

12th WCTR 2010 Lisbon



Spatial analysis of long-distance mobility

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Transports, Roads and Highways

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The French National Transport Survey



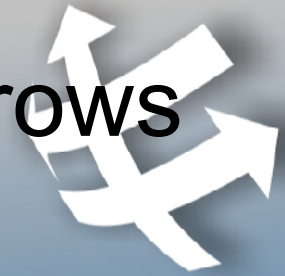
- This article presents some results about « long-distance mobility » coming from the French National Transport Survey, called « ENTD », realized through 2007/2008.
- The ENTD : a nationwide, periodic survey, providing wide information about mobility practices, car equipment, driving licenses of people living in France.
- 20 000 households and 50 000 individuals representative of the population living in France, aged more than six.
- Long-distance is defined as including trips where destination is more than 80 km « bird-eye » from origin, or at least one night is spent outside home, or destination is abroad.

The topic of our presentation

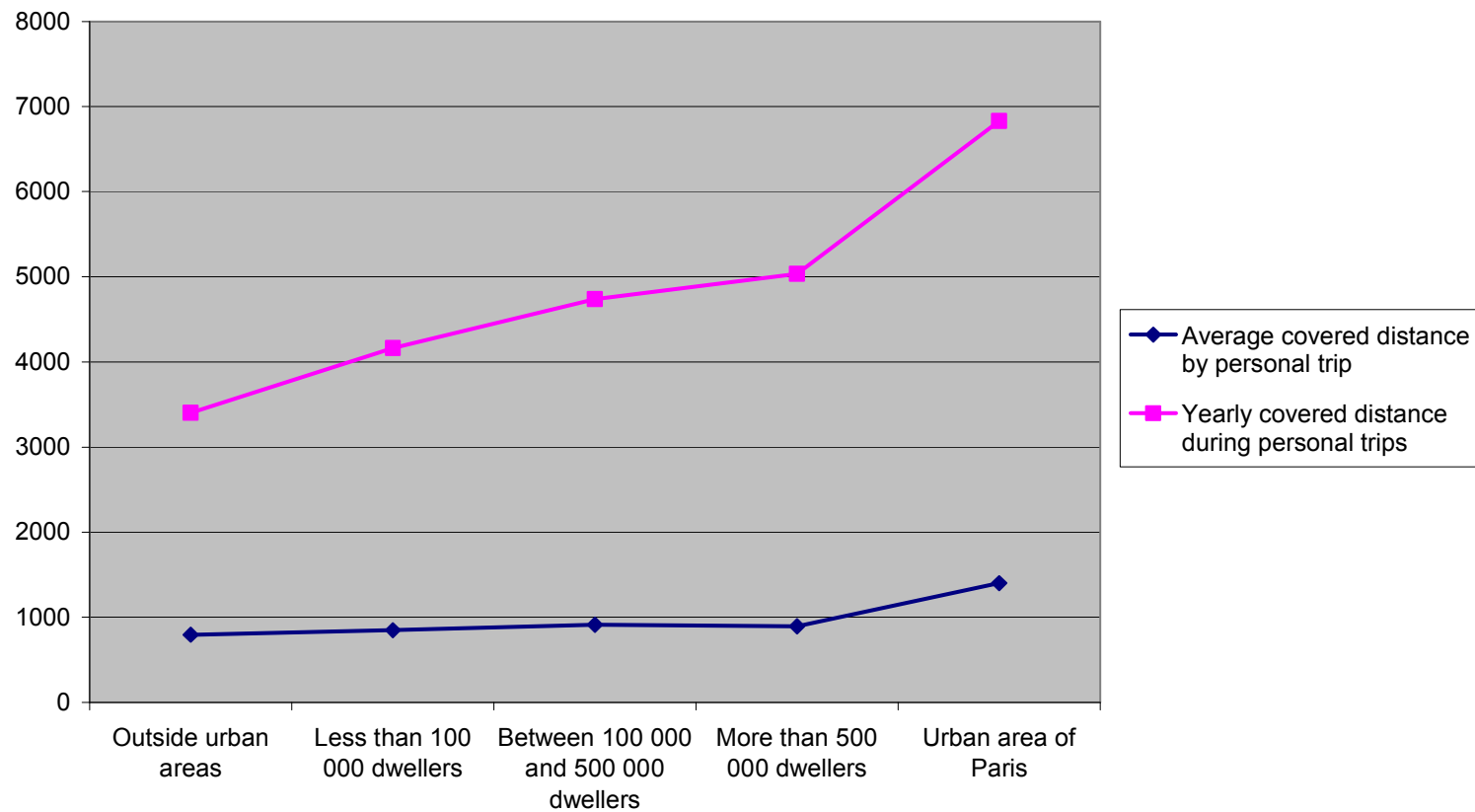


- Our presentation is focused on giving insights into differences in long-distance mobility practices (intensity and modal distribution of trips) with respect to the housing place, depending on urban density, through two main criteria :
 - The position within the urban area (central/peripheric/outside urban areas).
 - The size of urban area (from communities outside urban areas to the urban area of Paris).
- The first part is dedicated to spatial analysis in 2008, the second part to observed trends between 1994, year of the previous survey, and 2008.

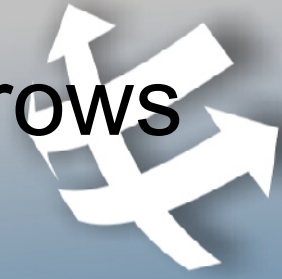
Long-distance personal mobility grows with urban density



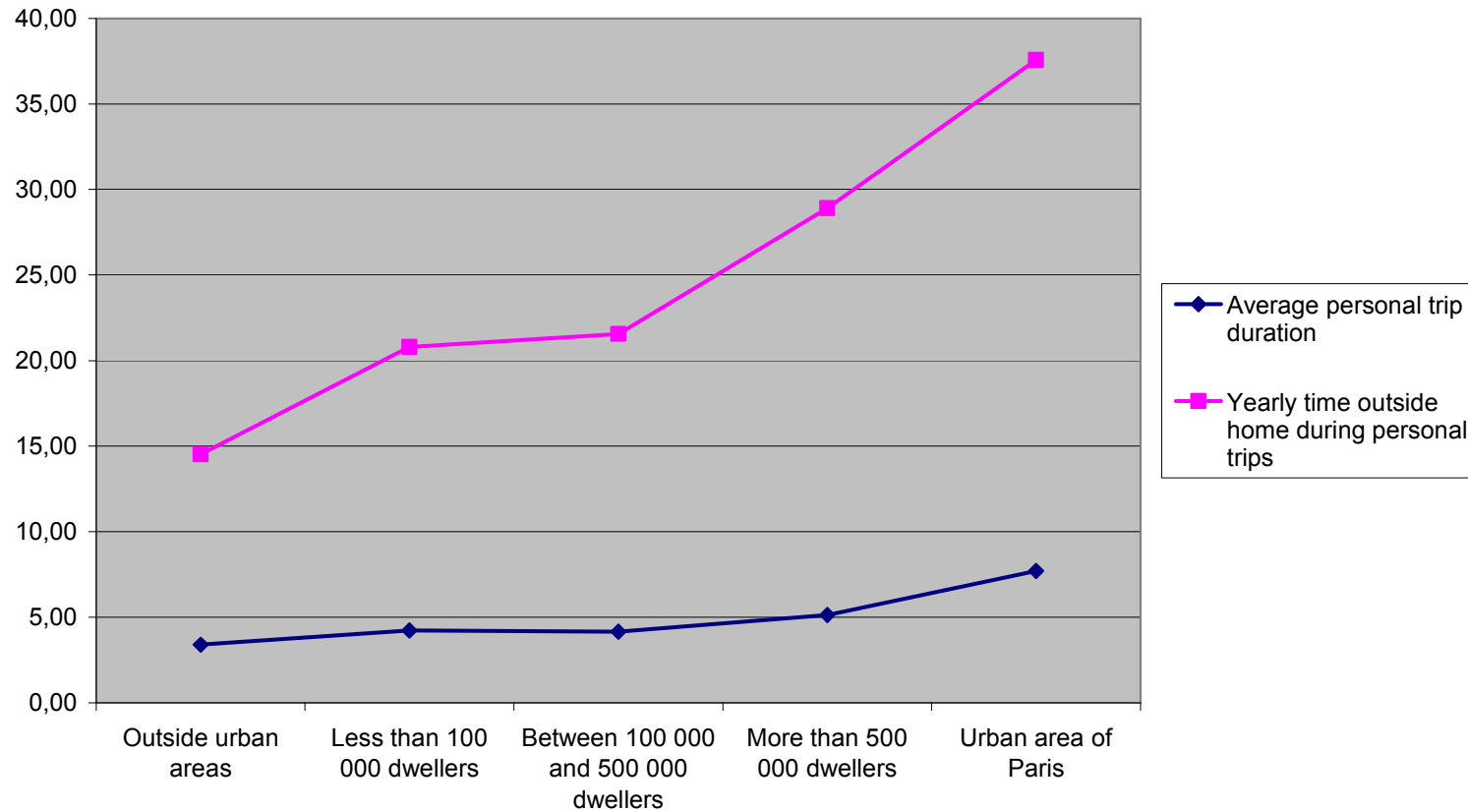
Average covered distance by personal trip and yearly covered distance during personal trips, depending on the size of urban area



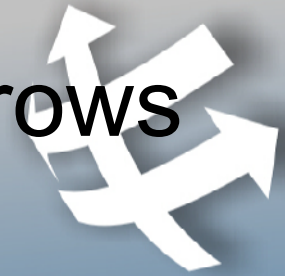
Long-distance personal mobility grows with urban density



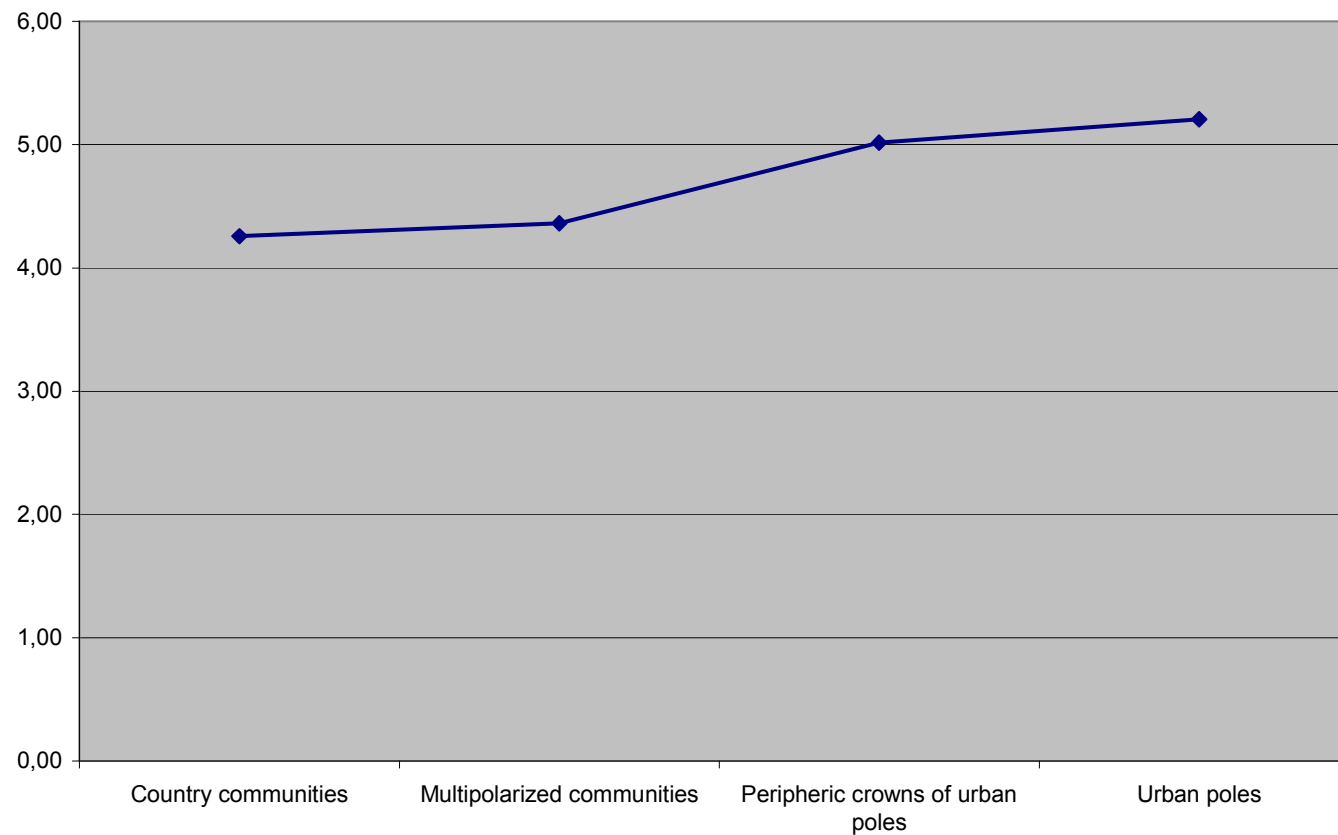
Average personal trip duration and yearly time outside home during personal trips, depending on the size of urban area, in 2008



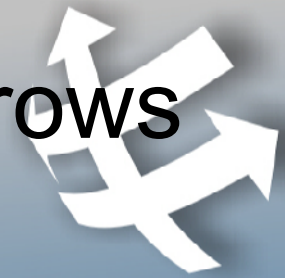
Long-distance personal mobility grows with urban density



