

# THE INTERNATIONAL CAR INDUSTRY AND ENVIRONMENTAL SUSTAINABILITY: MOVING BEYOND ‘GREEN-WASHING’?

John Mikler

University of Sydney

## Introduction

This paper examines two questions. The first question is: are we witnessing the beginning of a shift that sees environmental issues as central to the business interests of the car industry worldwide? If such a shift is occurring, this begs the second question: why should the car industry now be concerned about the environment, particularly given its international economic significance and resulting political power? Although the multinational corporation (MNC) dominated car industry is chosen as the focus for analysis, the paper places observations about this industry in the broader context of the role of MNCs generally in the business/environment debate. In this context, the nexus between the economic and political aspects of international production *vis à vis* the environment is considered in terms of exogenous and endogenous factors that shape the behaviour of firms. Underpinning this approach is the manner in which globalisation and the internationalisation of business through the activities of MNCs means that “politics is in effect ‘stretched’ and societies are entwined” (Held et al 1999: 378), or as Dicken notes:

Nation states, whilst essentially political institutions, have become increasingly involved in economic matters, arguably as increasingly competitive economic actors. Transnational corporations, though fundamentally economic in function, have become increasingly political in their actions and impact (Dicken 1998: 467).

The reason for focussing on the car industry is that it is “the economic sector most emblematic of modern times and of the polluting consequences of modernity” (Orssatto and Clegg 1999: 264). It is a fundamentally global industry dominated by MNCs that is also a major contributor to environmental damage worldwide, and so its economic and environmental significance mark it as a crucial case for study. However, there is evidence the industry is taking steps to embed environmental sustainability principles in its business practices. If this is the case, it represents a

shift that has occurred in the last decade leading the international car industry to *proactively* address questions of environmental sustainability. Exogenous factors such as the role of regulation by international organisations, nation states and changing consumer preferences may have played a role in varying degrees. But it is argued that the industry is not just reacting to these factors, it is also endogenising them by changing its behaviour to anticipate them. It is further argued that endogenous factors to do with the culture within firms and the industry as a whole have also played a part in the shift. The conclusion, based on the evidence presented in this paper, is that the shift occurring within the car industry is a normative one, rather than purely a response to exogenous factors.

### **Theoretical Perspectives**

Environmental problems are usually characterised as cases of *market failure* due to *environmental externalities*. Environmental externalities cause market failure because the environment is often ignored by markets so the price of goods and services does not reflect environmental aspects related to their production. This is because actors lack property rights over the environment, meaning that they can ignore the negative environmental effects of their actions. The cost of negative environmental externalities is often borne by others who were not responsible for them. This is highly likely because the environment is often a *public good* in the sense that it may be jointly consumed by several agents at the same time. When the public good attribute of the environment is a global or transborder phenomenon, as is often the case, then the environment is said to be in the realm of the *global commons* (for example, see Boadway and Wildasin 1984: 57–62; Howe 1979: 241–252; Bùrgermeier 1997; Ostrom 1990; Hardin 1968).

How to ameliorate the problem of internationally pervasive environmental externalities is approached in two ways. Traditional liberal economic approaches are challenged by more critical perspectives and both are considered in this section, along with the major divide between them: rational choice as the basis for action.

#### ***The traditional approach***

I believe it is reasonable to assert that the liberal economic perspective is the traditional one that informs analysis in the business/government/environment debate. ‘Liberal’ is a somewhat rubber term to the extent that it has been given different definitions by different commentators, but it is used here to refer to approaches in economics, political science and international relations that apply the ideas of individual autonomy, freedom and rationality to firms, the state,

interstate relations and global economic relations generally (for example, see Wallerstein 1995; Burchill 1996). Broadly speaking, it refers to those theories in which, as Goldstein and Keohane approve, “people behave in self-interested and broadly rational ways” (Goldstein and Keohane 1993: 5). Firms are viewed as actors that maximise profits and states as “rational egoists” that maximise their individual prosperity on the international stage (Hasenclever et al 1997: 26; Mearsheimer 1990: 42). What this means is that without the intervention of regulators environmental externalities will never be internalised as firms responsible for them can rationally ignore the cost of them. Therefore, states’ intervention is required to increase the price of environmental resources so that “trade can take place on the basis of prices reflecting true social costs” (Ropke 1994: 17).<sup>1</sup> International organisations are needed to coordinate states’ intervention because without some cooperative mechanism states face a collective action problem where each has the incentive to opt out of regulating firms within their jurisdiction and appropriate the benefits for themselves from so doing (Elster 1989: 124–134).

### ***The rational choice mechanism in the traditional approach***

The key assumption in the liberal economic approach is the rationality of actors, whether they be firms or states, and the self-interested manner in which they make rational choices to further their ends (for example, see Green and Shapiro 1994; Ordeshook 1993), and rational choice defined in terms of profit and power maximising has indeed proved to be a parsimonious and useful way of explaining their behaviour. However, there are four inherent limiting assumptions that are relevant to the analysis here.

First, rational choice models are *ahistorical*. Rationality is assumed to apply at all times, and therefore questions such as path dependency, timing and sequencing of events are not considered as important determinants of outcomes. Secondly, rational choice aims for *generalisability*. ‘Rules of the game’ are examined and equilibrium solutions posited that result from these. It follows that in addition to such solutions applying at all times (ie. ahistorically), they apply in all cases. Thirdly, rational choice *exogenises interests, identities and preferences* of actors. The limited understanding of actors’ motivations that results means that their behaviour is constrained to certain utility (in terms of profit or power) maximising assumptions. Fourthly, rational choice models *focus on methods* with the research agenda set by the model. By incorporating ahistoricity,

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<sup>1</sup> This is also the view held by the World Trade Organisation and United Nations Environment Programme (United Nations Environment Programme and International Institute for Sustainable Development 2000; Nordstrom and Vaughan 1999).

generalisability and exogeneity of actors' interests, identities and preferences, parsimony is certainly more likely and one can also say that any resulting model will be widely applicable in theory (or more accurately *by definition*). However, the end result is that most of what remains to argue about is methods.

