	82.8
E Europe								
Russia	790.0	810.0	835.1	845.0	870.0	913.5	959.2	1,052.2
Poland	265.0	374.6	478.0	520.5	640.2	617.8	624.0	655.2
Czech Rep	113.9	158.5	173.2	141.2	146.2	140.3	137.5	151.3
Hungary	69.1	74.3	79.8	104.1	129.9	149.3	156.8	161.5
Slovak Rep	24.8	74.9	62.3	68.9	62.1	60.9	63.9	69.0
Slovenia	61.3	60.1	60.8	67.3	60.0	71.4	75.0	78.0
Other								
S Africa	236.6	249.9	239.8	203.8	189.4	210.0	225.0	235.0

* Asia-Pacific excludes Japan and includes Oceania Source: EIU (actual), IMF (forecast)
NOTE: Countries listed in order of 1999 data. Actual data may include some estimates.

Table 6.4 Car Production by Country (thousands)

	Actual Data					Forecast		
Countries	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
W Europe								
Germany	4,360.2	4,539.6	4,678.0	5,348.1	5,309.2	5,100.0	4,960.0	5,100.0
France	1,890.0	2,087.5	2,258.8	2,603.0	2,675.9	2,890.0	2,947.8	2,888.8
Spain	1,958.8	1,941.7	2,010.3	2,216.4	2,208.7	2,341.2	2,438.7	2,487.5
UK	1,532.1	1,686.1	1,698.0	1,748.3	1,786.6	1,822.4	1,785.9	1,750.2
Italy	1,422.4	1,318.0	1,562.9	1,378.1	1,410.3	1,400.0	1,370.0	1,350.0
Belgium	1,168.4	1,144.1	1,005.0	951.2	917.5	1,009.3	1,090.0	1,144.5
Sweden	387.7	367.8	375.7	368.3	385.0	370.0	410.0	420.0
Netherlands	100.4	145.2	197.2	243.0	265.0	255.0	220.0	250.0
Portugal	73.2	152.6	186.0	181.4	na	na	na	na
Austria	59.2	97.4	97.8	91.3	na	na	na	na
Finland	21.4	28.6	33.7	31.1	na	na	na	na
NAFTA								
USA	6,356.9	6,083.2	5,922.2	5,555.8	5,632.1	5,744.8	5,629.9	5,685.6
Canada	1,350.9	1,284.9	1,376.9	1,488.6	1,629.4	1,629.4	1,629.4	1,681.9
Mexico	699.3	797.7	854.8	952.9	993.8	1,142.8	1,244.8	1,252.9
Japan	**7,612.4**	**7,863.8**	**8,492.1**	**8,055.7**	**8,100.2**	**8,586.2**	**8,513.3**	**8,221.9**
Asia-Pacific*								
S Korea	2,003.1	2,264.7	2,308.5	1,625.1	2,361.7	2,409.0	2,460.2	2,521.7
India	388.5	472.5	486.1	498.6	634.8	750.0	790.0	840.0
China	320.6	381.5	481.7	507.0	565.4	633.2	696.5	752.3
Malaysia	247.2	293.9	320.0	136.0	249.0	303.0	326.0	340.0
Australia	312.1	327.9	312.0	356.7	321.0	312.0	356.7	321.0
Taiwan	282.0	265.0	269.6	293.1	280.0	285.0	270.0	260.0
Thailand	135.0	146.6	116.5	32.0	70.0	94.5	139.0	170.3
Philippines	77.5	94.3	71.8	43.6	21.6	30.2	44.7	56.1
Indonesia	31.6	32.3	27.4	9.5	10.0	18.0	25.0	30.0
S America								
Brazil	1,302.8	1,458.6	1,679.6	1,254.0	1,102.4	1,322.9	1,465.8	1,750.5
Argentina	226.7	269.4	366.5	353.1	224.8	303.5	327.8	364.2
Venezuela	44.1	34.8	83.3	73.3	42.7	47.0	52.4	60.5
E Europe								
Russia	834.9	867.3	984.0	836.5	904.2	931.4	959.3	1,007.3
Poland	364.1	442.3	519.8	555.0	640.0	627.2	639.7	658.9
Czech Rep	193.3	240.0	321.5	373.3	330.0	330.0	336.6	373.6
Slovak Rep	19.7	30.1	40.9	144.7	160.0	160.0	171.2	188.3
Hungary	51.0	63.0	76.7	88.0	112.7	129.6	136.1	140.2
Slovenia	87.5	89.2	96.0	126.4	105.0	115.5	117.8	120.2
Other								
Turkey	233.4	207.8	242.8	239.9	222.0	295.3	324.8	341.1

* Asia-Pacific excludes Japan and includes Oceania Source: EIU (actual), IMF (forecast)
NOTE: Countries listed in order of 1999 data. Actual data may include some estimates.