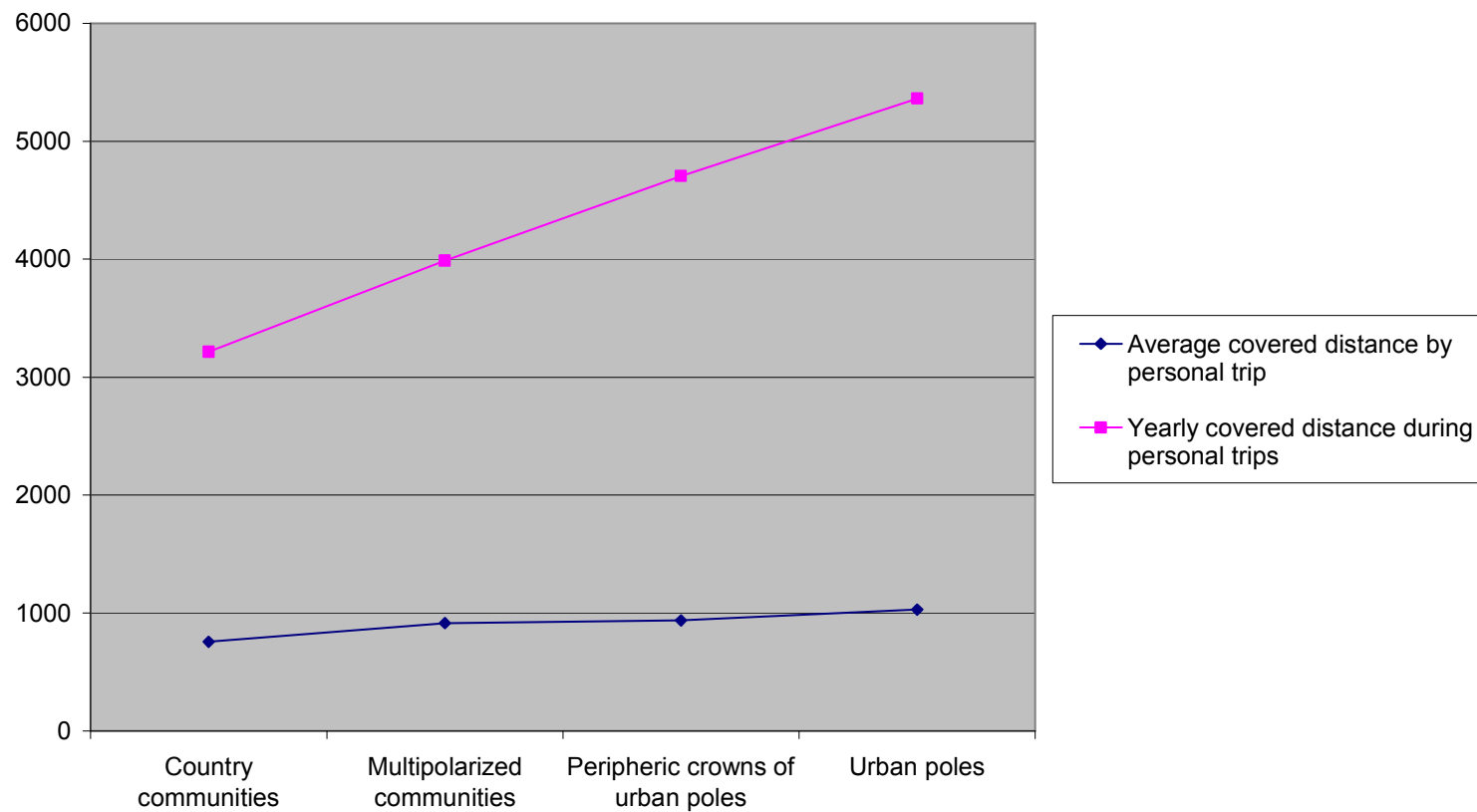
Yearly personal individual trip frequency, depending on central/peripheric position in urban area, in 2008



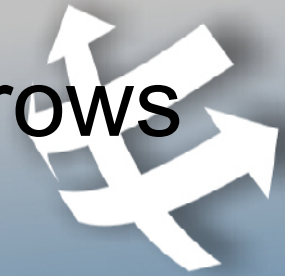
Long-distance personal mobility grows with urban density



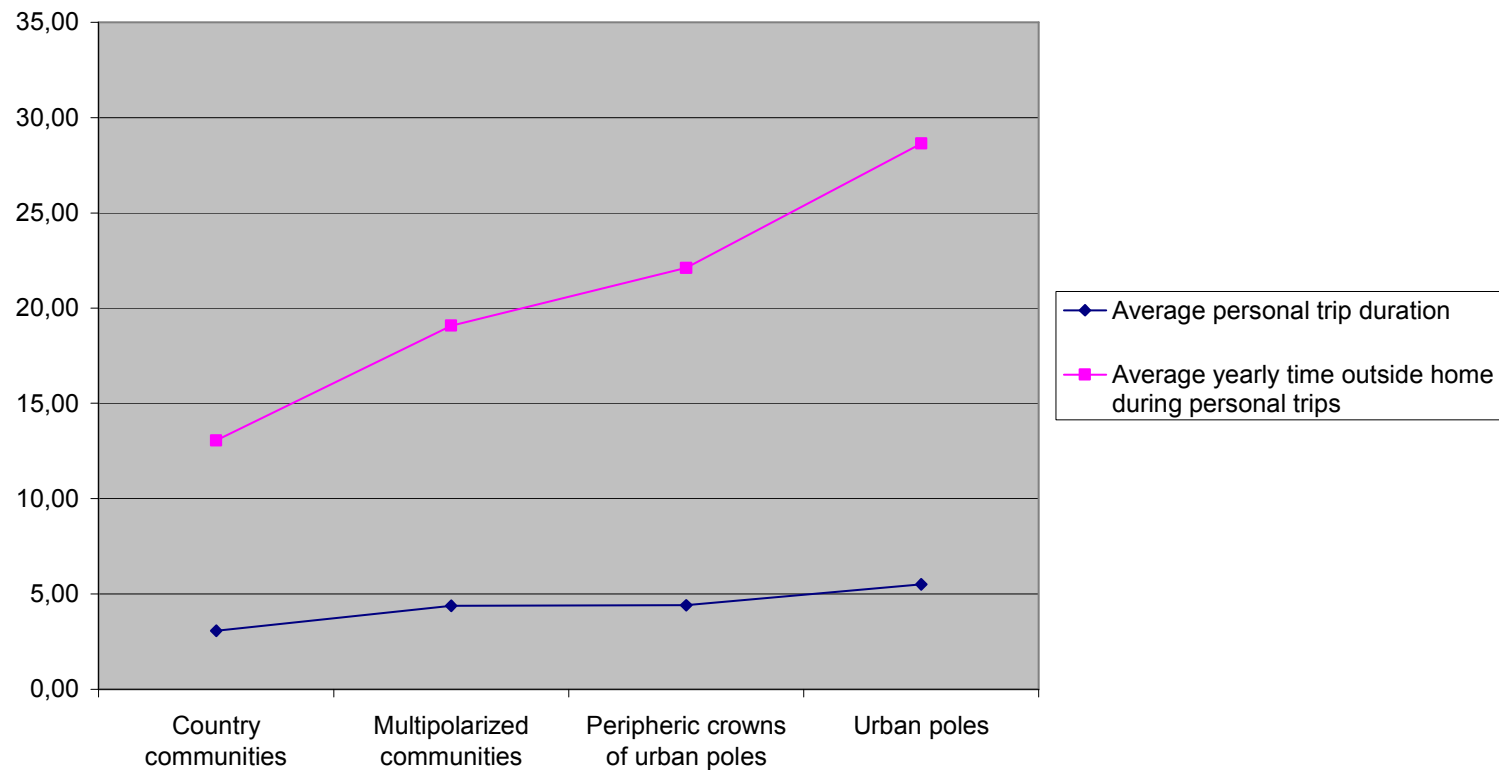
Average individual covered distance during personal trips and average covered distance by trip, depending on central/peripheric position within urban area



Long-distance personal mobility grows with urban density



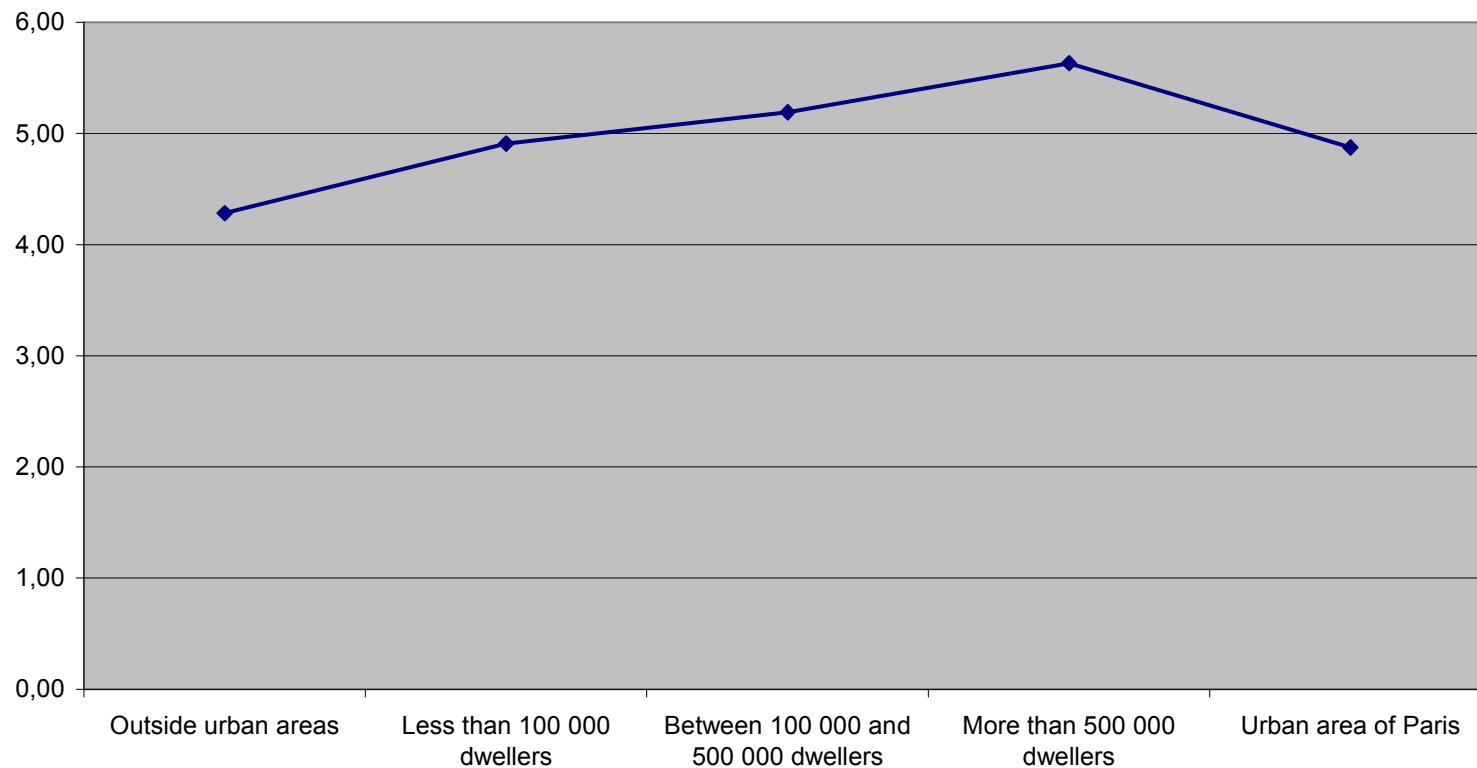
Average time outside home during personal trips and averaged trip duration, depending on central/peripheric position in urban area, in 2008



However, car trip frequency is weaker in densest urban areas



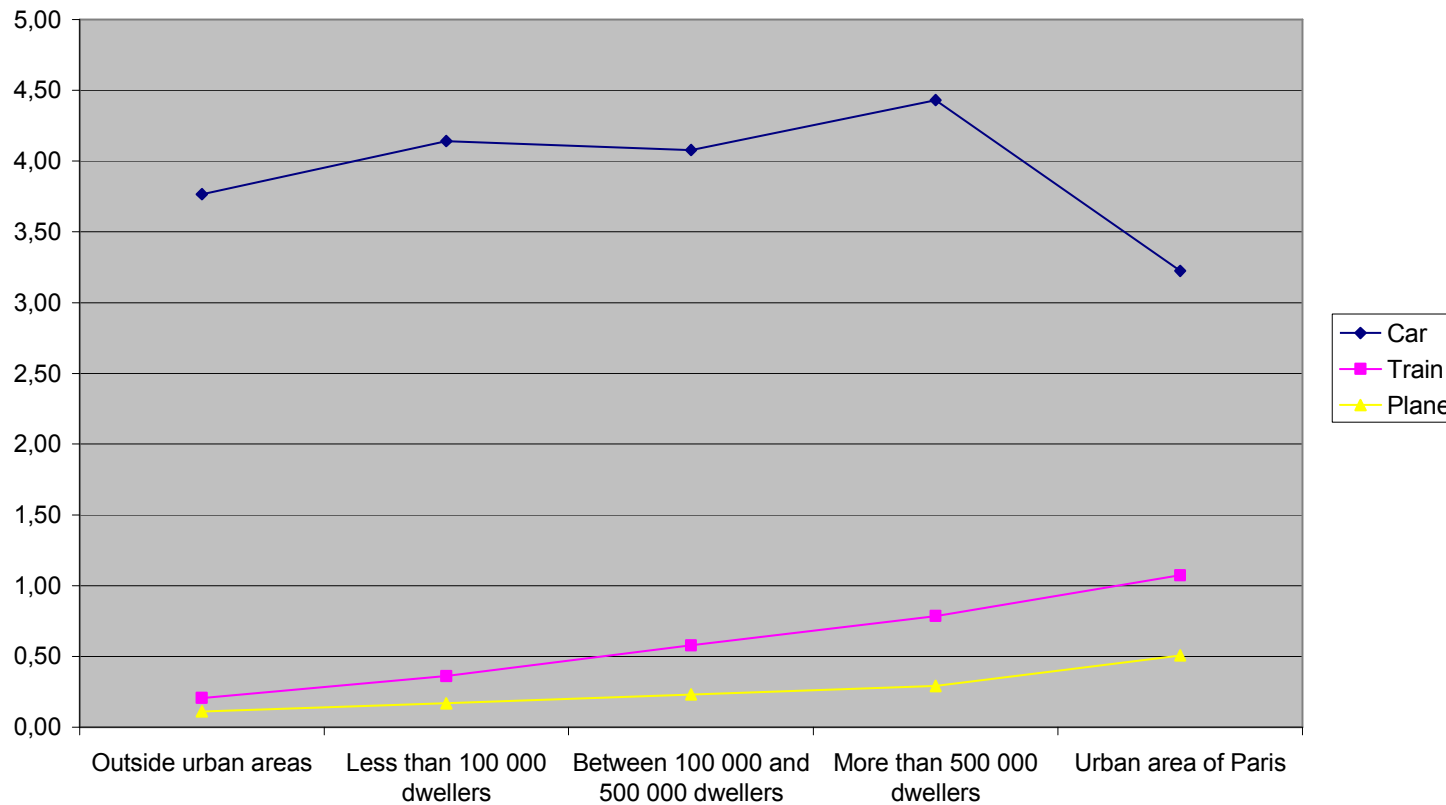
Yearly average individual personal trip frequency, depending on size of urban area, in 2008



