CHAPTER TWO

EUROPEAN MOBILITY *IS* DIFFERENT: A GLOBAL PERSPECTIVE

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European travel patterns are different from those of the North-Americans and the Japanese. The main differences may be explained by geography (density and distribution of settlements), culture (Europe being in an intermediate position between the holistic approach of Japan and the individualistic culture of the American pioneers), and the domestic economic context (pricing policies, infrastructure investment) which in turn mirror the different cultures.

Comparing Europe to other parts of the world helps in shaping the west European identity. It also raises some hypotheses about the forthcoming trends in Europe. Are transportation and mobility patterns likely to follow the American patterns? the Japanese? or are they unique, and will develop in a pattern which is a realisation of what Europe represents? Many factors seem to favour the latter option. The long tradition of planning, the economic welfare, the concern for the environment and the transition towards a Single Europe affect the future transportation system. In this chapter, some of the major transportation parameters and determinants which make Europe unique compared to other parts of the world are presented.

Car ownership levels in the five "blocks" (OECD-Europe, EEC, Eastern Europe, USA and Japan) shown in Figure 2.1, emphasize that Europe is far from the U.S. level. Conversely, the European level is much higher than that of Eastern Europe, and more surprisingly, of Japan, despite its higher GDP per inhabitant (Figure 2.2) and the power of its car manufacturers. On the other hand, car density, expressed in cars per

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square-kilometre, is the highest in Japan (which may explain the surprisingly low car ownership associated with the extremely high population density), followed by Western Europe. Compared to these high densities, the United States of America and Eastern Europe show much lower values, the latter indicating that Eastern Europe countries could become a potential market for car manufacturers if their economies improve. Such a process already started in the former GDR where exploding increases of car ownership occurred, affecting the market for used cars in western Europe.

On the other hand, the very high car densities in highly developed countries have initiated traffic calming strategies (in a broad sense) in Western Europe and Japan today.

With respect to *travel distances*, an inverse relationship with density can be expected due to the larger set of opportunities accessible within shorter distances. Similarly, higher income and/or lower prices for transport are expected to be associated with longer trips.

In addition, time budget and travel time budget, limit the ability to cover the accessible space, unless technological or other system management improvements allow travelling longer distances in a given time.

Confining the analysis to motorized road and rail transport, the comparison between Eastern and Western Europe, Japan and the United States of America supports the above expectations: with low densities, high income and low price for transport, North-American residents travel on longer distances. With low levels of income and car ownership, Eastern Europe residents have the lowest mobility level, despite densities which can compare with their Western counterparts.

Further, despite higher income, global mobility per capita in Japan is only 77% that of EEC residents. This difference may be related to higher densities, specific policies to discourage the use of the car in urban areas, poor level of service of the road network and time budgets. With impressive work week length and very short periods for holidays, time for travel must be a problem in Japan.

The use of alternative transport modes (Figure 2.3) clearly demonstrates the wide variations among the regions. The car has become the nearly exclusive mode of transport for short distance trips in the USA, with 3% of the market only for public transport and 10% for soft modes (not shown in Figure 2.3). Conversely, lower levels of car ownership in Eastern European countries and Japan make people more dependent on public transport, which serves the majority of the market in urban areas. With 30 to 50% of trips in soft modes, 5 to 25% of trips by public transport and 35 to 50% with car (Table 2.1), Europe presents the middle ground between individualism and collectivism.

The European approach may indicate that the pluralistic and manifold urban and

technological tradition allows for transitions towards new developments (cars, airplanes, high speed railways, maglev, etc.), but within the framework set by the medieval city,