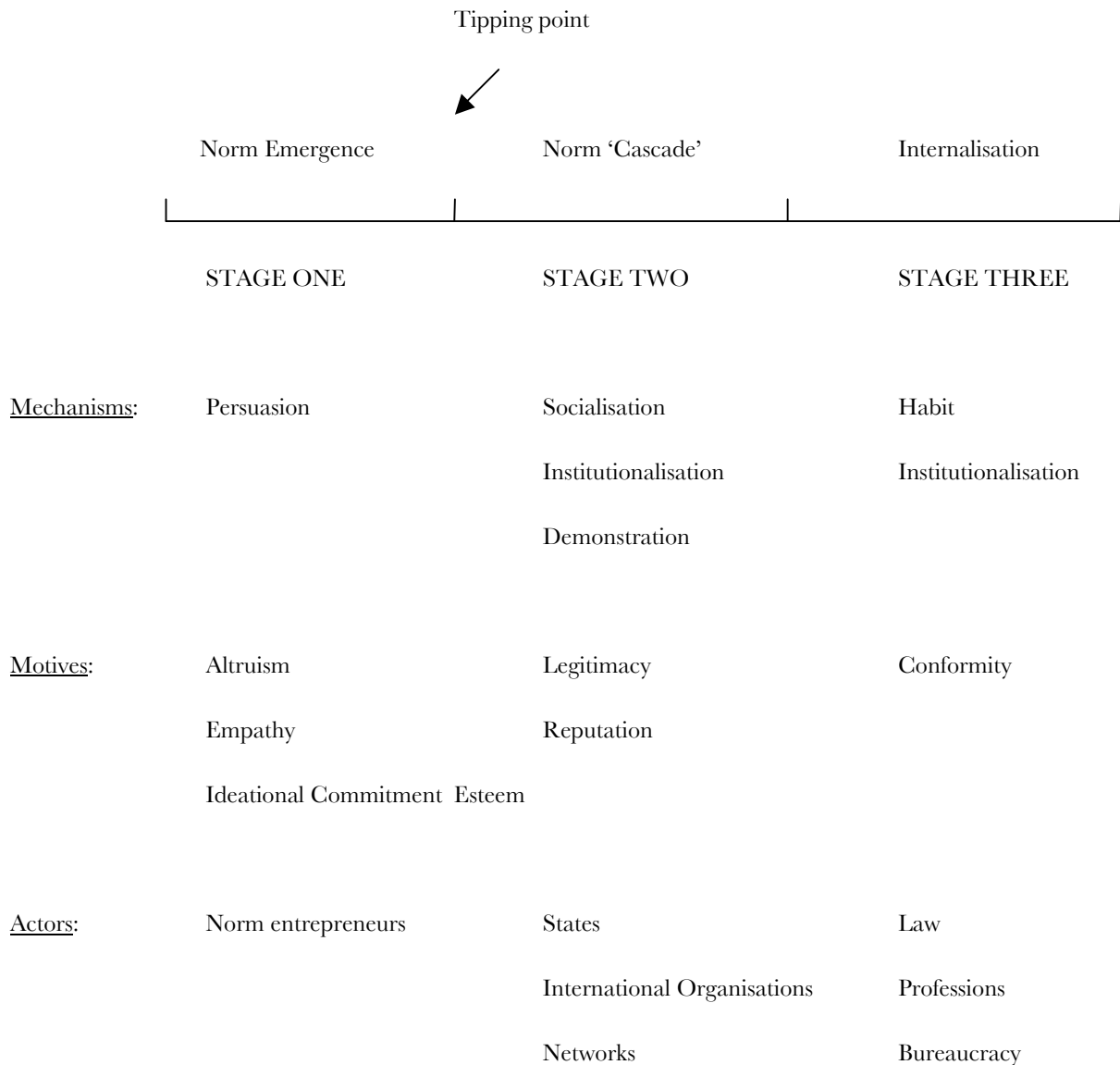
The first three assumptions mean that approaches employing rational choice mechanisms are static and this limits their ability to explain behavioural change, which is exactly the point of this chapter. The fourth limits the questions that can be asked to address this drawback of the first three assumptions. This leaves us seeking a different approach.

### ***Critical approaches***

The rational choice mechanism in traditional approaches is challenged by more critical approaches that see the role of ideas, beliefs and the resulting norms of behaviour as providing richer explanations of how decisions are made and institutions constructed. This does not mean that the fundamental problem of internationally pervasive environmental externalities is irrelevant. Quite the contrary. What it does mean is that approaching solutions to the problem becomes more complex, although often more likely of success. By incorporating the examination of norms and the manner in which they are diffused within communities and organisations responsible for environmental degradation, alternative and often more successful approaches for internalising environmental externalities may be suggested. This is the position taken by Ostrom, and in order to do this she says one must admit the possibility that “humans are...fallible, boundedly rational, and norm-using. In complex settings, no one is able to do a complete analysis before actions are taken, but individuals learn from mistakes and are able to craft tools—including rules—to improve the structure of the repetitive situations they face” (Ostrom 1999: 496).

In practice, this view suggests that at a certain point in time self-regulation may be effective for normative reasons, as opposed to the traditional liberal economic view that it cannot for rationalist reasons. This builds on work by commentators such as Florini, Ostrom and Cutler et al, but perhaps the neatest outline of the normative approach is provided by Finnemore and Sikkink, who conceptualise the *norm lifecycle* outlined in Figure 1 (Finnemore and Sikkink 1998; Florini 2003a; Florini 2003b; Ostrom 1999; Cutler et al 1999).

**Figure 1: Norm Lifecycle**



Source: Finnemore and Sikkink 1998: 896–898.

In stage one, ‘norm entrepreneurs’, such as non-government organisations (NGOs) and often radical activists, advocate for a new approach to be taken that embraces a new norm. By raising the profile of the new norm, a ‘tipping point’ is reached after which the norm is taken up in stage two by states, international organisations and other institutions who intervene to promote the norm and construct rules flowing from its implementation. This leads to the new norm ‘cascading’ through other states and institutions. Finally, in the third stage norms are so habitualised that they become part of how actors in professions, the bureaucracy and the public at large behave, almost without them knowing that they are there (eg. few people today would

recognise women having the vote as an issue worth discussing) (Finnemore and Sikkink 1998: 899). This model may be applied to the car industry with the norm of environmental sustainability being the focus, and the suggestion that for some aspects of environmental protection the car industry demonstrates behaviour suggesting it is on the cusp between stages two and three.

### **The international car industry's shift in behaviour**

MNCs are perhaps the most important actors shaping the contemporary global economy. The international car industry is the archetypal example of an industry sector dominated by MNCs and is truly global in its structure and operations. It manufactures and distributes its products on an integrated global scale and today is often taken as the paradigm case of a globalised industry (Paterson 2000: 264). Most of the largest car manufacturers have over 40 percent of their production outside their 'home country' (Paterson 2000: 261), and in addition to the finished product of car firms being produced and traded internationally the international dimension of the product is embedded in its production. This is because various parts and components are produced in different countries, so that the final product itself is international in character (Braithwaite and Drahos 2000: 440-441; Dicken 1998: 338-348). Furthermore, collaborative agreements between firms of different 'nationalities', and sometimes cross-ownership, mean that a 'global connectedness' exists in research and development, the dissemination of new production techniques and other advances.<sup>2</sup>

The car industry dominates international manufacturing. Vehicle production is the largest manufacturing sector in the world, and Table 1 shows that five of the top ten largest businesses in the world by sales are car manufacturers, with another 3 in the top 45. Together they account for sales totalling US\$956 billion.

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<sup>2</sup> All three major US producers (Ford, General Motors and DaimlerChrysler) have collaborative or cross-ownership links with Japanese and Korean firms, and the major European firms have joint research programs (Dicken 1998: 335–339). For example, Ford has a 33.4 percent share in Mazda; Renault has a 36.8 percent share in Nissan; DaimlerChrysler has a 34 percent share in Mitsubishi; and General Motors has a 49% share in Isuzu and a 10 percent share in Suzuki (Koshihara et al 2001: 8–9).