However, car trip frequency is weaker in densest urban areas



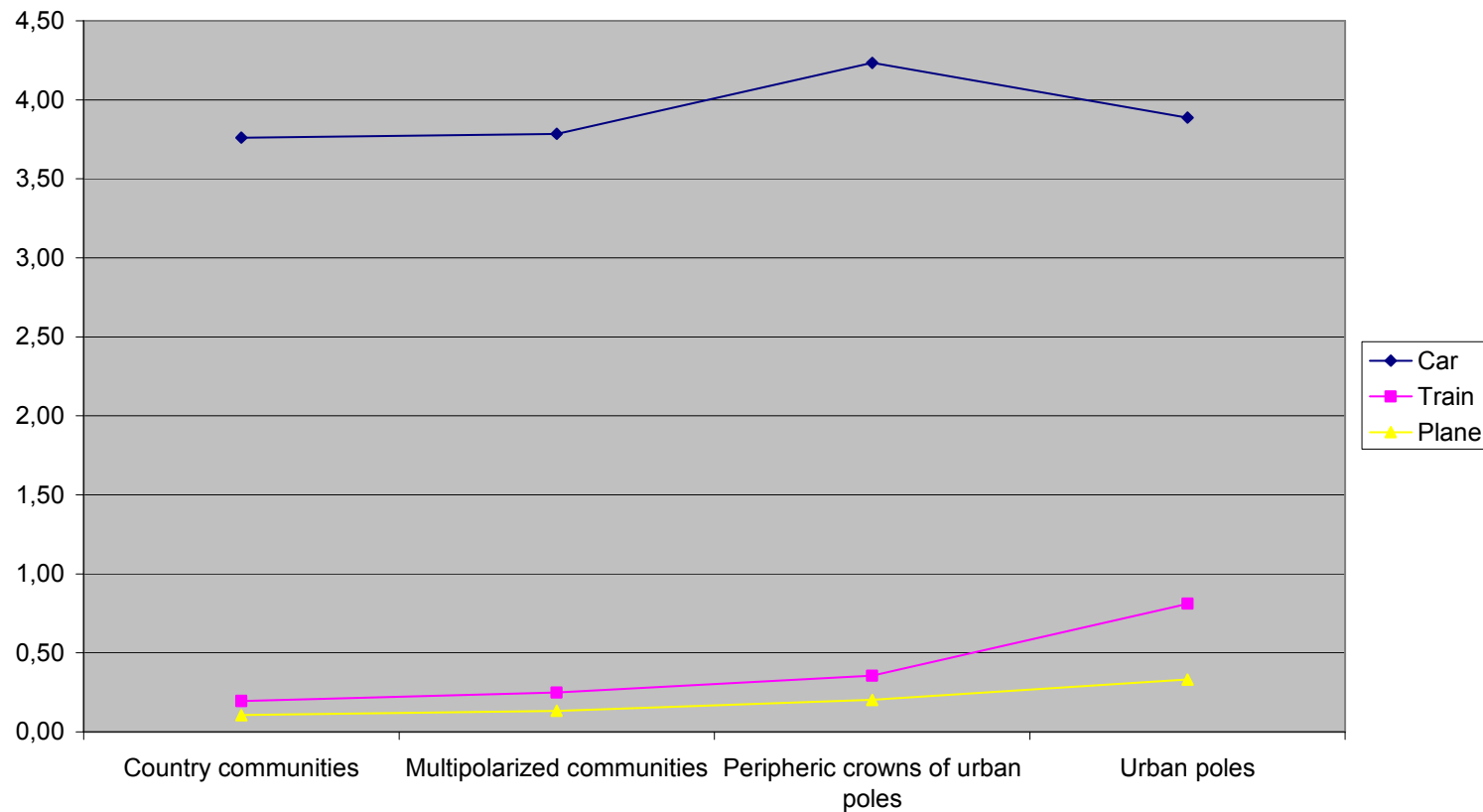
Average yearly personal trip frequency, by mode, depending on the size of urban area, in 2008



However, car trip frequency is weaker in densest urban areas



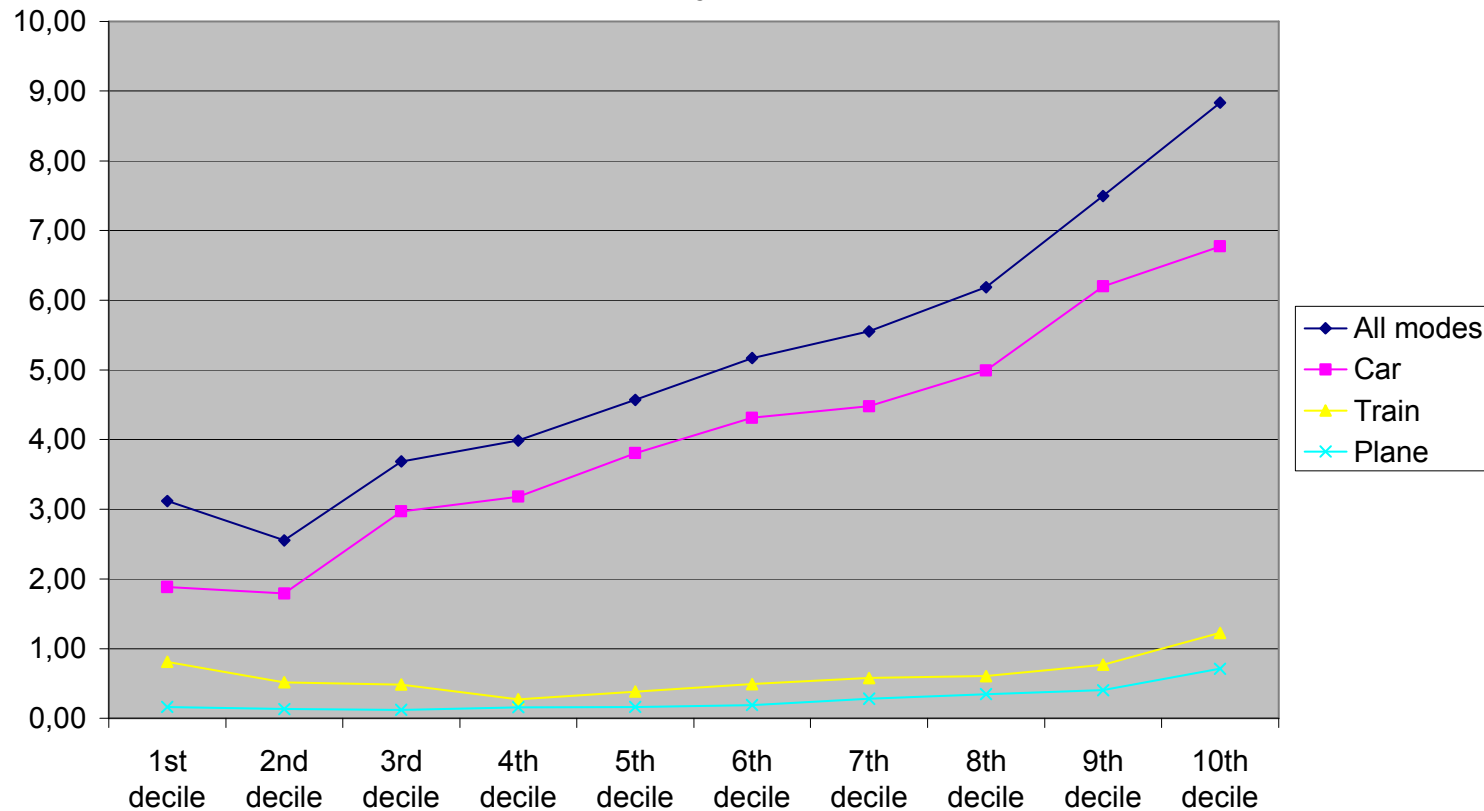
Average yearly personal trip frequency, depending on central/peripheric position within urban areas



Long-distance mobility increases much with socioeconomic position...



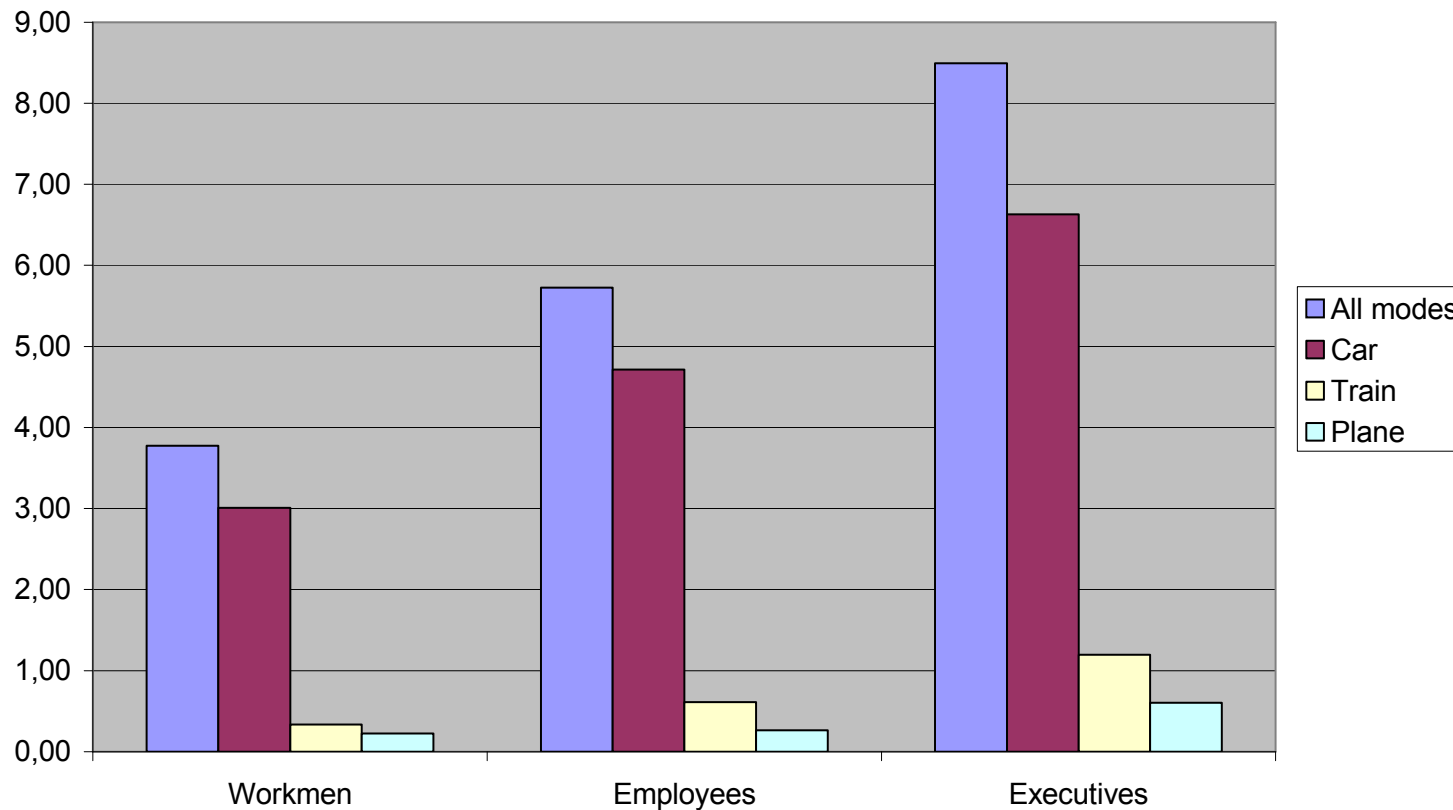
Yearly long-distance personal trip frequency, by mode, in 2008, depending on deciles of income by consumption unit



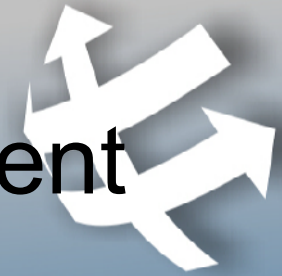
Long-distance mobility increases much with socioeconomic position...



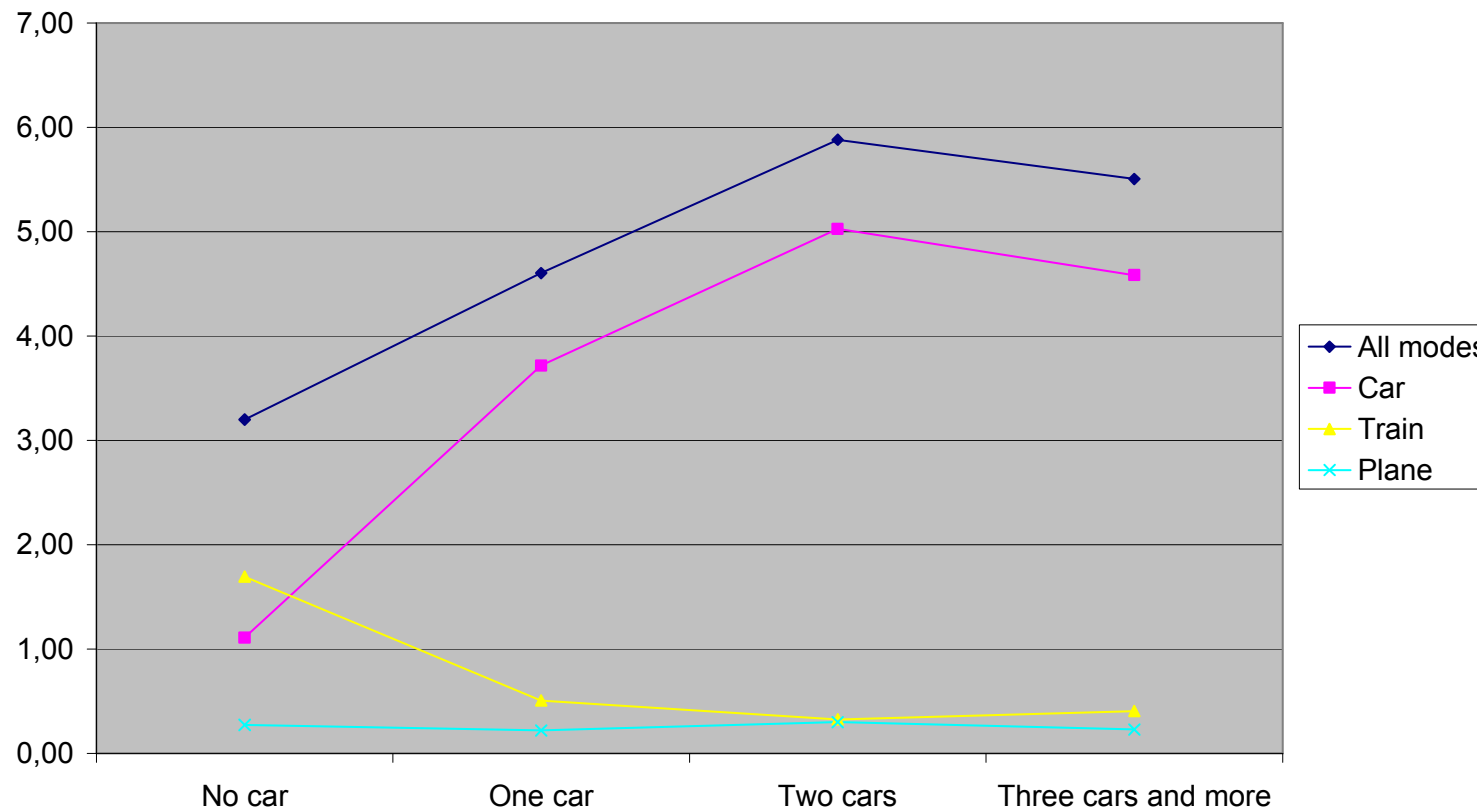
Yearly long-distance personal trip frequency, by mode in 2008, depending on socioprofessional group