Table 6.5 Truck Sales by Country (thousands)

	Actual Data					Forecast		
Countries	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
W Europe								
France	357.8	378.0	355.2	398.6	429.1	450.5	459.5	453.6
Spain	185.4	202.7	242.4	280.1	344.7	355.1	355.1	340.9
Germany	260.5	249.2	263.9	295.9	324.9	324.9	318.4	305.7
UK	249.9	256.9	274.2	294.2	288.1	296.7	296.7	290.8
Italy	147.7	152.9	157.6	180.0	196.3	212.0	217.3	212.0
Portugal	70.2	88.6	108.7	124.3	134.8	148.3	154.2	151.1
Netherlands	66.2	84.1	96.4	114.8	116.7	117.9	114.3	106.3
Belgium	45.8	48.2	57.1	63.1	72.7	69.8	66.3	66.3
Ireland	16.3	19.3	23.2	31.4	38.6	42.5	44.2	42.6
Denmark	30.7	32.1	35.3	34.4	37.2	38.3	37.9	35.6
Austria	29.2	29.9	30.9	34.6	35.6	36.6	36.6	35.9
Sweden	14.8	21.0	25.7	30.6	35.3	36.7	37.1	35.6
Norway	38.0	36.8	34.2	33.6	33.0	35.3	36.4	34.9
Switzerland	20.1	20.5	21.6	21.6	25.6	27.6	28.2	27.5
Greece	5.6	10.6	16.7	18.1	23.9	24.5	24.0	22.0
Finland	10.6	13.1	16.5	19.5	19.9	18.0	16.0	15.0
Luxembourg	7.8	2.2	2.4	2.8	3.6	3.7	3.7	3.5
NAFTA								
USA	6,518.7	6,970.0	7,247.2	7,841.0	8,729.6	9,166.1	9,257.7	9,165.2
Canada	465.2	518.9	654.3	644.4	690.4	704.2	704.2	690.2
Mexico	71.9	133.8	182.2	213.1	216.1	259.3	285.2	299.5
Japan	**2,421.1**	**2,409.0**	**2,233.0**	**1,781.1**	**1,707.1**	**1,775.4**	**1,916.6**	**2,037.7**
Asia-Pacific*								
China	1,131.4	1,072.1	1,109.7	1,115.3	1,277.1	1,430.3	1,573.3	1,652.0
S Korea	406.5	405.2	361.6	211.8	362.3	414.1	434.0	455.1
Australia	152.9	158.0	182.1	223.3	244.2	234.8	244.0	241.5
India	223.5	267.2	230.8	122.3	156.8	203.0	213.2	214.6
Thailand	408.9	414.0	231.1	97.7	151.7	181.8	231.5	278.7
Indonesia	346.5	293.5	319.0	55.5	114.5	141.4	192.9	278.7
Taiwan	129.1	102.3	117.3	113.9	108.0	111.1	115.7	116.1
Malaysia	60.8	89.1	96.9	25.5	51.0	65.7	79.1	85.5
Philippines	53.4	74.0	64.7	43.6	45.8	58.6	72.3	83.6
N Zealand	14.9	14.7	12.9	11.8	14.0	13.1	14.5	13.9
S America								
Brazil	326.5	325.3	334.4	300.0	226.2	278.2	329.7	391.6
Argentina	48.2	76.9	104.9	133.4	106.1	84.9	92.3	103.3
Venezuela	42.3	30.2	68.8	67.4	37.4	43.0	49.9	53.4
E Europe								
Russia	149.0	136.6	192.0	189.6	164.0	169.6	183.2	197.8
Poland	31.9	50.8	55.3	51.4	65.0	70.0	76.7	89.0
Czech Rep	26.3	57.3	37.2	56.0	na	na	na	na
Hungary	13.2	13.5	18.7	27.7	27.0	28.6	32.1	35.9
Slovak Rep	4.5	5.9	7.3	8.0	na	na	na	na
Slovenia	4.3	4.2	4.5	5.0	5.0	6.0	na	na
Other								
S Africa	139.6	143.1	127.1	110.6	106.4	107.7	120.5	130.0

