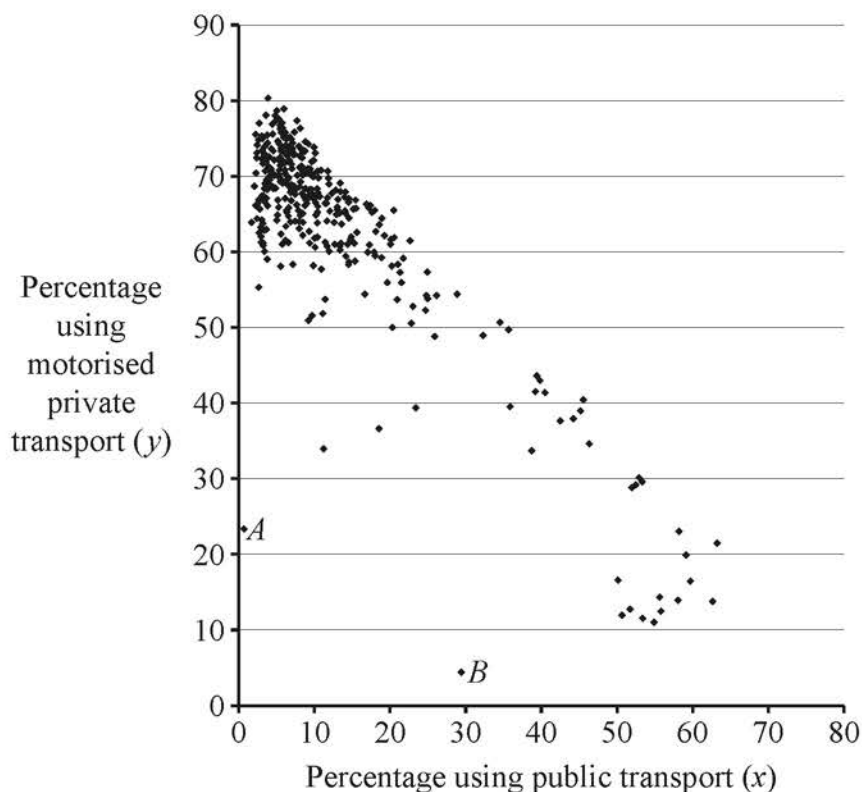


13 The scatter diagram uses information about all the Local Authorities (LAs) in the UK, taken from the 2011 census.

For each LA it shows the percentage (x) of employees who used public transport to travel to work and the percentage (y) who used motorised private transport.

“Public transport” includes train, bus, minibus, coach, underground, metro and light rail.

“Motorised private transport” includes car, van, motorcycle, scooter, moped, taxi and passenger in a car or van.



- (a) Most of the points in the diagram lie on or near the line with equation $x + y = k$, where k is a constant.
- (i) Give a possible value for k . [1]
- (ii) Hence give an approximate value for the percentage of employees who either worked from home or walked or cycled to work. [1]
- (b) The average amount of fuel used per person per day for travelling to work in any LA is denoted by F .

Consider the two groups of LAs where the percentages using motorised private transport are highest and lowest.

- (i) Using only the information in the diagram, suggest, with a reason, which of these two groups will have greater values of F than the other group. [1]

A student says that it is not possible to give a reliable answer to part (b)(i) without some further information.

(ii) Suggest two kinds of further information which would enable a more reliable answer to be given. [2]

(c) Points A and B in the diagram are the most extreme outliers. Use their positions on the diagram to answer the following questions about the two LAs represented by these two points.

(i) The two LAs share a certain characteristic.

Describe, with a justification, this characteristic. [2]

(ii) The environments in these two LAs are very different.

Describe, with a justification, this difference. [2]

(d) A student says that it is difficult to extract detailed information from the scatter diagram.

Explain whether you agree with this criticism. [1]