...and with the level of car equipment



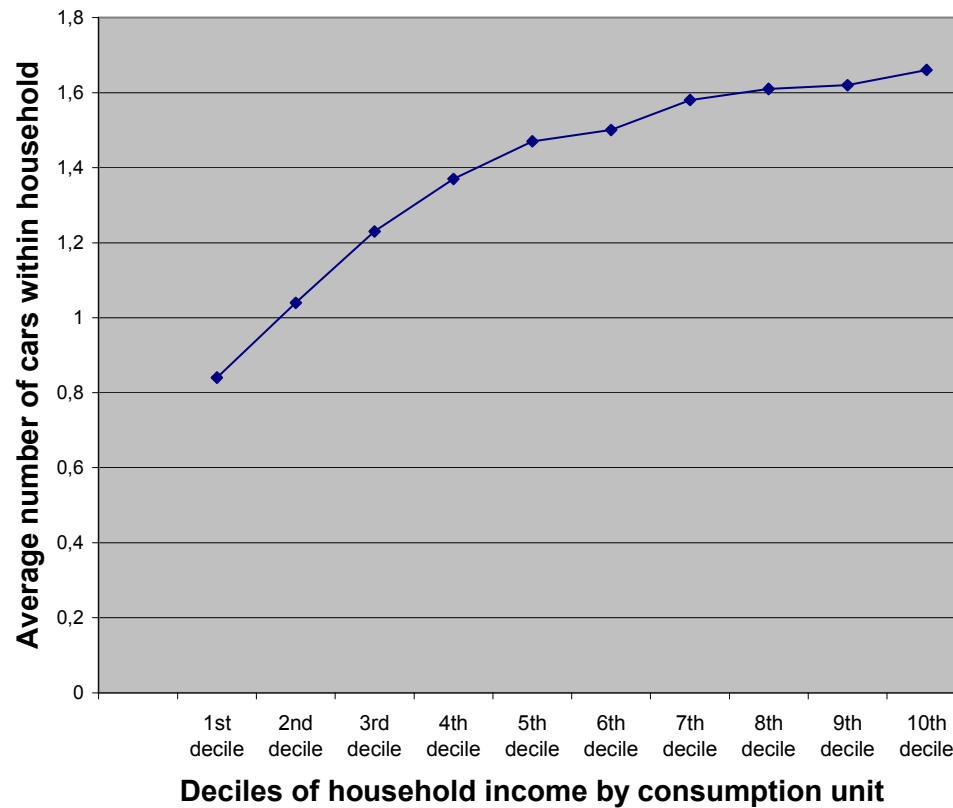
Average yearly long-distance personal trip frequency, by mode, depending on the household level of car equipment



Financial resources and car equipment are correlated



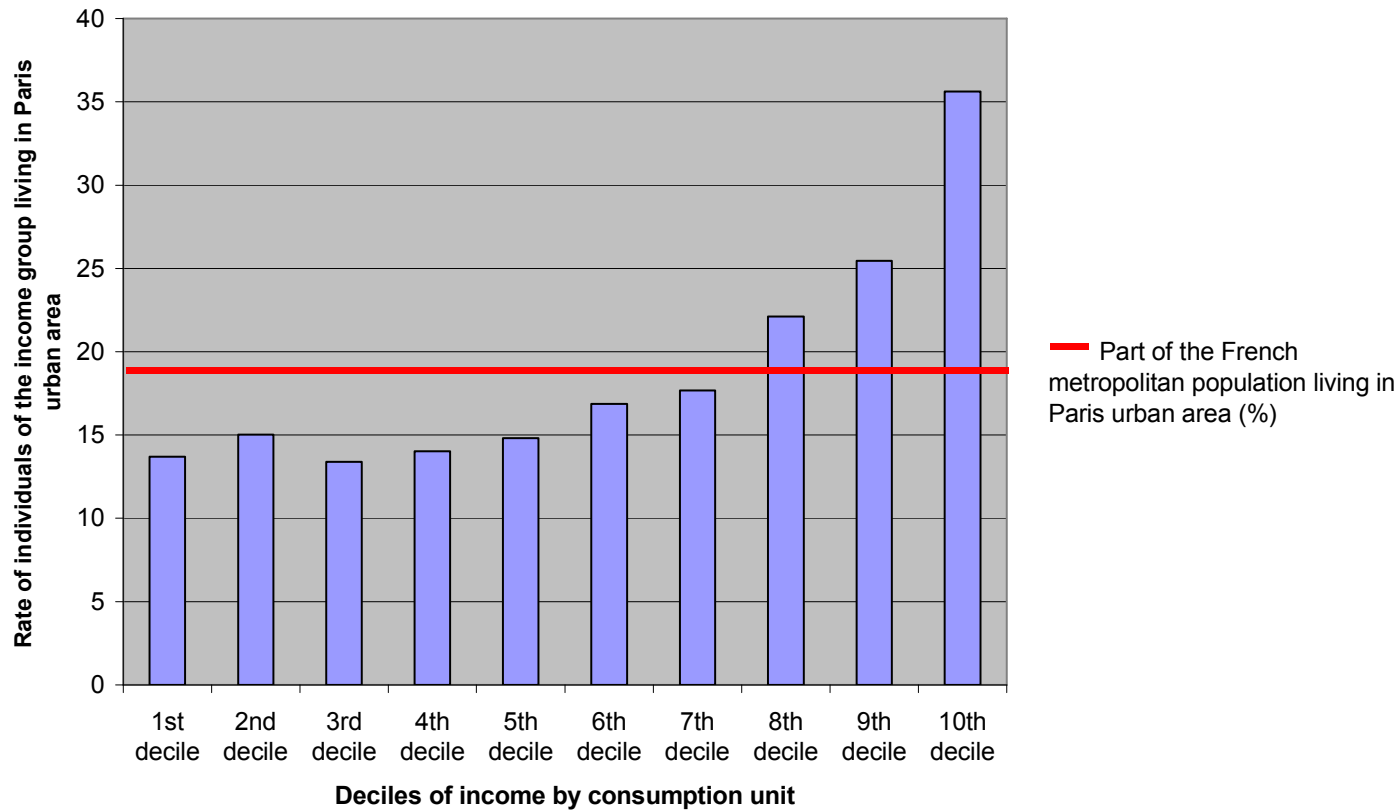
Level of car equipment depending on deciles of household income by consumption unit



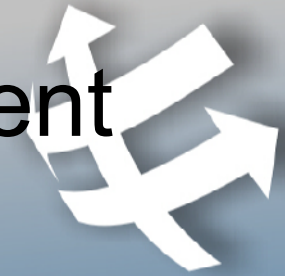
However, income and car equipment vary inversely with urban density



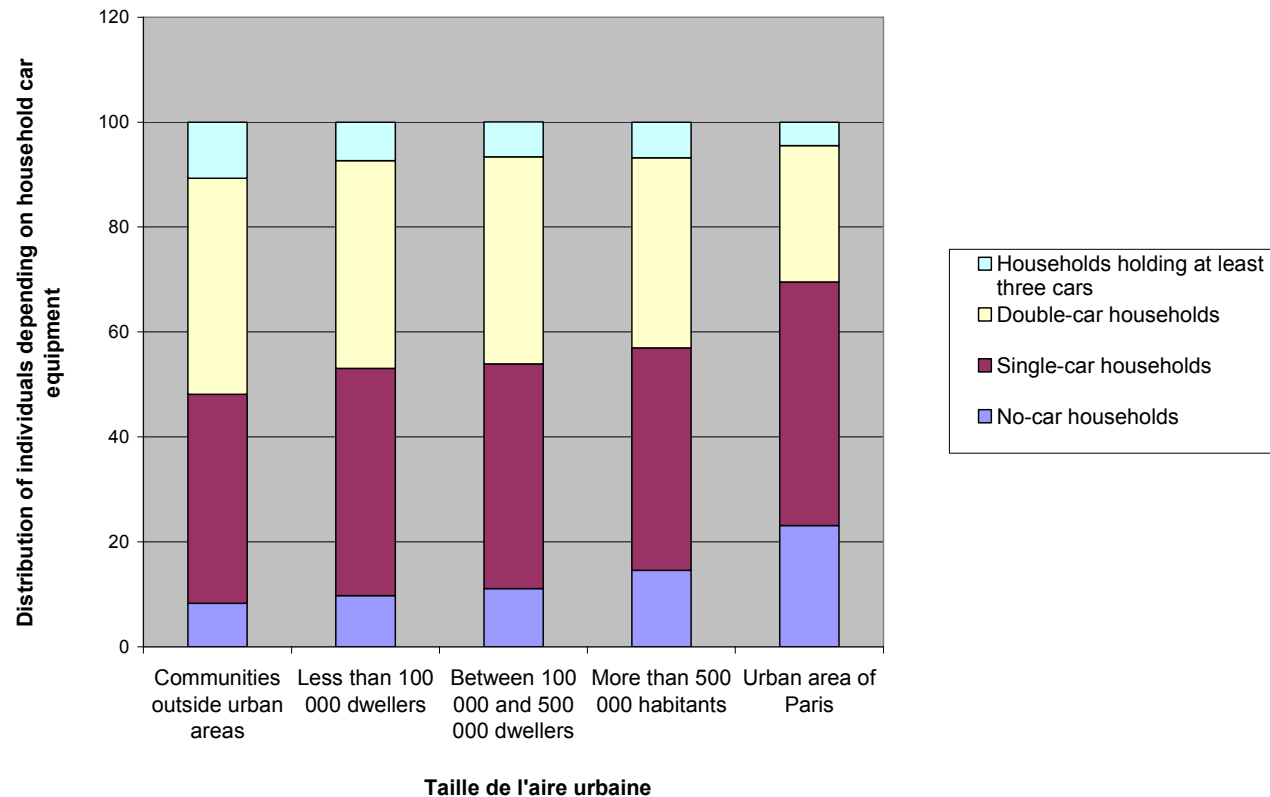
Rate of each income group living in the Paris urban area (%)



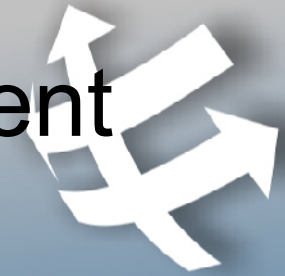
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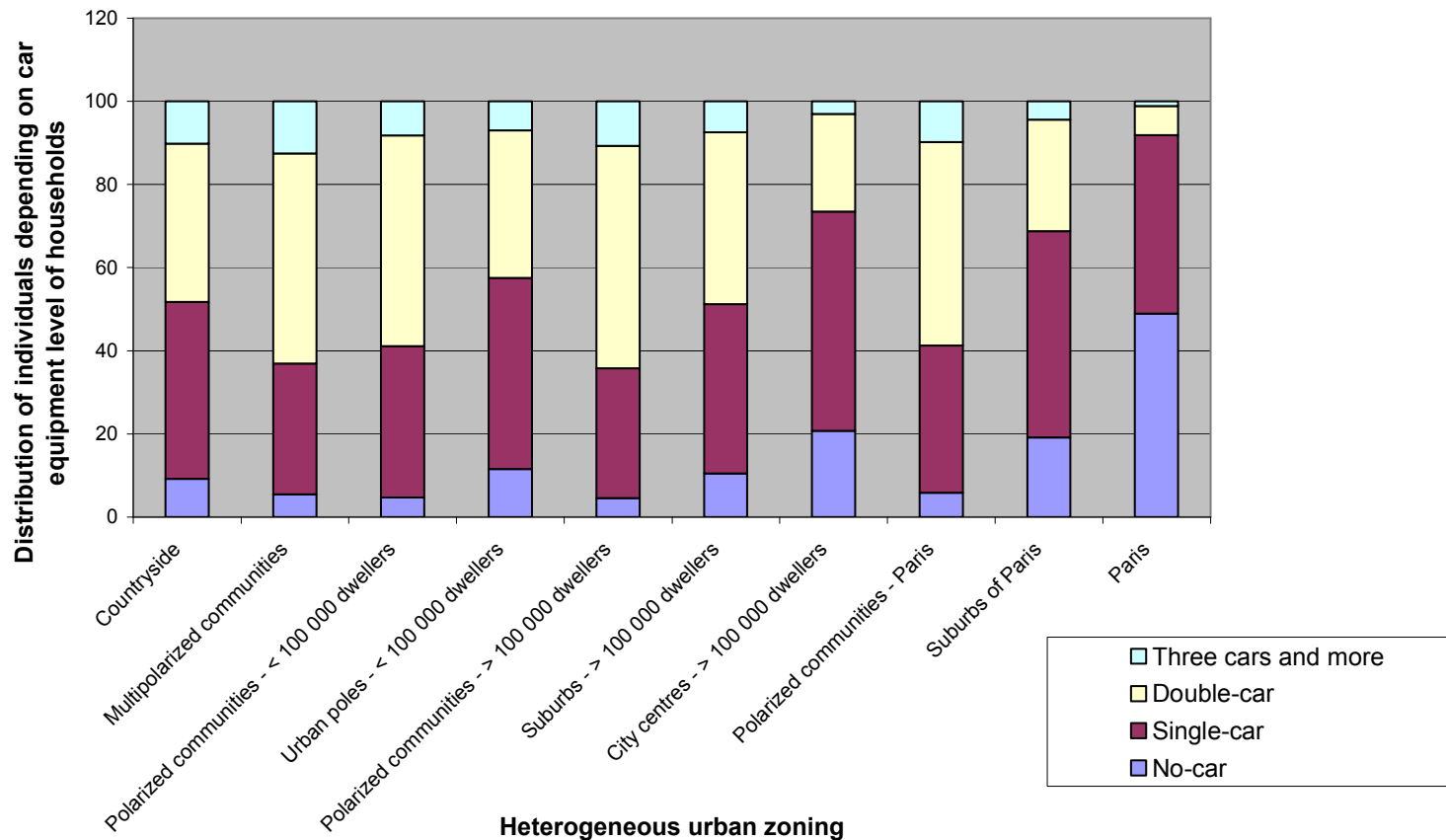
Distribution of individuals depending on the level household car equipment, with respect to the size of urban area, in 2008