**Table 1: Car Manufacturers in the 45 Largest Businesses<sup>a</sup> in the World by Sales (2000)**

<b>Company (rank)</b>	<b>Home Country</b>	<b>US\$ billion<sup>b</sup></b>
General Motors (3)	US	184.7
Ford (4)	US	180.6
DaimlerChrysler (5)	US	150.1
Mitsubishi (9) <sup>c</sup>	Japan	126.6
Toyota Motor (10)	Japan	121.4
Volkswagen (21)	Germany	78.9
Honda Motor (40)	Japan	58.5
Nissan Motor (43)	Japan	55.1

<sup>a</sup> Industrial and service corporations.

<sup>b</sup> Figures refer to the year ended 31 December 2000, except for Japanese companies where they refer to the year ended 31 March 2001.

Source: *The Economist* 2002: 62.

In OECD countries, four to eight percent of GDP and two to four percent of the labour force is accounted for by the automotive sector (UNEP and ACEA 2002), but this masks the specificities to some extent because four fifths of world automobile output is produced in the ‘triad’ of the US, EU and Japan (Dicken 1998: 319). So, for example, in 1998 five of the seven biggest US industrial firms alone produced either cars or their fuel (Hawken et al 1999: 23).

Recognising the car industry as a major manufacturing sector, with internationally integrated investment, production and sales, suggests that it is a leading example of an industry that possesses the *material capabilities* to either reduce or increase global environmental damage. Given this recognition, two contrasting viewpoints emerge. The dominant viewpoint is that the industry’s products are a major cause of global environmental damage. On the other hand, there are positive examples of the industry’s recent efforts to strike a balance between the imperatives of profitability and environmental sustainability.

***The car industry as an international force for environmental damage***

There is ample evidence of the environmental damage caused by cars. Here is a brief summary. Transportation accounts for 25 percent of total CO<sub>2</sub> emissions, with up to 85 percent of this accounted for by road transport (UNEP 2003). This is *exclusive* of related activities linked with transportation such as fuel extraction, processing and transport, manufacturing and exhaust emissions other than CO<sub>2</sub> (eg. cars contribute 90 percent of all carbon monoxide emissions). Cars are also a major cause of acid rain. Road transport accounts for 48 percent of NO<sub>x</sub> emissions in OECD countries on average, and around 60 percent of this is accounted for by cars (Paterson 2000: 258–259). In fact, of all land-based modes of transport, cars are the most energy intensive with petrol-powered cars consuming in aggregate more energy and producing more greenhouse gas emissions than any other type of vehicle (International Energy Agency 1993: 14). In addition, cars are a prime cause of the depletion of the world's resources (Freund and Martin 1993: 17–19),<sup>3</sup> and the international car industry produces seven billion pounds of scrap and waste every year (Hawken et al 1999: 23). Based on current growth rates, the number of vehicles worldwide is projected to increase from around 700 million at present to 1.1 billion by 2020, so if anything, the problems caused by cars will get worse not better, unless dramatic changes are made (Burns et al 2002).

Given their economically powerful position, car MNCs have historically put strong political pressure on governments against environmental regulation. They have supported national lobby groups such as the Coalition for Vehicle Choice in the US, and international lobby groups such as the Global Climate Coalition and the Climate Council. These have consistently lobbied governments against emission controls to reduce greenhouse gases on the basis that this would lead to severe economic impacts (Porter and van der Linde 1995: 107; Newell and Paterson 1998: 683; Bradsher 2002: 66). And despite the vast scope for improvements in efficiency and thence environmental sustainability within the industry, the big three American firms of Ford, General Motors and DaimlerChrysler make most of their profits from the sale of pick-up trucks and sports utility vehicles (SUVs) which are notorious for their size, weight and high fuel consumption. In the US they account for almost half the total passenger vehicle market, with light trucks alone accounting for 75 per cent of DaimlerChrysler's American output. Far from

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<sup>3</sup> They point out that cars consume 35 percent of the oil used in Japan and 63 percent of the oil used in the US simply in their application (ie. exclusive of related activities such as road building which also uses oil). In the US, car production consumes 13 percent of all steel, 16 percent of the aluminium, 69 percent of the lead, 36 percent of the platinum and 58 percent of the rubber.

seeking to differentiate themselves from the production and sale of these vehicles, European and Japanese manufacturers are producing similar gas-guzzlers to compete for market share in this sector (Storm Clouds over Detroit 2002; Ford's Troubles 2003; Bradsher 2002).

***The car industry as an international force for environmental sustainability?***

The possibility of the car industry proactively internalising environmental externalities is attractive. Unlikely as it may sound, this possibility is concomitant with Ostrom's theorising that the best way to achieve environmental sustainability is via self-directed regulation by those responsible for environmental damage (Ostrom 1999). Is such thinking just 'pie in the sky'? Given the reasons why the car industry is an international force for environmental damage, putting the reader in the mood for the possibility of this contrary view is best done with the example of Toyota. In the early 1990s, the management of Toyota decided that the company should address environmental sustainability as a key challenge. In 1994 the company started designing a vehicle to be twice as fuel efficient as existing vehicles and the result is the Prius sedan. Launched worldwide in 1997, and now in its second generation model, it achieves twice the fuel economy of similar sized vehicles, releases one tenth the carbon monoxide, hydrocarbon and NO<sub>x</sub> emissions and only half the CO<sub>2</sub> emissions. It does so by using a hybrid petrol/electric engine. Up to March 2003 120,000 units were sold worldwide and based on this success Toyota has decided that the development of more hybrid engines will be a priority, including plans for an SUV that will deliver fuel consumption of under 5 litres/100km (Holliday et al 2002: 213–214; \$2.50 a gallon gas? 2003: 1).<sup>4</sup> The company has now also developed and brought to market a completely alternatively powered vehicle using a hydrogen fuel-cell engine that develops 90kw of power and emits only water vapour (UNEP and ACEA 2002: 30; National Roads and Motorists Association 2003: 47).

A shift to greener strategies is not something that one would expect the car industry to embrace flippantly or even willingly given that the development and production of any new car model is a complex and expensive process, often with a development period of five years and costs of up to US\$5 billion (Dicken 1998: 326), with an average model lifecycle incorporating up to 5 'facelifts' over 15 years (Orssatto and Clegg 1999: 274). As a result, historically the process of product innovation in the car industry has generally been incremental (Dicken 1998: 327). However,

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<sup>4</sup> The fuel consumption figure shown here is a conversion from the 50 miles per gallon claimed in the latter article.

Toyota's Prius represents radical innovation and the company's efforts can be found mirrored in the efforts of other car MNCs. For example:

- > In 1997, Daimler-Benz committed US\$350 million to a program with Canadian firm Ballard Fuels to create hydrogen fuel-cell engines, with forecast annual production of 100,000 vehicles per annum powered by these engines by 2005. Ford later joined the venture and added US\$420 million to the deal (Hawken et al, 1999: 26; Suzuki and Dressel 2002: 291).
- > The Volkswagen Lupo achieves fuel consumption of only 3 litres/100km, and the company has plans to develop models that achieve 2 and 1 litre/100km (Hawken et al, 1999: 26).<sup>5</sup>
- > PSA Peugeot Citroen has improved its diesel engines to the point where they deliver 40 percent better fuel economy than a similar petrol engine and emissions are so low that a diesel Peugeot 607 produces particulate emissions that register at the lowest measurable level of 0.004g/km, over 12 times lower than the limit required by European legislation (UNEP and ACEA 2002: 31).