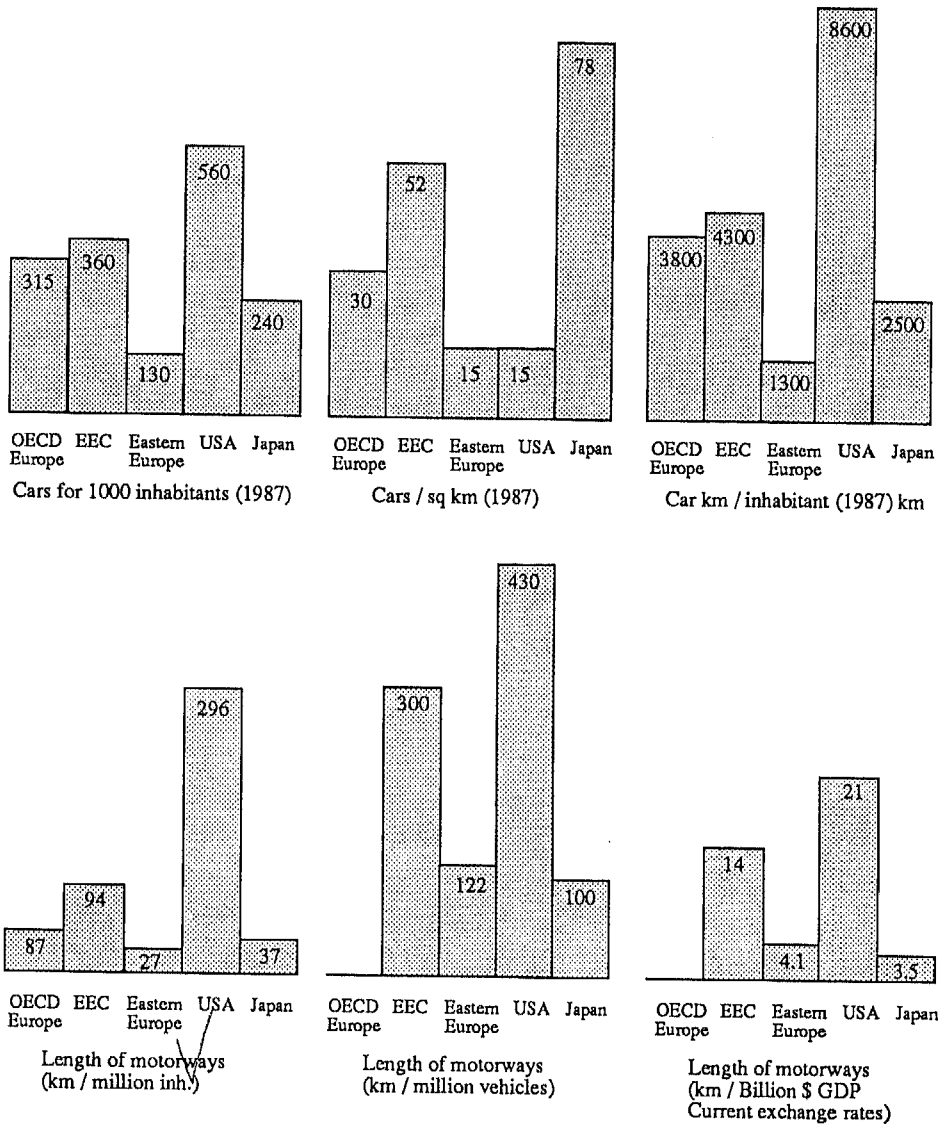


Figure 2.1: The European Difference: Cars and Motorways
Sources: ECMT (1990,1991a); Japan Road Assoc. (1990); Koshi (1989); Linster (1989); US DOT (1990).

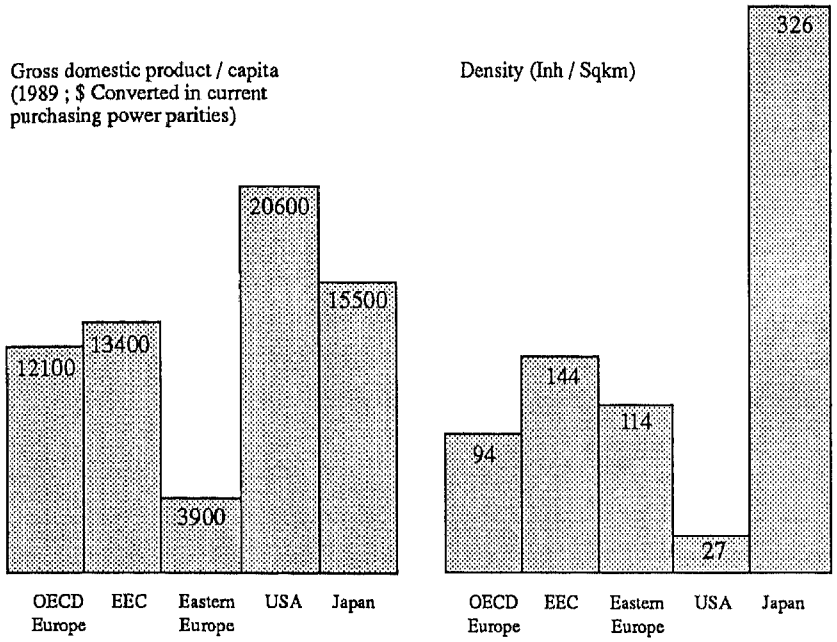


Figure 2.2: Gross Domestic Product per Capita (1989, US$ converted in current purchasing power parities); Population density (inh/sq.km)
Source: OECD (1991); Encyclopedia Universalis (1990); The Stateman's Yearbook (1990/91).