However, income and car equipment vary inversely with urban density



Household car equipment level and heterogeneous urban zoning



A weaker use of car for long-distance mobility in the urban area of Paris

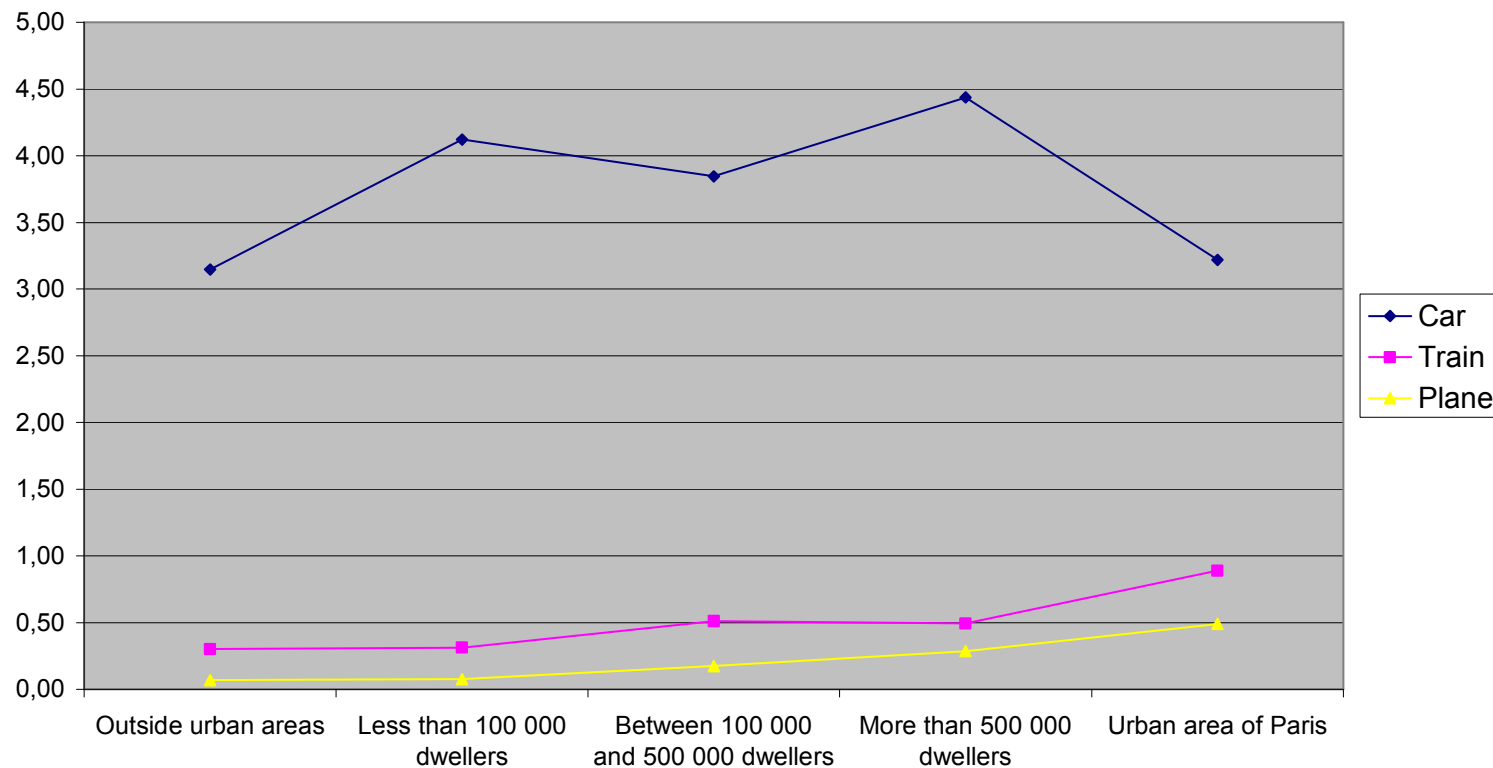


- Weak car equipment level partly explains weak car personal long-distance mobility among dwellers of the urban area of Paris...
- ...but they also travel less for a given level of car equipment.

A weaker use of car for long-distance mobility in the urban area of Paris



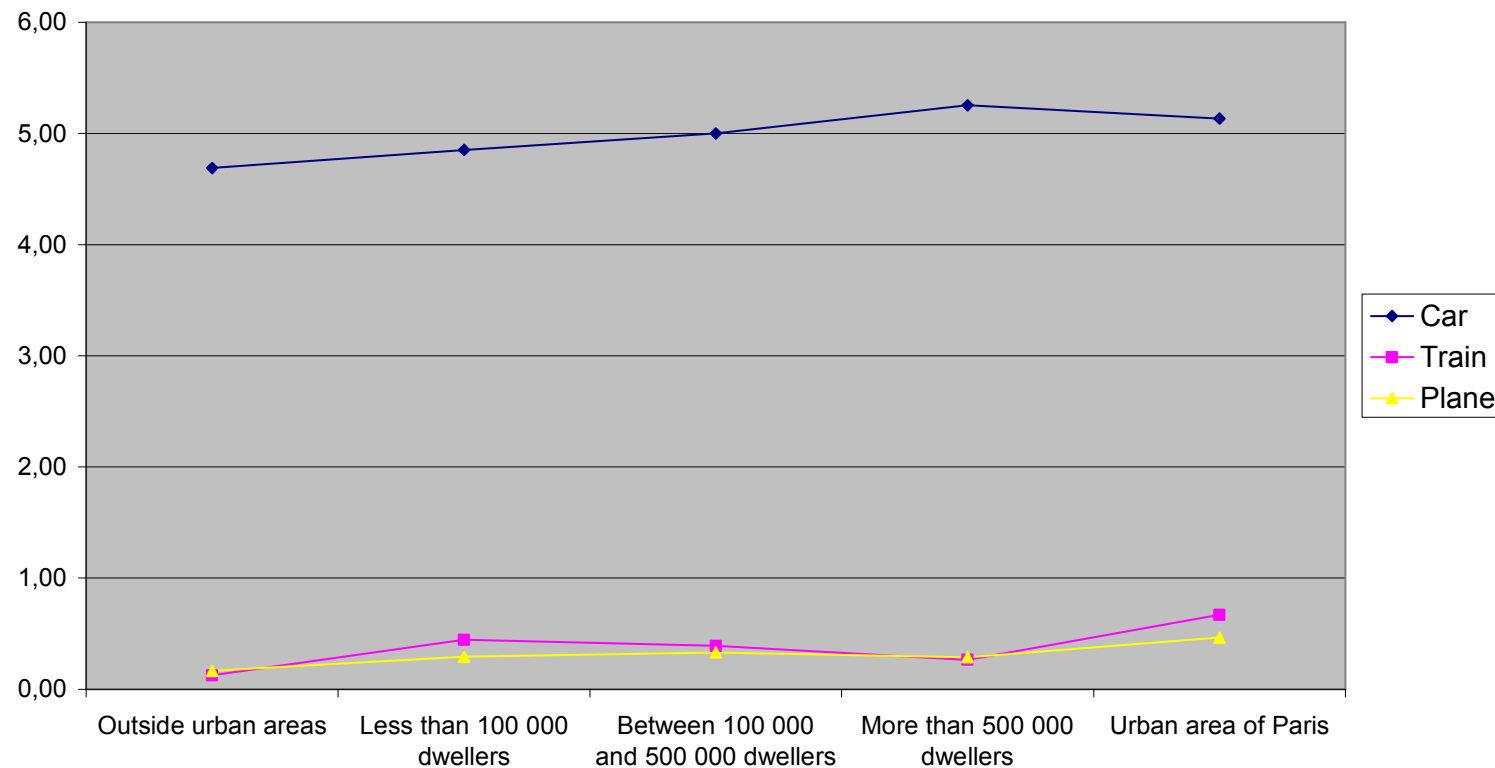
Yearly average personal long-distance trip frequency, by mode, depending on urban size, individuals belonging to single-car households



A weaker use of car for long-distance mobility in the urban area of Paris



Yearly average personal long-distance trip frequency, by mode, depending on urban size, individuals belonging to double-car households



Mobility needs influence short-distance and regular mobility practices...



- As for short-distance, regular trips, long-distance practices (intensity of car use and modal shares) are influenced by urban density.
- A reasonable explanation is to assume that both decisions of car equipment and intensity of car use are influenced by short-distance or regular mobility needs (house to work, shopping trips, school accompanying), strongly depending on housing position within the urban area in a central-form of urban organisation.
- In the central part of the urban area of Paris especially, the need for car is not as much critical as elsewhere. It may even be very uncomfortable because of congestion, parking difficulties and costs.

...that may indirectly influence long-distance behaviours

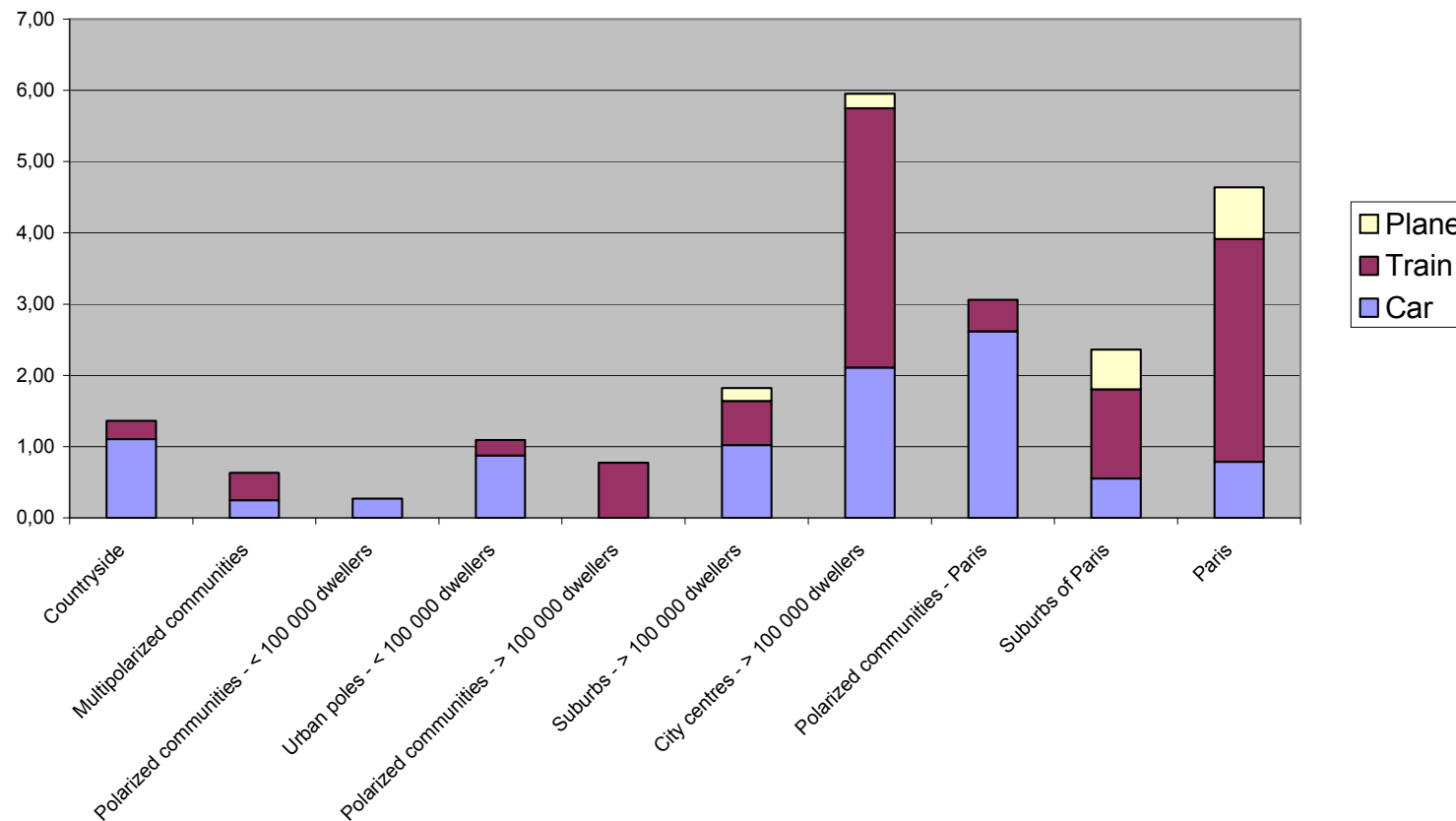


- Giving up car or restraining car use may thus become a sensible strategy in densest urban areas.
- Habits in short-distance mobility would then influence habits in long-distance trips : intensity of car use in long-distance trips is correlated with car use in short-distance mobility.