Apart from the examples of technical developments given above, initiatives by car MNCs may also be identified in six other categories considered in turn below.

First, initiatives in *policy and reporting* now see most car MNCs voluntarily publishing annual environmental reports to facilitate corporate transparency. Some follow the Global Reporting Initiative guidelines for sustainability reports laid down by the United Nations Environment Programme (UNEP) and the Coalition of Environmentally Responsible Economies (CERES) which aim to harmonise environmental and social reporting by firms internationally (UNEP and ACEA 2002: 31; Volkswagen AG 2001; Toyota Motor Corporation 2002; General Motors 2002; PSA Peugeot Citroen 2001).

Secondly, many car firms have introduced *environmental management systems* to minimise the environmental impact of production processes, including those required by the European Union Eco-Management and Audit Scheme (EMAS) and the International Standards Organisation's

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<sup>5</sup> The fuel consumption stated is a conversion from the source material's claim of 78 miles per gallon, 118 miles per gallon and 235 miles per gallon for these cars respectively.

ISO14000 suite of environmental standards. These aim to internalise environmental concerns as a fundamental part of sustainable production. BMW, Porsche, Toyota, General Motors, Fiat and Ford have progressively introduced these systems and improved on them over the last decade (UNEP and ACEA 2002: 27–29; Orecchini and Sabatini 2003: 31).

Thirdly, a sign that an industry truly embraces an attitude of environmental sustainability is confirmed by the *collaborative agreements* with others into which it enters, as opposed to mere verbal commitments. General Motors requires its product suppliers to have ISO14000 compliant environmental management systems in place, and has Supplier Environmental Advisory Teams that collaborate with its suppliers to find solutions to reduce waste, energy and resource usage and improve eco-efficiency overall. There are also numerous partnerships between car firms and environmental NGOs aimed at improving global or regional corporate citizenship, such as Ford's partnership with Conservation International to protect biodiversity internationally and committing US\$5 million to its work in Mexico and Brazil (UNEP and ACEA 2002: 23 and 28; Ford Motor Company 2003a).

Fourthly, through *public relations* the car industry is engaging with the broader public. Apart from official reporting on environmental performance, an examination of firms' websites shows that they all have sections on the importance of the environment (see for example Ford Motor Company 2003b; Toyota Motor Corporation 2003). Although this could look like 'green-washing' on its own, when looked at in the context of actual concrete activities discussed here it could also look like a commitment by firms to changing consumer preferences in favour of the environment, or alternatively recognising those preferences and further promoting their importance. Either way, it demonstrates firms' desire to be associated with environmental protection.

Fifthly, *non-automotive environmental support* sees car firms involved in environmental initiatives not directly related to the production and sale of cars. For example, well in advance of ratification of the Kyoto Protocol, and in a climate where this in no way is a foregone conclusion, PSA Peugeot Citroen has invested in a reforestation project in Amazonia in order to reduce its overall emissions of CO<sub>2</sub>. The project aims to promote biodiversity by using seeds from over 30 native species and has a 100 year timeframe (UNEP and ACEA 2002: 34–35). In cooperation with the Wildlife Habitat Council, Ford is working with communities at its facilities in the US, UK, Canada, Brazil and Mexico through its 'Wildlife at Work' program to create wildlife sites and educational programs aimed at preserving endangered species (Ford Motor Company 2003a).

Finally, *sustainable mobility* as an overall goal is included in the business strategies of most car firms. As such, several programs above and beyond specific initiatives such as the development of hybrid engines are being put in place by car firms. For example, Ford has introduced an eco-driving campaign with training courses on driving styles that increase fuel economy and reduce emissions. The program is run jointly with the media and NGOs, and Ford is investigating introducing the program throughout Europe. In 2000, PSA Peugeot Citroen established a think tank, the 'Institut Pour la Ville en Movement', to conduct research on urban mobility in developed and developing countries (UNEP and ACEA 2002: 32).

It is probably true to say that up until the mid-1990s there is not much evidence of the car industry proactively addressing environmental concerns, with any gains the result of social activism or government regulations (Hawken et al 1999: 24). The evidence given above for environmental sustainability initiatives lends support to a time frame of the mid-1990s onwards, and there are three other reasons why this timeframe seems appropriate.

First, international organisations have significantly raised the profile of environmental concerns over this period. The UNEP views the 1992 Rio Earth Summit as a watershed in the discussion of environmental sustainability from which sustainable development initiatives have sprung, and the World Trade Organisation (WTO) established its Committee on Trade and Environment (CTE) in 1995. Indeed, for economically focussed international organisations such as the WTO "environment, gender and labour concerns are on the agenda in ways that would have been deemed illegitimate in the 1970s" (O'Brien et al 2000: 231). They realised that ignoring the views of often noisy and angry protestors, and the broader social movements they represent, undermined the agendas they were attempting to further. The result has been international agreements with business such as the Global Compact, announced in 1999, that brings companies together with UN agencies, labour and civil society to support nine principles in the areas of human rights, labour and the environment. Another such agreement is the Global Reporting Initiative, started in 1997 by CERES and now an official collaborating centre of the UNEP that works in cooperation with the UN's Global Compact (Global Reporting Initiative 2003; United Nations 2003).

Secondly, in terms of business attitudes to the environment and societal expectations generally, commentators such as Florini identify corporate social responsibility (CSR) as having come to the fore as an *ideological shift* that started in the 1990s (Florini 2003a). CSR includes environmental sustainability among a range of initiatives in labour standards, human rights, disclosure of

information, corporate governance, public safety, privacy protection and consumer protection. There is a growing body of research that shows environmental sustainability and other socially responsible behaviour on the part of MNCs, such as those in the car industry, to be *voluntary* initiatives. Such initiatives are further identified as being a *global* phenomenon (OECD 2001; Florini 2003; Holliday et al 2002). For example, the World Business Council for Sustainable Development was established at the same time as the Rio Earth Summit in 1992 and has been working ever since to be at the forefront of the business response to sustainable development. It is a coalition of 165 companies drawn from 30 countries and 20 industry sectors. It also links a network of 43 national and regional business councils and partner organisations in 39 countries. It includes all major car MNCs in its membership (World Business Council for Sustainable Development 2000 and 2002).<sup>6</sup>

Thirdly, outspoken critics of international capitalism vis a vis the environment suggest that we are actually witnessing a fundamental change in how firms do business worldwide as they incorporate environmental sustainability concerns in their operations. For example, in 1993 David Suzuki, normally one of the most strident critics of traditional capitalism, globalisation and the environmental degradation in which it results worldwide, declared:

Environmentally responsible corporations may seem like an oxymoron. But as pressure by ecologically aware consumers and activists increases, more and more businesses are cloaking themselves in green rhetoric. How genuine is it or can it be? (Suzuki 1993: 135)