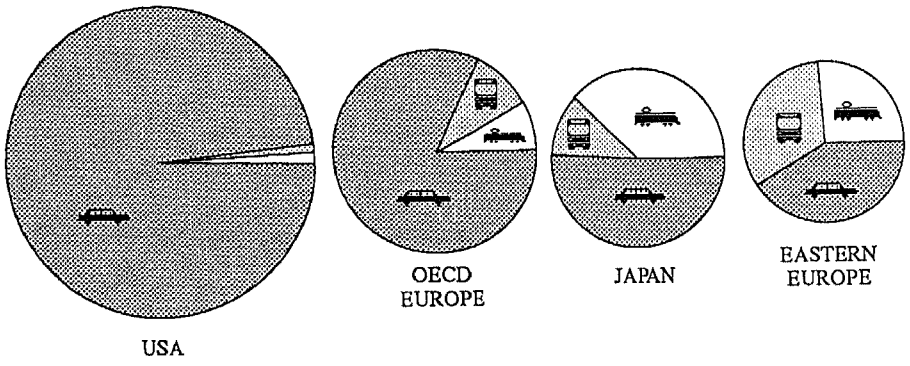


Figure 2.3: The European Difference: Modal Shares
(Area of the circles proportional to the total passenger km/inhabitants)

and urban development typifying Western Europe today. The high population densities in Europe give rise to environmental awareness and actions. Thus, in Europe, the old but well experienced solutions (walking, biking, use of tramway and railway) are revitalized under special circumstances and/or within well-suited segments, encouraged by official policies and realized in different specific parts of Europe (countries, regions, cities) which again is in accordance with the European pluralism.

The share of the *household expenses* devoted to transport and communications in EEC countries is 15%. It equals the U.S.A. share but differs significantly from the 9.5% in Japan (1985 figures). The shares obviously depend on the global budget of the households (related to the respective GDP of each country), the intensity of their travel and the relative prices of these functions, compared to general consumption. A cautious EEC study [EUROSTAT, 1986] using conversion into a standard currency (purchasing power parities) enables to separate a relative volume effect (the level of transport and telecommunications (TCM) use, compared to the total consumption) and a relative price effect (price for travel, compared to the general price level of the country). Figure 2.4 shows the position of the U.S.A. and Japan compared to Europe.

Overall, the relative price for transport and communications is higher in EEC countries than in the United States of America and Japan (Figure 2.4a). The relative volume of transport and communications is much higher in the United States and lower in Japan (Figure 2.4b).

A detailed analysis by function shows that the *relative prices* of the car market are the highest in Europe (Figure 2.4a). This means that a European has to work more to buy a car than a Japanese or an American. Driving a car is much less expensive in the United States, and a bit more expensive in Japan. The relative price of public transport is the highest in the United States.

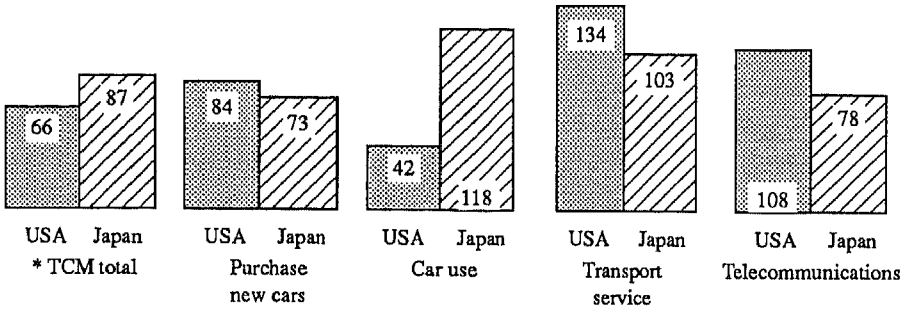
With regards to the *relative volumes* (Figure 2.4b), the differences are very clear: Europe is in an intermediate position for all the items. The USA is at the top for car purchase, car use and telecommunications, and Japan for public transport. Very low prices for the car system in the United States (low taxes and few tolls) are consistent with a high level of car use and high levels of fares for transport services. Conversely, low performance levels for road infrastructure in Japan and high levels for public transport services are associated with a modal behaviour more oriented towards railways.