Car ownership assumes a role of territorial equity



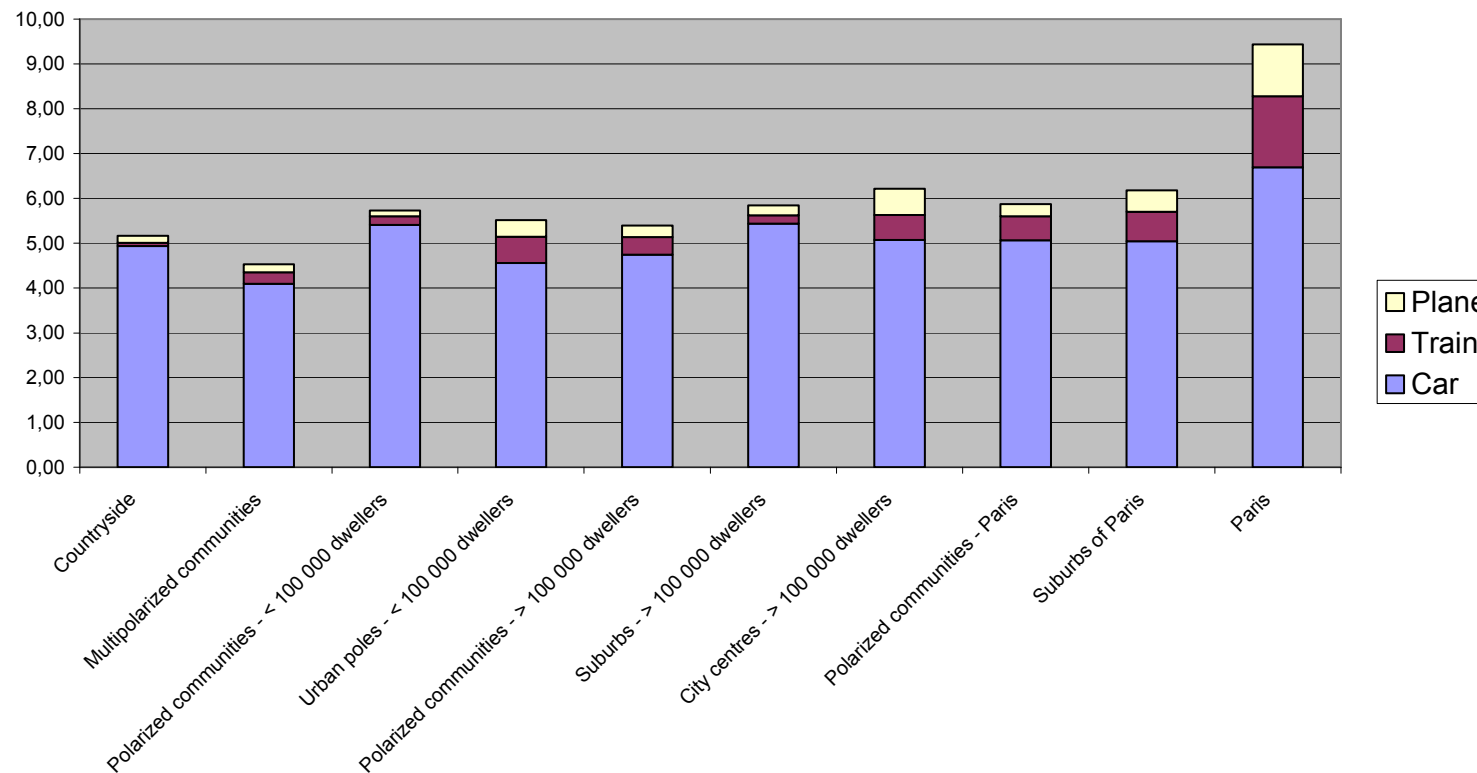
Yearly average long-distance personal trip frequency, by mode, in 2008, depending on the heterogeneous urban zoning, individuals within no-car households



Car ownership assumes a role of territorial equity



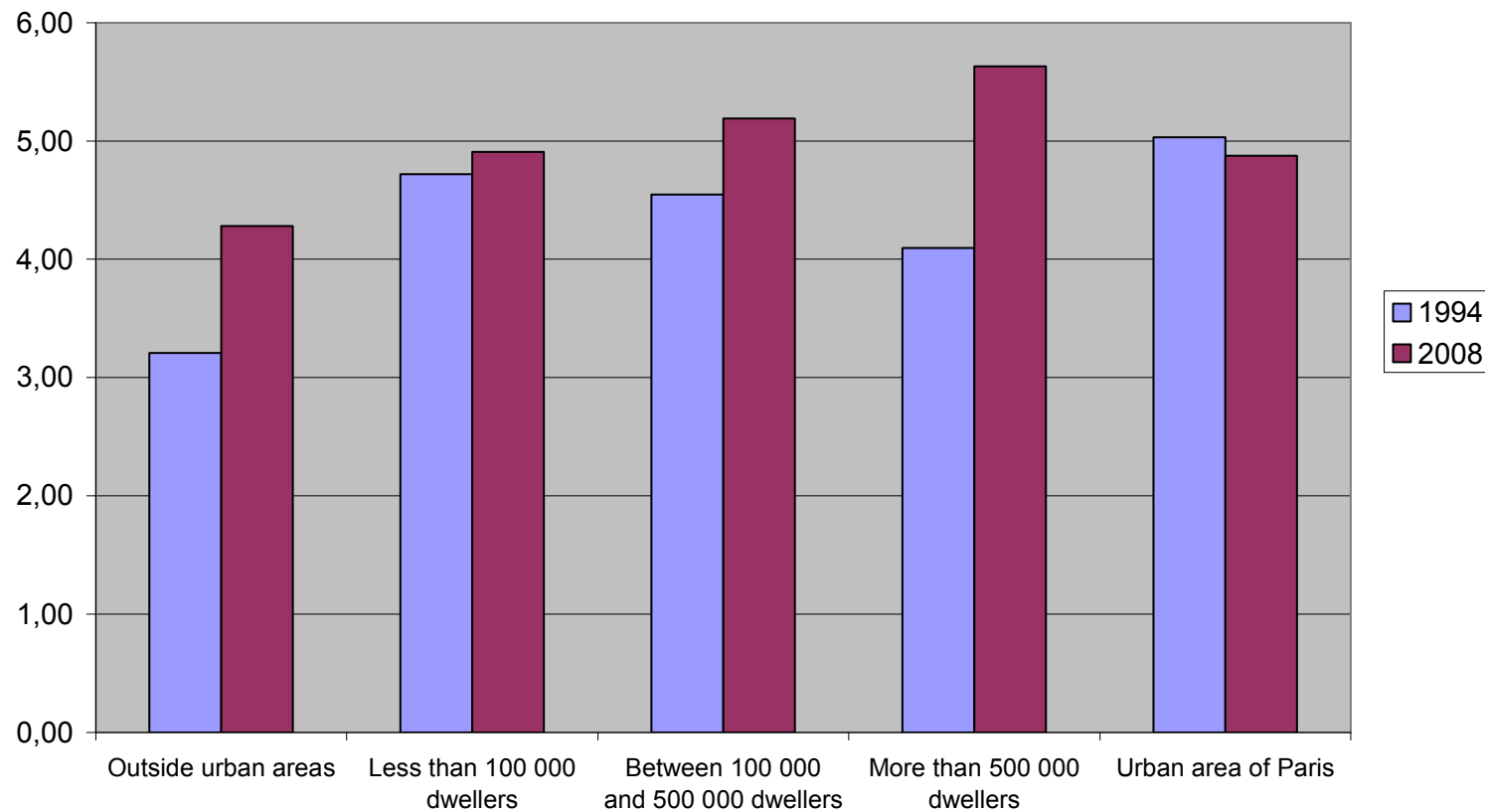
Yearly personal trip frequency, by mode, in 2008, of individuals within households holding at least two cars, depending on heterogeneous urban zoning



Changes in personal long-distance mobility, depending on urban density



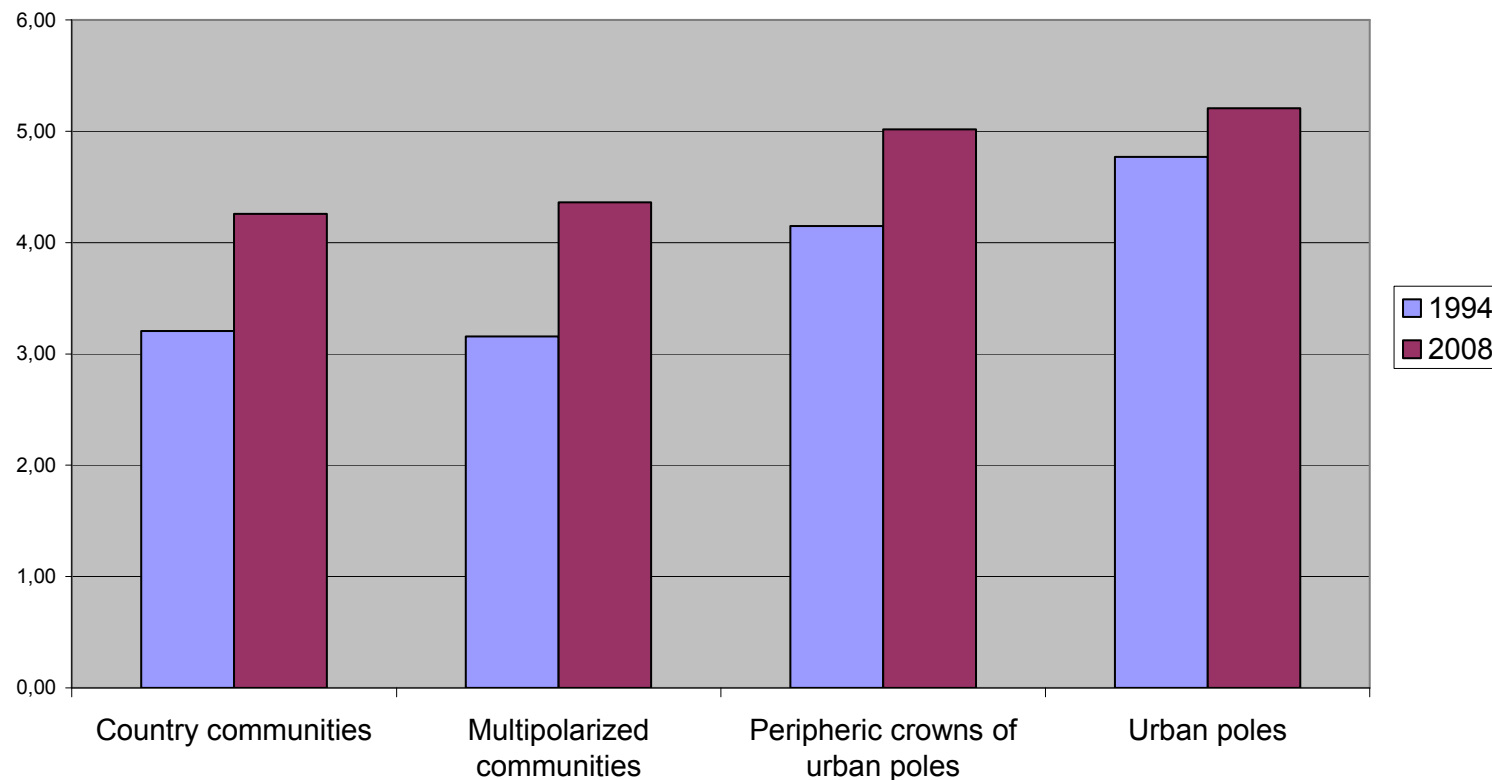
Yearly average personal long-distance trip frequency, depending on the size of urban area, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



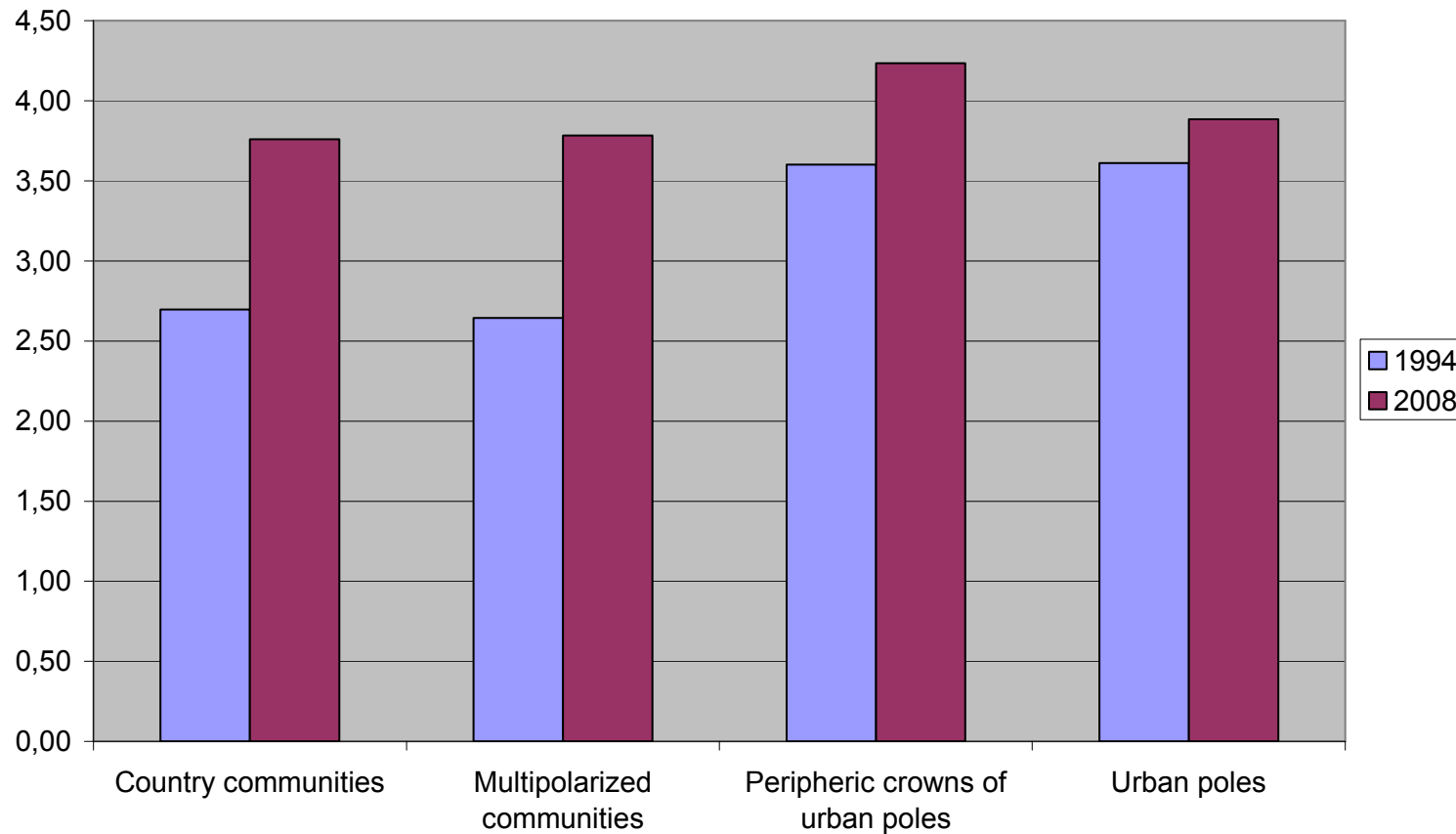
Yearly average personal long-distance trip frequency, in 1994 and 2008, depending on central/peripheric position within urban areas