His answer in 1993, was that it was not genuine, and that “the ground rules of profit make it hard to be a friend to the environment” so that “amid...the suicidal demand for steady growth, happy stories are few”. He singled out the international car industry for the enormous social and ecological costs it imposes on societies above all other industries (Suzuki 1993: 137–139). But by 2002 he notes a *philosophical shift* within corporate hierarchies manifested in attitudinal changes, such as General Motors supporting a 50 per cent tax on petrol for environmental reasons (Suzuki and Dressel 2002: 289-290)! He applauds the attitudinal change within Ford quoting its Chairman who said in his speech to a Greenpeace business conference on 5 October 2000:

We're at a crucial point in the world's history. Our oceans and forests are suffering; species are disappearing; the climate is changing...Enlightened corporations are beginning to...realise that they can no longer separate themselves from what is going on around them. That, ultimately, they can only be as

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<sup>6</sup> For an example of a car MNC reporting on its initiatives in CSR, including environmental sustainability, see General Motors 2002.

successful as the communities and the world that they exist in...I personally believe that sustainability is the most important issue facing the automotive industry in general in the 21<sup>st</sup> century (Suzuki and Dressel 2002: 290–291).

Within the space of one decade, Suzuki's attitude has changed from one of pessimism to a decidedly more optimistic view of the possibilities for change, with the car industry at the forefront of moves by big business towards environmental sustainability (see also Hawken et al 1999).

### **Observations on reasons for the shift**

If there truly is a normative attitudinal shift occurring within the international car industry, the question is why? Starting at the level of international organisations and focussing down to the level of firms, some proposed explanations for the shift in the car industry's behaviour are possible. These explanations derive from exogenous factors at the levels of international organisations, nation states and consumer preferences. Endogenous factors relevant to the industry and individual firms are then also considered.

### ***International organisations***

At the international level, the actions of two international organisations are especially relevant: the UNEP and the WTO. In terms of membership, they are the most multilateral international organisations that represent the two sides of the debate relevant here: the environment and international commerce.

In addition to the Global Compact and Global Reporting Initiative mentioned in the previous section, the UNEP has also pursued voluntary partnership initiatives with 22 key industry sectors. For the transport sector it has established the 'Mobility Forum', a voluntary partnership initiative between the car industry and the UNEP with the goal of providing "a platform for sharing environmental best practice experience, developing new strategies for sustainable mobility" (UNEP 2003). The UNEP approached the car industry in the context of the following overall belief:

We rely on industry not only for reducing the environmental impacts of the products and services it provides us with; we also increasingly depend upon industry for the innovative and entrepreneurial skills that are needed to help meet sustainability challenges (UNEP 2002: 11).

In other words, the UNEP sees that the best way to achieve environmental results internationally is via a participatory approach focussing on global industries that are the cause of environmental

degradation through their actions, and therefore in whose hands solutions are likely to be found, and encouraging them to voluntarily make the necessary behavioural changes.

It is possible that the WTO will emerge as a major environmental player. As mentioned in the previous section, the WTO's CTE was created in 1995 to deal with environmental issues faced with the challenge posed by international environmental movements in the mid-1990s. However, while the UNEP has sought to engage with industry directly in a spirit of voluntary cooperation, the WTO's modus operandi is somewhat less direct. A perusal of CTE annual reports since its inception shows it to largely be a forum for the discussion of trade-related aspects of environmental matters, with the main aim of harmonising trade measures with Multilateral Environmental Agreements (MEAs) overseen by other international organisations. It also seems fair to say that the CTE primarily demonstrates a concern of the WTO to consider including MEA secretariat representatives in discussions, as well as various non-state actors with stakes in the protection of the environment, and generally to facilitate the flow of information between trade and environmentally related policy-setting and enforcement bodies. The conclusion one reaches from reading these annual reports is that it remains unclear as to whether the WTO is in a position to facilitate, let alone lead, attempts to ameliorate the damage from international trade (WTO 1995; WTO 1996a; WTO 1996b; WTO 1997; WTO 1998; WTO 1999; WTO 2000; WTO 2001; WTO 2002). More importantly, politically the WTO may be ruled out as a key player in the move to encourage environmental sustainability in international business because "no important actor wants the WTO to take over environmental policy" (Braithwaite and Drahos 2000: 260). It is therefore unsurprising that the CTE has been criticised for its lack of progress on the environment by the World Wide Fund for Nature which has labelled it "politically sterile" (Russel 1998: 14).

Whatever the merits of the efforts of international organisations such as the UNEP and WTO, the basic question posed by Hurrell and Kingsbury (quoted in Saurin 1996: 79), remains: "can a fragmented and often highly conflictual political system made up of over 170 sovereign states and numerous other actors achieve the high...levels of cooperation and policy coordination needed to manage environmental problems on a global scale?" Perhaps this why the UNEP believes the answer lies in the hands of the car industry itself and in working cooperatively with it.

### ***Nation states***

MNCs are not 'placeless' entities. They are strongly affected by the national environments in which they are based, and particularly by the 'home' country in which they are culturally, and

physically embedded. They are “produced through an intricate process of embedding in which the cognitive, cultural, social, political and economic characteristics of the national home base play a dominant part” (Dicken 1998: 196; see also Pauly and Reich 1997). Therefore, the nature of the relationship between the state and business in the three international hubs of the car industry warrant attention on two levels. First, for exogenous factors in terms of the level of state regulation and intervention in their affairs. Secondly, for the way in which this relationship shapes endogenous culture within firms.

The sheer size and wealth of the US, coupled with a *laissez faire* ideology of non-intervention in markets, has meant that the US government has never had an effective industry policy. It has taken the more indirect approach of creating an *environment* for business (Dicken 1998: 119–121; Weiss and Hobson 1995: 219–221). Therefore, when it comes to regulation the US has acted in a manner consistent with the liberal economic approach which says the role for government is to intervene to internalise externalities. The US was first to move on regulations of vehicle emissions, steadily increasing standards from the 1970s onwards and requiring new cars to be fitted with catalytic converters from 1981 (Colvile et al 2001: 1542). Indeed, the 1990 US Clean Air Act’s requirements have been estimated to cost the industry US\$8-10 billion a year to implement (Dicken, 1998: 334–335). However, the current administration is less interested in environmental concerns, refusing to ratify the Kyoto Protocol and effectively taking global warming off its regulatory agenda. Given this development, the US response to environmental matters may increasingly come from the local and state level and much innovation may rely heavily on the efforts of individual firms (Leaf et al 2003: 308; Parker 2001a: 94).<sup>7</sup>

In contrast to the US, most continental European countries have had industrial policies central to their economic wellbeing in the post-war period. For example, France has a long tradition of state-involvement with the promotion of ‘national champions’ in key industrial sectors to promote the country’s international competitiveness. The French government still owns Renault and in Germany the federal government has actively pursued industrial intervention to achieve industry policy objectives, while at the same time devolving much responsibility to provincial governments (the *Länder*) for intervention in regional economic matters (Dicken 1998: 115–117).