* Asia-Pacific excludes Japan and includes Oceania Source: EIU (actual), IMF (forecast)
NOTE: Countries listed in order of 1999 data. Actual data may include some estimates.

Table 6.6 Truck Production by Country (thousands)

	Actual Data					Forecast		
Countries	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
W Europe								
Spain	375.0	470.6	551.8	609.7	470.6	499.2	499.2	479.3
Germany	307.1	303.3	344.9	378.7	378.3	389.7	381.9	366.6
France	288.0	303.1	312.4	341.5	359.8	389.2	396.9	391.8
Italy	244.9	227.4	253.6	290.4	290.8	323.5	331.6	323.5
UK	233.0	238.3	237.7	227.4	185.9	197.2	197.2	193.3
Sweden	102.5	95.4	126.8	114.5	108.6	116.4	117.5	112.8
Belgium	104.2	89.9	96.3	114.0	98.9	97.8	92.9	92.9
Portugal	85.7	80.5	81.2	89.6	na	na	na	na
Netherlands	17.2	17.9	20.4	20.0	19.0	19.8	19.2	17.8
Austria	9.2	8.7	10.2	11.9	na	na	na	na
Finland	0.6	0.4	0.4	0.5	na	na	na	na
NAFTA								
USA	5,634.7	5,749.4	6,192.2	6,379.7	7,423.4	7,720.4	7,566.0	7,263.3
Canada	1,052.2	1,109.0	1,192.0	1,044.2	1,377.1	1,446.0	1,388.1	1,332.6
Mexico	235.6	421.6	468.4	464.9	482.6	603.3	707.3	780.1
Japan	2,585.0	2,482.0	2,483.6	1,994.0	1,795.3	1,850.0	2,000.0	2,120.0
Asia-Pacific*								
China	1,114.2	1,074.7	1,076.3	1,120.7	1,265.0	1,391.5	1,502.8	1,592.9
S Korea	523.3	548.0	509.8	326.4	481.4	520.0	560.0	590.0
Thailand	398.2	359.8	250.1	126.1	184.0	272.5	321.0	423.0
India	240.7	289.6	260.0	129.2	168.5	200.0	220.0	230.0
Taiwan	124.5	101.2	113.0	117.0	108.0	108.0	100.0	85.0
Malaysia	57.1	76.9	89.0	17.5	45.3	60.8	73.2	83.0
Philippines	29.5	45.7	50.3	35.2	37.9	40.6	41.3	42.5
Indonesia	347.7	290.2	334.0	40.0	30.0	60.0	80.0	110.0
Australia	17.0	15.0	16.0	18.0	16.0	16.0	18.0	19.0
S America								
Brazil	331.5	345.8	387.8	331.6	241.2	289.4	350.4	438.7
Argentina	58.8	43.7	79.8	104.9	80.1	116.1	137.2	158.4
Venezuela	52.3	36.4	69.6	62.4	35.9	41.3	47.7	51.4
E Europe								
Russia	188.8	173.8	192.0	189.6	164.0	169.6	179.8	190.6
Poland	30.6	43.9	64.1	60.5	65.0	58.3	61.8	67.3
Czech Rep	24.4	33.8	48.7	38.5	32.5	33.4	38.9	45.5
Slovenia	na	0.9	na	na	na	na	na	na
Hungary	2.0	1.7	1.8	2.3	1.4	2.1	2.2	2.4
Slovak Rep	2.9	2.0	1.5	0.8	na	na	na	na
Other								
Turkey	49.0	69.0	101.6	165.1	102.9	90.0	88.0	90.0

* Asia-Pacific excludes Japan and includes Oceania Source: EIU (actual), IMF (forecast)
NOTE: Countries listed in order of 1999 data. Actual data may include some estimates.