Changes in personal long-distance mobility, depending on urban density



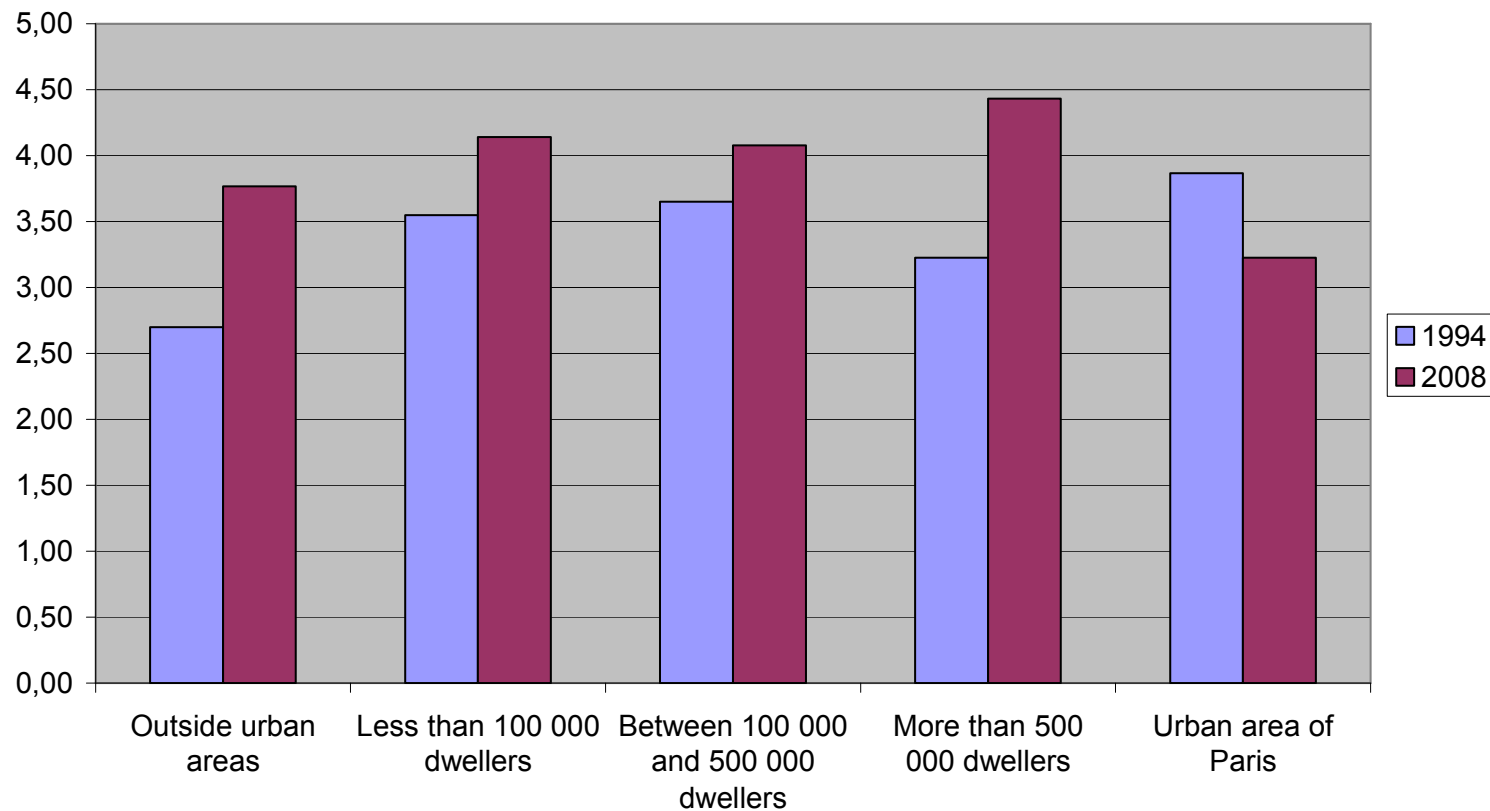
Yearly average car personal long-distance trip frequency, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



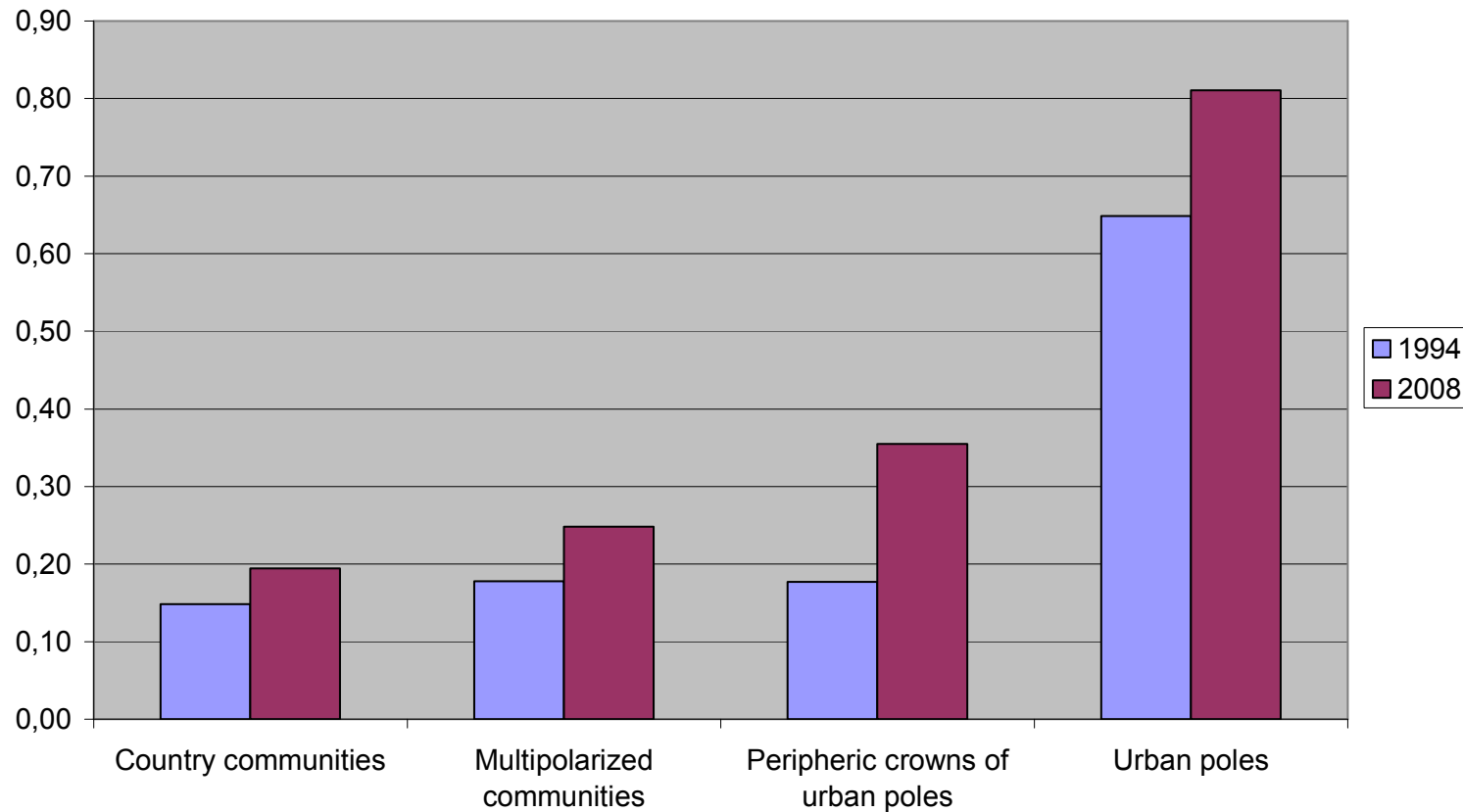
Yearly average car personal long-distance mobility, in 1994 and 2008, depending on the size of urban areas



Changes in personal long-distance mobility, depending on urban density



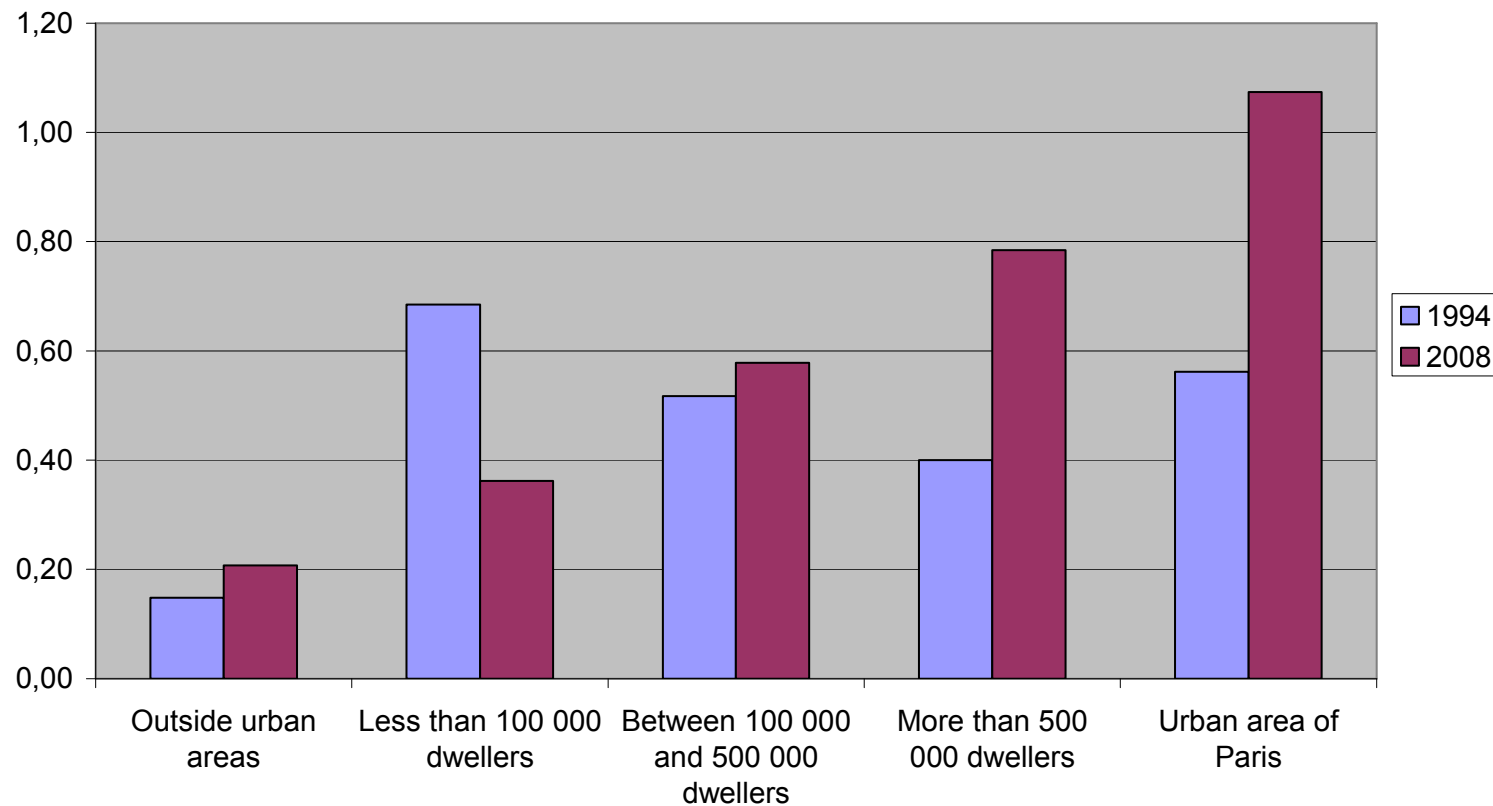
Yearly average personal long-distance train trip frequency, depending on peripheric/central position in urban areas, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



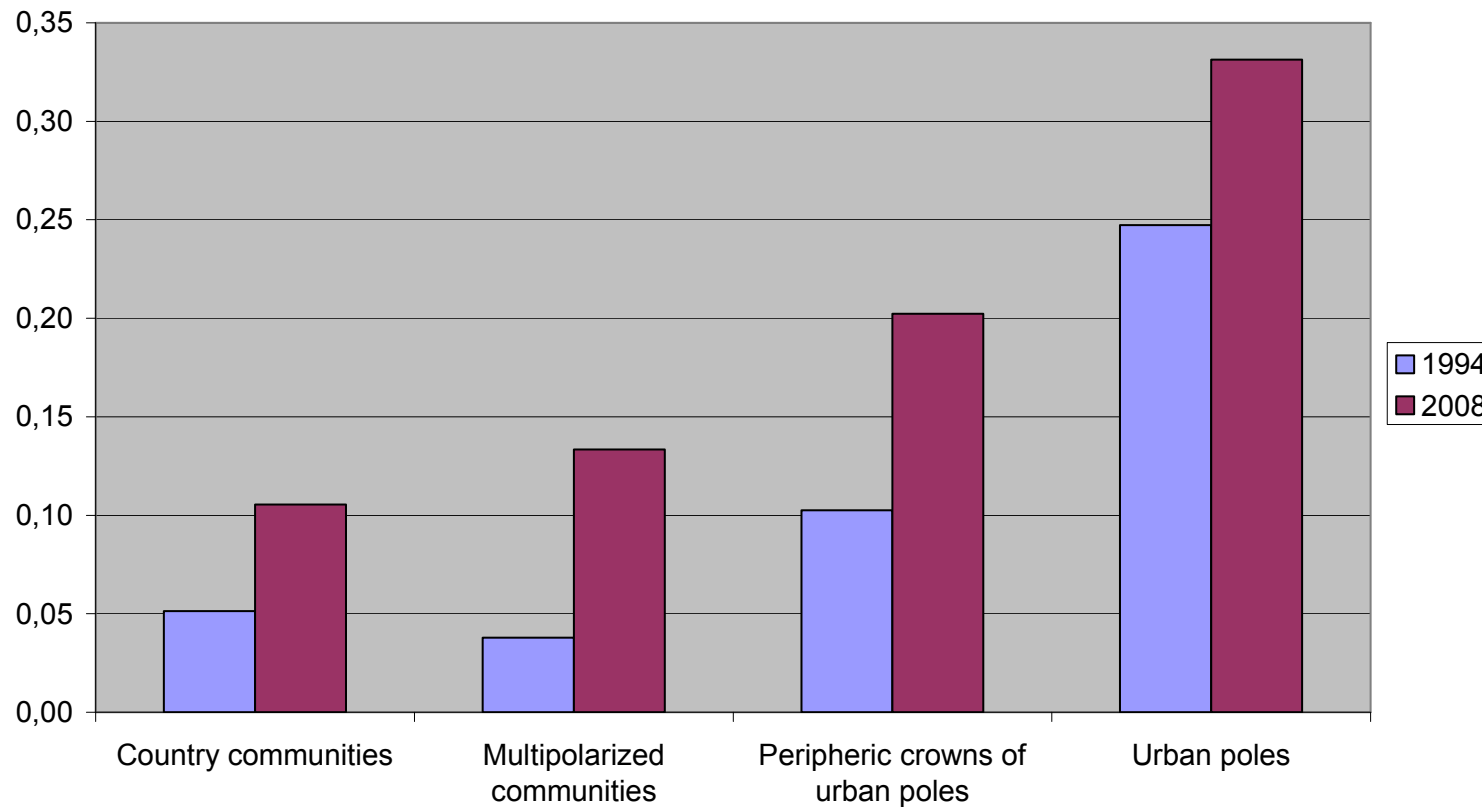
Yearly average personal long-distance train trip frequency, depending on the size of urban area, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