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<sup>7</sup> The former note that California has introduced very stringent regulations on vehicle emissions that lead national regulation, while the latter points to Ballard Power Systems, a Canadian company whose fuel cell technology has been supported and adopted by the major US car firms for their hydrogen-powered prototype vehicles.

One of these, Lower Saxony, owns 18.6 percent of the shares in Volkswagen (Hutton 2002: 239). All European states, including the UK, have had strong regional policies through which they have intervened to provide special assistance to specific geographical areas and competitively ‘courted’ MNCs to locate in these areas, and they have worked with their car industries to form partnerships to develop prototypes of new vehicle technologies (Dicken 1998: 118; Bleviss 1990: 94). Beyond such national intervention, the creation of a single market in 1992 has fostered the creation of regionally integrated production networks for EU car producers and their suppliers. Such regional integration has effectively removed technical and physical barriers and reduced the cost of design and manufacturing variations (Dicken, 1998: 333–334).

On the environment, the EU moved to catch up with US regulations from the late 1970s onwards, and introduced legislation in 1993 to make the fitting of catalytic converters to new cars mandatory (Colvile et al 2001: 1542). Since then, environmental legislation in the EU has got increasingly strict to the point where there is a downward trend in total vehicle emissions despite increasing traffic volumes. Certain emissions (NO<sub>x</sub>, HC and CO) are predicted to fall by 85 percent by 2020 compared to 1990 levels (UNEP 2002: 28). However, the EU has also increasingly gone down the path of voluntary industry regulation, with voluntary agreements between the European Commission and industry, confirmed in the form of Directives that set standards, targets and modes of behaviour on the part of industry (Leveque 1996). Such a voluntary agreement was reached with the European car industry on CO<sub>2</sub> emissions, and is discussed below.

A key institution for the EU’s regulation of the car industry is the Working Party on the Construction of Motor Vehicles (WP29). It is influential beyond the borders of the EU because besides the 28 European states who are contracting parties to it, another 27 non-European car manufacturing member states are non-contracting members including the US, Japan, South Korea, Canada and Australia. Therefore, WP29 has become the pre-eminent forum for the exchange of information on, and international harmonisation of, regulatory standards and technological advances in the international car industry. The EU effectively “rules the roads” of the world in setting standards to the point that WP29, originally a regional organisation, has successfully transformed the international regulation of motor vehicle standards in what represents “a move away from national sovereignty in favour of mutual recognition of type approvals, based on increasingly internationally harmonised performance standards”

(Braithwaite and Drahos 2000: 448). As such, since 2000 it has been renamed the World Forum for Harmonisation of Vehicle Regulations.

Business and government relations in Japan have long been characterised by a spirit of partnership with the state performing the role of a guiding hand. Though not a centrally planned economy, Japan can still be thought of as a developmental state where the government has a vision for the goals of the private sector, arranges preferential allocation of capital to targeted industry sectors as well as key firms, and has a bureaucratic architecture designed specifically to consult and work with firms and industry sectors (eg. the Ministry of International Trade and Industry) (Dicken 1998: 121–125). But while Japan is characterised by a strong partnership between government and industry aimed at encouraging development and international competitiveness, it is also true that regulation has not generally been as tough as in the EU or US (Braithwaite and Drahos 2000: 271). Instead, the strong culture of international business competitiveness that has been created has been manifested in its firms being early movers to new technologies in anticipation of international standards. This is suggested in the development by Toyota of the Prius and in the fact that this company was the first in 1988 to introduce a car with a catalytic converter in the UK despite the fact that at the time unleaded fuel was difficult to purchase (Beaumont 1993: 917).<sup>8</sup> Japan's competitiveness means it now dominates world automotive trade, and that it has been described as “the single most important force stimulating change among competing firms in the other major producing countries” (Dicken 1998: 321). With Japanese car firms having identified environmental issues as a priority area for action they are seen as the “saviours of the environment” by some commentators (Koshiba et al 2001: 3–4; Bleviss 1990; Parker 1996; Parker 2001b]. This is because they have *chosen* to embrace environmentally friendly technologies as a way of enhancing corporate performance. Parker sums this up neatly as follows:

Rather than being ‘lucky’ as suggested by some commentators on the fast sale of hybrids when they were launched in North America at a time of rising gasoline prices (2000), the success of the new hybrid technology can be traced to the foresight and planning of firms that recognised mounting environmental pressures and responded. Supportive policies were created by government, industry associations and competing firms, with the end result being a race to deliver new technologies for cars in the 20<sup>th</sup> century that are less damaging to the environment (Parker 2001a: 109).

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<sup>8</sup> Beaumont points out that a five litre petrol can had to be fitted in the boot to deal with this drawback!

To round up the above discussion on nation states, what is suggested is that what the EU's WP29 has achieved as a global force for regulation of the industry, and the co-regulatory approach suggested by its embracing of voluntary agreements with industry, Japan has achieved through the competitive edge of its firms supported by government partnership. It may be the case that US firms are 'chasing' Japanese firms who have embraced environmental technological advances as a competitive strategy, and EU firms who find themselves in the politically powerful position of being at the centre of international standard-setting.

### ***Consumer preferences***

Surveys abound of growing consumer preferences for environmental sustainability. Specific surveys are backed up by general findings, such as those of the World Values Survey coordinated by the Institute for Social Research at the University of Michigan. The Survey has been conducted since 1981 and covers 65 societies with national samples of 1,000 people in each (World Values Survey 2003). Those surveyed in industrialised societies exhibit a pronounced *shift in preferences* towards environmental protection over this period of time. Not only have environmental concerns taken on "unprecedented salience" as a *shift in attitude*, but that they have also manifested themselves as a *shift in behaviour* on the part of individuals in terms of political activism through membership of environmental organisations, and voting for political parties with strong environmental credentials from the 1980s onwards. In fact, in the 1990–91 survey (just prior to the 1992 Rio Earth Summit), 93 percent of individuals surveyed in Western industrialised societies approved of the environmental movement (Inglehart 1997: 237–243 and 296). However, whether this concern translates into universally changed patterns of consumption that significantly affect firms' investment choices is open to question. For example, the growing demand for SUVs in the US may be contrasted with a growing demand for micro cars in the EU and Japan, and the recent fire bombings of SUVs by environmental activists in the US accompanied by graffiti of "fat lazy Americans" suggests that social attitudes to environmentally friendly cars there may be at a far more nascent stage based on the norm lifecycle outlined earlier (Bradsher 2002; Productivity Commission 2002; Younge 2003; Vandals Fight Gas Guzzlers with Fire 2003).

Even if the degree to which changing consumer preferences are translated into purchasing decisions is unclear at this stage, the point is that a change in attitudes alone may constrain states and firms nationally and internationally from seeking economic growth at any environmental cost. Attitudinal shifts on the part of consumers may also provide demand-driven incentives to

invest in environmentally friendly products and promote behaviour that seeks the approval of environmentally aware buying publics, especially car MNCs that have traditionally been seen as environmental pariahs.