A comparison between gasoline prices and fares for urban public transport suggests huge differences between Western and Eastern Europe, and between Europe and the United States as well, with Western Europe in an intermediate position [Pucher, 1990].

The benefits of transportation systems to users and society are counter-balanced by a variety of societal burdens, such as negative impacts on safety and the environment

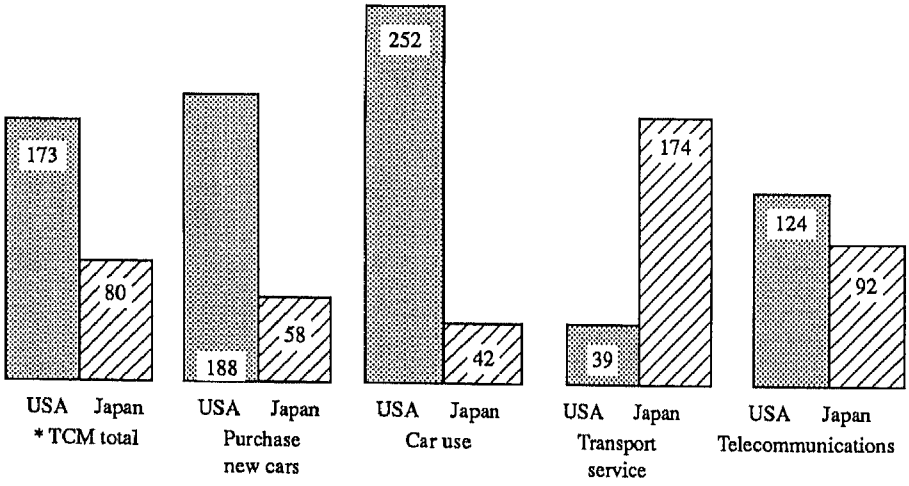
Relative price index of TCM functions (1985)

(Price deflated by the general price index Basis : 100 for EEC)



Relative volume index of expenditure for TCM functions (1985)

(Volume deflated by the general consumption index Basis : 100 for EEC)



* TCM = Transport, communication and mobility

Sources : Author's calculation from EUROSTAT (1986)

Figure 2.4: Volume and price for mobility expenditure

environment (Table 2.1). Despite poor road networks, Eastern Europe and Japan experience the lowest level of road deaths, probably related to their low car use. Conversely, the USA has the highest one, despite the highest provision of safe motorways. The very low fuel prices in the USA are correlated with the highest level of car and truck usage, and consequently, NOx emissions. On the other hand, with quite high densities, Japan cannot avoid high levels of noise exposure. Europe is again in an intermediate position.

TABLE 2.1
The European difference: safety, environment and urban modal split

	OECD Europe	EEC	East-Europe	USA	Japan
Road casualties/ million inhabitants (1988)	138	142	104	189	109
Transp. Energy Consumption Ton oil equiv. (1989)	0.73	0.70	0.30*	2.0	0.57
Nox emission (Kg/inh) (1985)	20	19	-	35	6
Noise: % population exposed to LEQ>65dBA	15	12	-	7	30
Modal share: % Car	30-50	30-50	10-20	87	10-30
Modal share: % Public	5-25	5-25	50-60	3	15-30
Modal share: % Soft modes	35-50	35-50	30-50	10	50-60

* Own educated guess
Source: ECMT (1990, 1991a), EUROSTAT (1986, 1990), Gombert (1990), Japan road association (1990), Linster (1989), Pucher (1988), OECD (1991).

The comparison shows that mobility developments do not necessarily follow a one-dimensional track, the direction of which is determined by economic wealth. Political will can create conditions in Europe (settlement patterns, urban design, public transport supply, travel pricing etc.) with which high levels of personal mobility can be maintained by keeping the negative societal impacts at acceptable standards. The former East-block countries have to be convinced to avoid the mistakes made by their western counterparts in the past: urban sprawl, neglect of public transport and slow modes, as well as pricing of accessibility that is too low if externalities are taken into account.