Some aspects of quality of life and urban densities

Methods for analysis

Some aspects of quality of life related to urban densities are examined here through statistical data analysis. To examine urban densities and car use, three indicators, namely the rate of car ownership, annual quantities of petrol purchased per household and the ratio of commuting by car, have been selected. To examine the relationship between urban densities and the influence of spatial qualities, two indicators, average house floor space and average land price, have been selected. Five scatter plots show the results of these analyses, by using data from each indicator and DIDs' population densities of each case study city. Approximate curves and the multiple correlation coefficients are also calculated.

Analysis of the indicators

Car ownership (Figure 16.8)

The number of private cars per household in the case study cities ranges from 0.56 to 1.90 and the average is 1.27 per household. A fairly strong negative correlation can be seen between the

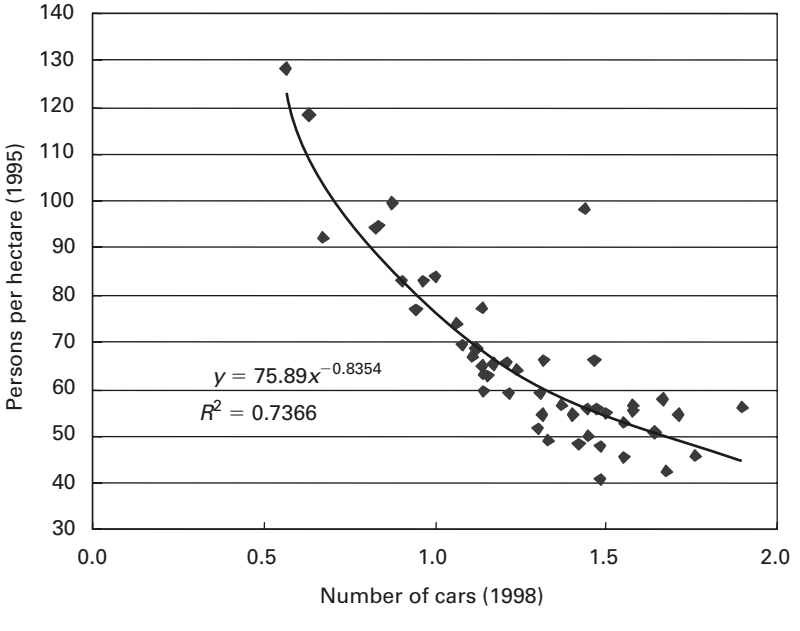

Figure 16.8
DID population densities and car ownership per household in Japanese principal cities.

number of car owners and urban population densities (with a correlation coefficient of 0.7366); as the population density falls, car ownership rises. This shows that living in lower-density built-up areas brings with it the need for private car ownership in households in these case study cities. However, it may also indicate that a lack of adequate, acceptable public transport and car use is the preferred option.

Purchased quantity of petrol (Figure 16.9)

Petrol is consumed mainly for car use in most households. According to government research, the average quantity of petrol purchased per year in the sample cities is 476 litres per household. As to be expected, there is a high-negative correlation between the quantities of purchased petrol and urban population densities (a correlation coefficient of 0.8068); as densities fall, the amount of petrol consumed rises. This would follow from the data in Figure 16.8: lower urban densities favour private car use.

Journey to work (Figure 16.10)

The most popular means of travelling to work is the car, with 45.4% of residents in the case study cities. However, 33.2% of residents used other forms of motorized transport, such as the bus, train or multiple modes; 11.9% of residents cycled to work

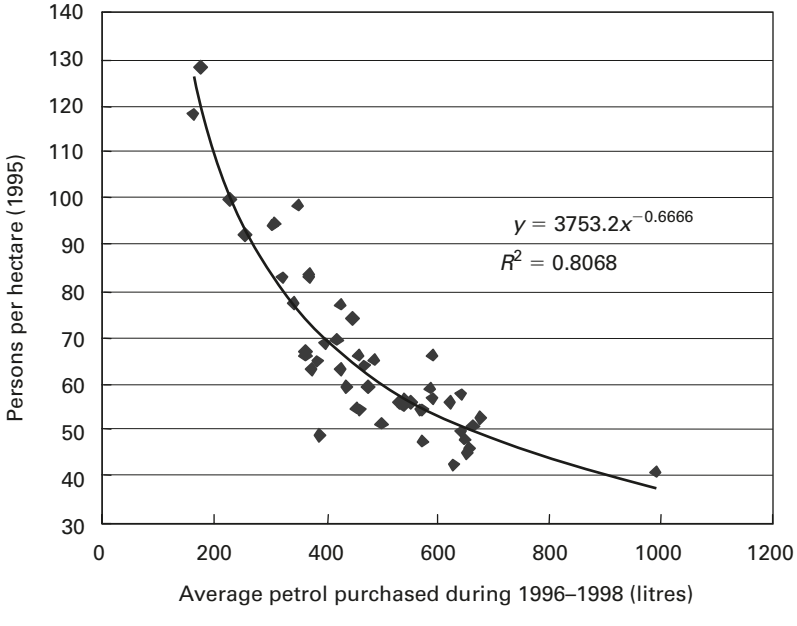

Figure 16.9
DID population densities and petrol purchased per household in Japanese principal cities.