### ***The car industry***

While it is possible that the environmental initiatives of car MNCs may be driven by exogenous material factors such as the actions of and regulations imposed by international organisations and states, it is also possible that such factors are being endogenised. For example, with respect to state regulations firms may be adopting environmentally friendly technologies and processes in order to gain a competitive edge in *anticipation* of future regulations. They may even be acting pre-emptively to avoid imposed regulations altogether. This amounts to a “privatisation of government responsibility”, and it may mean that states do not need to *exercise* their power in order for it to be realised because car MNCs have gone beyond what is legally required (OECD 2001a: 50; see also Florini 2003a; Florini 2003b; Cutler et al 1999]. This is illustrated by the voluntary commitments by EU car manufacturers to reduce fleet average CO<sub>2</sub> emissions to 140g/km by 2008 (along with a range of other targets associated with vehicle emissions) that the Association des Constructeurs Europeens d’Automobiles (ACEA) oversaw in 1998 (ACEA 2002: 5). These commitments were made in advance of any mandated by the European Commission, and they were described by the ACEA as follows:

ACEA’s ground-breaking commitment is a ‘flagship’ that places ACEA at (sic) forefront of a new policy option. It brings together the Commission and ACEA into a new partnership based on mutual trust, and shows a new way to address environmental issues (ACEA 2002: 11).

The European Commission subsequently made these voluntary commitments a Directive on 5 February 1999 saying it was “satisfied with the undertakings given by the ACEA” (ACEA 2002: 21).

It is also possible that individual car MNCs see such behaviour as a way of gaining a competitive advantage over rivals. This is the strategy suggested by Porter who notes that “selling poorly performing, unsafe, or environmentally damaging products is not a route to real competitive advantage in sophisticated industry and industry segments, especially in a world where environmental sensitivity and concern for social welfare are rising in all advanced nations” (Porter 1990: 648). Porter’s view is echoed by the UNEP, World Resources Institute and World Business Council for Sustainable Development which see competitive advantages for businesses that voluntarily adopt environmentally sustainable strategies (United Nations Environment

Programme, World Resources Institute and World Business Council for Sustainable Development 2002: 3]. Focussing on the car industry specifically, the Chairman of Ford has echoed this view in stating his “strong belief that – in addition to being the right thing to do – preserving the environment is a competitive advantage and a major business opportunity” (Holliday et al 2002: 26), and General Motors’ executives see their company’s investment in alternative energies as part of a long-term competitive business strategy (Burns et al 2002).

Overall, Braithwaite and Drahos find that “the change in business leaders’ attitudes on this issue is unmistakable [because] many believe that green is lean and profitable” (Braithwaite and Drahos 2000: 268). But they also find, as a result of extensive interviews and empirical research, that “it is a mistake to reduce the strategic trade manoeuvres of car makers to no more than self-interested profiteering...much of the strategic trade manoeuvring represents the dedicated work of engineers at Hyundai who really want to make cars safer for people” (Braithwaite and Drahos 2000: 451). All this points to endogenous factors within the car industry and its individual firms driving moves for environmental sustainability, that the OECD characterises as a growing “culture of integrity”, or what Florini sees as “an enlightened view of long-term self-interest” (OECD 2001: 19; Florini 2003: 8).

Finally, whether material exogenous political/economic realities or more enlightened endogenous motivations are to the fore, any commitments made establish the *expectation* of changed behaviour. Behaviour must shift to some extent due to the accountability of firms for their stated commitments. This is because “managing an inquisitive and possibly hostile public must be part of maintaining a positive image, but public relations without environmental action will surely backfire” (Athanasίου 1996: 232). Such behaviour may become effectively endogenised over time.

### ***Car firms***

Although MNCs are not placeless entities with respect to states, it would still be an oversimplification to say that all MNCs from one home state are the same. As Dicken notes:

As US companies, Ford and GM are quite distinctive from Toyota, Volkswagen, Fiat or Renault. But they are also different from each other. Similarly, Toyota and Nissan are distinctive, but not identical, Japanese automotive firms; the same point can be made about the French auto producers and so on. However, there are generally greater similarities than differences between firms from the same national base (Dicken 1998: 197).

Therefore, firms have endogenous characteristics that are specific to each of them over and beyond national characteristics. The Australian Productivity Commission concurs when it finds that “while...production imperatives are the same across the global industry, they have been pursued within a variety of institutional frameworks. Such diversity suggests that the precise nature of regulation and institutional arrangements in this area may be of secondary importance to effective relationships between firms and employees” (Productivity Commission 2002: 16–17).

More than this, commentators such as Handy see business as an enterprise not reducible to pure profit maximisation motives. Handy suggests that there is a ‘spiritual fabric’ in firms that goes beyond making profits which is often ignored but explains a great deal in terms of whether or not they endure (Handy 1995). Viewed this way, profits are a means to an end not an end in themselves. The *end* comes from within the main actors’ beliefs and motivations and the nature of the enterprises with which they are associated. The point can be illustrated with two examples: Volkswagen and Toyota.

Volkswagen is one of the leading-edge car companies in environmental sustainable development (see for example Volkswagen AG 2001). Of the company, Hutton makes the following observations:

Volkswagen should be a basket case. It manufactures cars and trucks in high-cost Germany. It has a highly unionised workforce who work a 28.8 hour week for up to £23 an hour. Its largest shareholder is the state government of Lower Saxony, which owns 18.6 per cent of the company’s shares. It has a cumbersome supervisory board on which both the trade unions and the regional government are represented. Its directors have only a small number of share options, and its chief executive is paid under US\$1 million a year—a tiny fraction of the US\$32 million and US\$22 million made by his opposite number at Ford and General Motors...VW shareholders’ voting rights are limited to 20 per cent, so the company can neglect to promote shareholder value, allowing it to become sclerotic and uncompetitive...There is scarcely a canon in the conservative free market rule book that Volkswagen does not offend (Hutton 2002: 239).

Yet Hutton goes on to point out that despite its offence to the “free market rule book” it is the largest car maker in the EU and is increasing its market share in the US. Why should this be the case? Hutton says the answer lies in the fact that although it is “unambiguously capitalist”, it also has “structure and cultures” that combine to make it a successful and innovative business. More broadly, in an observation reminiscent of Handy’s ‘spiritual fabric’ point, Hutton says Volkswagen shows that “companies that last and prosper are motivated by a vision of their purpose that transcends maximising their shareholders’ immediate profits” (Hutton 2002: 243–244 and 7).

It has been said of Toyota that it has a culture based on an “ability to turn crises into opportunities” because “its global strategy isn’t simply the result of vision, it’s also an opportunistic strategy that emerges whenever Toyota responds to the unexpected” (Koshiba et al 2001: 10). This culture within Toyota appears to be translated into its current pre-eminent position worldwide in the development of hybrid vehicles such as the Prius. The company has set a benchmark for successful new hybrid vehicles by creating one with which they have had considerable market success, and through which they may dominate any future market for such vehicles.

### **Why should one hope that the car industry can move beyond green-washing?**

Fundamentally, what is being proposed here is the beginning of a normative change in attitude rather than just a change in behaviour on the part of the international car industry, or worse still, well-publicised commitments to environmental concerns that do not translate into action and therefore amount to merely a cynical public relations exercise. While the most cynical interpretation seems less likely based on the evidence presented here, it is nevertheless plausible that the shift emerging is only behavioural, rather than attitudinal. By way of illustration, a recent study by Porter and van der Linde found that companies with high environmental standards are more competitive and concluded that “companies must start to recognise the environment as a competitive opportunity—not as an annoying cost or postponable threat” (Porter and van der Linde 1995: 114). However Palmer et al, coming from a position more of liberal economic orthodoxy, dispute this claim for two reasons. The first, somewhat unsurprisingly for commentators coming from their position, is by using a theoretical rational choice-based model. But this is less convincing than the second which is evidence gained from actually *speaking* with the vice presidents or corporate directors for environmental protection at four MNCs<sup>9</sup> with the following result: “while each manager acknowledged that in certain instances a particular regulatory requirement may have cost less than had been expected, or perhaps even paid for itself, each also said quite emphatically that, on the whole, environmental regulation amounted to a significant net cost to his company” (Palmer et al 1995: 127). In other words, while the hard evidence and data might support the claim that higher environmental standards confer a competitive advantage on firms, and that firms who have taken initiatives in this regard have reaped the rewards, this does not tell us anything about the attitudes of key

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<sup>9</sup> They are: Dow, 3M, Ciba-Geigy and Monsanto.

decision makers within these firms, specifically whether they are likely to be proactively favourably disposed to embracing environmental sustainability in future unless compelled to do so.

So what do we mean by attitudes to environmental sustainability? On sustainability, Suzuki and Dressel note that “everyone knows what this word means; it’s just that noone knows exactly what it looks like in practice” (Suzuki and Dressel 2002: 16). However, the OECD notes that a broad distinction is possible between indicators *of* sustainability in absolute terms, versus more relativist indicators of movements *towards* sustainability (OECD, 2000: 8). Rather than attempt to define it in absolute terms, what this chapter has attempted to do is take the relativist approach in the sense of actual action aimed at moving in the right direction. The point then is that the shift identified needs to be seen as *real*, not merely ‘green-washing’. The question is not one of what the appropriate level of environmental protection should be, but rather whether firms are *proactively* disposed to further action.

So, what is motivating firms to act? This paper has taken the attitude that “corporate management obviously responds to market signals, as in the neoclassical model, but the character of that response is not equally obvious [because] corporate preferences are driven in part by norms about the appropriate approaches to business” (Haufler 1999: 201). This is Handy’s ‘spiritual fabric’ point of the previous section in another guise. To understand it, first-hand perspectives from office-holders in the car industry are required, because it is impossible to form a firm judgement on their motivations based on the evidence alone, such as that presented here. In other words, without actually speaking to these individuals, or undertaking some type of analysis of their goals and strategies, we are in danger of falling into the trap of presuming that the commitments made and the benefits of them are evident to such office holders and therefore truly represent a shift in attitude. Even so, there are two reasons to suggest that looking towards the firms themselves for solutions is worthwhile.

First, at a practical level Ostrom’s work on environmental management provides support for this belief. As noted earlier, she relaxes profit maximising rational actor assumptions in the context of environmental externalities. In so doing, to explain actors’ behaviour she builds a more complex model with seven possible components that explain actors’ behaviour, each with rules for action. She notes that as a result “the search for rules that improve outcomes obtained in commons dilemmas is an incredibly complex task involving a potentially infinite combination of specific rules that could be adopted” because “if only five changes in rules per component were

considered, there would be 5<sup>7</sup>, or 75,525 different situations to analyse” and therefore that “no set of policy analysts could ever have sufficient time or resources to analyse over 75,000 combinations of rule changes and resulting situations” (Ostrom 1999: 519). She concludes that it is the resource users *themselves*, those directly causing the environmental damage, in whose hands the solution is most likely to lie. This view is supported by Hafkamp who says, “it is striking to note that there are no typologies where other actors [besides government] with *their* instruments (companies, consumers, environmentalists) are included” (Hafkamp 1997: 260). This is a problem, because as Cutler et al note:

In an era when the authority of the state appears to be challenged in so many ways, the existence of alternative sources of authority takes on great significance, especially when that authority is wielded internationally by profit-seeking entities (Cutler et al 1999: 4).

Therefore, given the complexities involved it is important to bring firms ‘back in’ as the key to addressing moves towards environmental sustainability.

Secondly, if this view seems naive consider the status quo approach. It is that governments and their bureaucracies are in a better position to sustainably manage the environment via regulation and intervention. I would contend that they are not, and not only by virtue of the complexities suggested by Ostrom (1990). While such intervention may be the catalyst for changed attitudes, without real attitudinal change on the part of the corporate world any actions taken by regulators is unlikely to prove sustainable. In other words, at some stage the norm of environmental sustainability must be endogenised for it to be truly internalised and so the question is not whether attitudinal change in the car industry is possible, but to what degree it has or has not happened yet.

## **Conclusion**

Explaining the actions of the international car industry with respect to environmental sustainability requires further research. This paper has presented what amount to some preliminary insights based on evidence readily available that point to car firms proactively addressing environmental concerns to varying degrees in six areas: technical development; policy and reporting; environmental management; collaborative initiatives; sustainable mobility; public relations; and non-automotive environmental support. Explanations for the industry’s shift in behaviour lie with both exogenous and endogenous factors, and perhaps most interesting is the suggestion that some exogenous factors have effectively been endogenised by the industry. This necessitates an analysis on several levels, including the actions of international organisations, the

role of nation states, and the imperatives of consumer preferences. The way in which individual firms may have generated action to address the challenge of environmental sustainability as a result of these exogenous factors, in addition to their internal cultures, also requires further investigation.

Even so, it is not unreasonable to say that there is more than just rational profit maximisation going on in the car industry because “the world does not fit the Panglossian belief that firms always make optimal choices” (Porter and van der Linde 1995: 99). Indeed, from the discussion in this paper the possibility is suggested that *both* rational profit maximising motivations and behaviour based on norms may explain the car industry’s shift in behaviour. Although the two are often presented in a way that makes them appear mutually exclusive, this need not necessarily be the case. Theoretically, Hall similarly sees the attraction in “occupying the middle ground” which permits the possibility “that human beings have values, but that equally they are purposive calculators” and that to lean too much one way or another is to lean towards “false extremes” (Hall 1993: 42–43). Legro too argues that neither of what he terms the “polarised positions” is sustainable, and that a balancing point somewhere between the two extremes is more likely to pertain (Legro 1997: 31). This suggests a more holistic explanation in which aspects of the liberal economic rational choice model still hold to some degree but preferences are tempered by ideas, norms and practices that lead to a concern for the environment, and therefore must be taken into account too. It fits with the idea that firms must face political and economic realities, and alter their behaviour in order to sustain competitive advantage, but that there are also other dynamics at work. In other words, firms are not just constrained by factor endowments, but also by more intangible factors to be inferred from their behaviour. In the case of the car industry, it appears that one of these emerging factors is an increasingly endogenised concern for the environment. It may be too much to hope that the boards of major car MNCs are wringing their hands over the state of the world’s trees, air and water, but it may not be too much to see them gradually accepting a belief that concern for the environment should be part of a successful long-term approach to business.

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