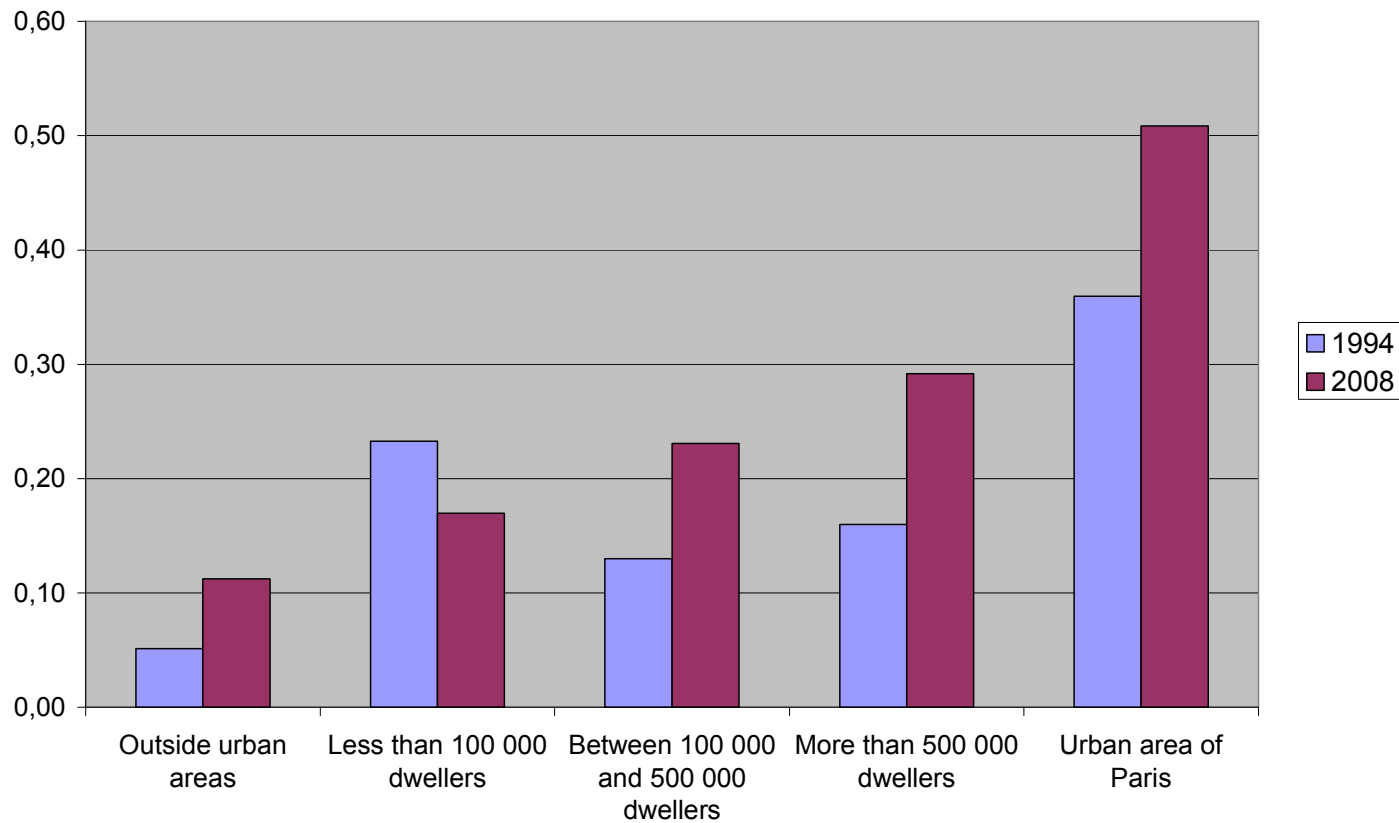
Yearly average personal long-distance plane trip frequency, depending on peripheric/central position within urban areas, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



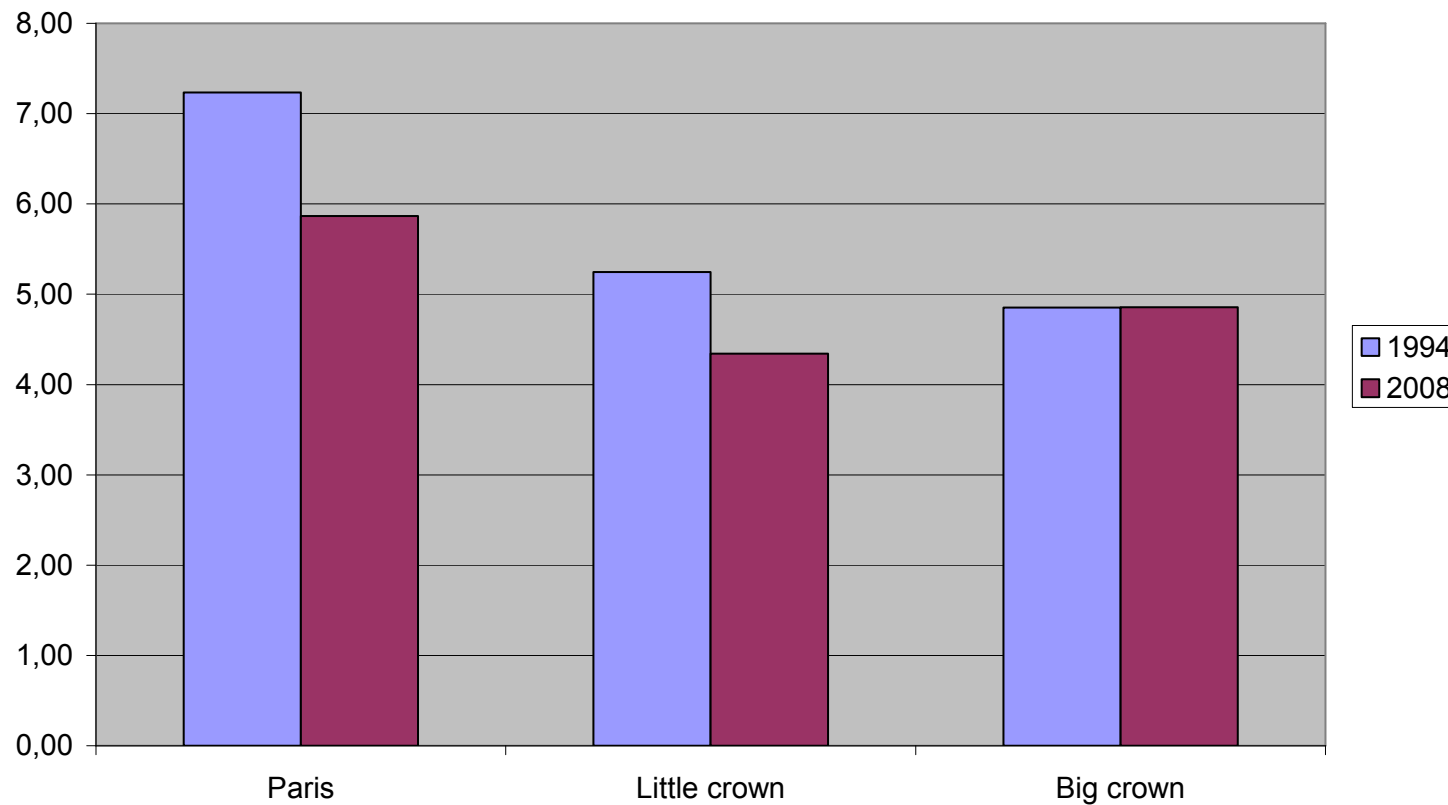
Yearly average personal long-distance plane trip frequency, depending on the size of urban area, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



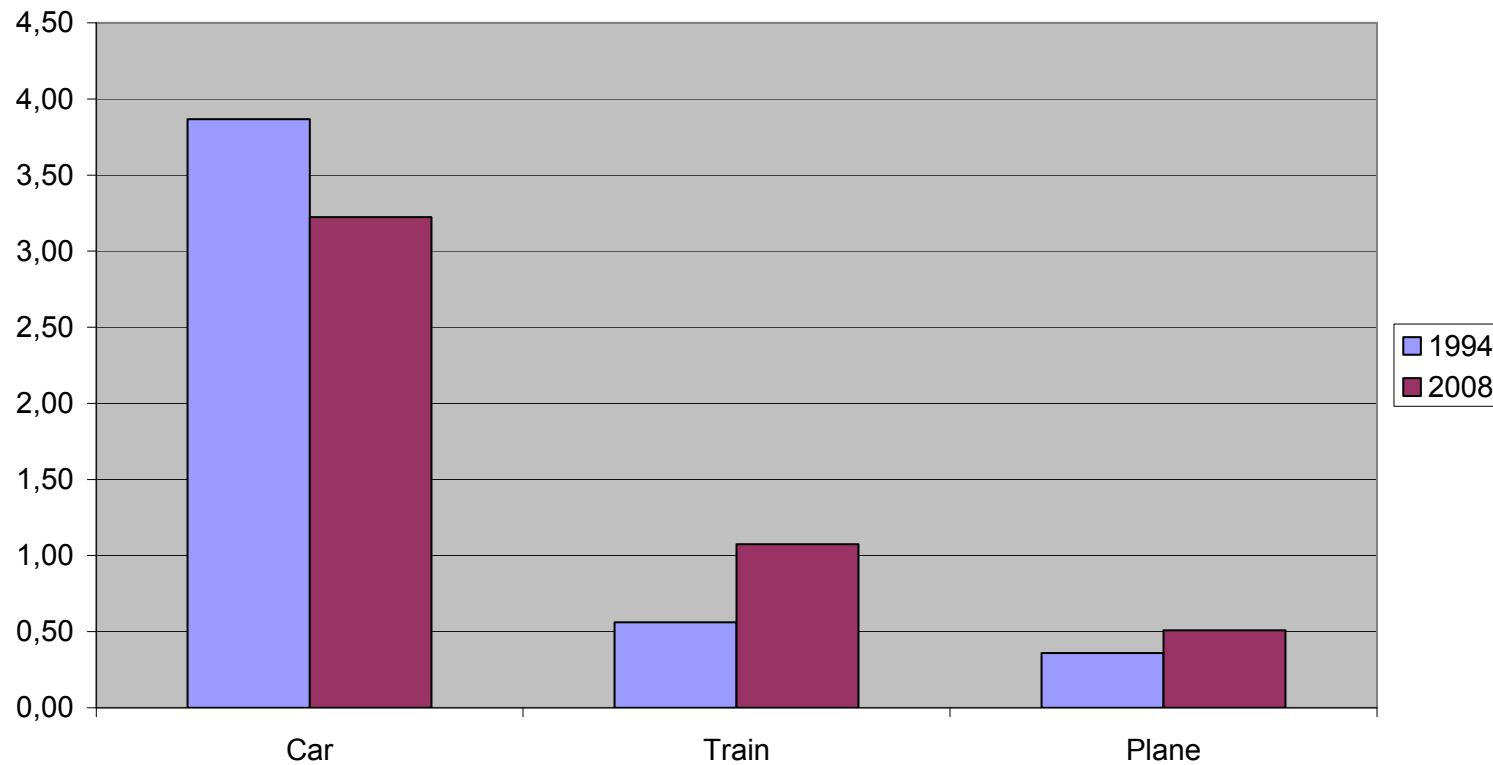
Yearly individual personal trip frequency in the area of Paris, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



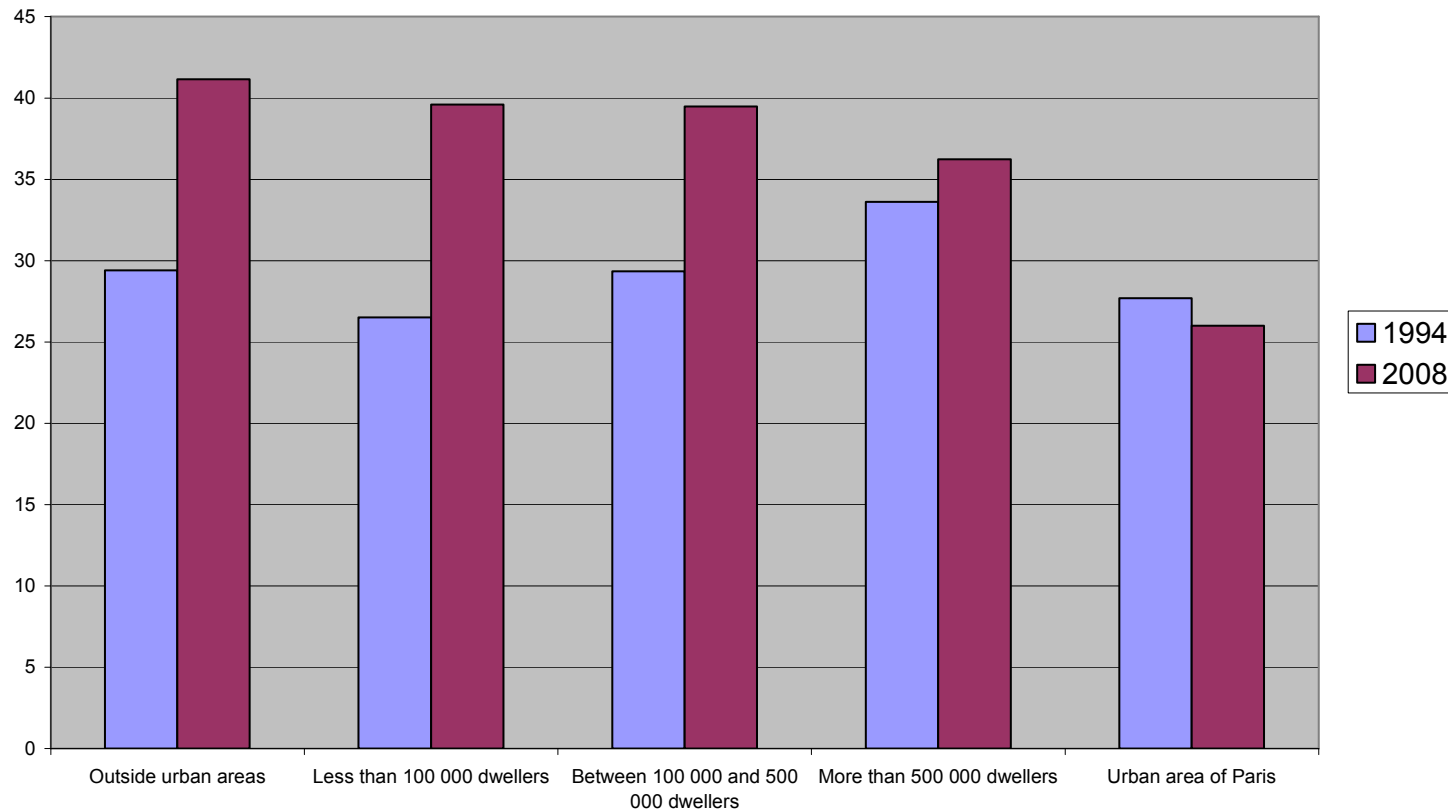
Yearly long-distance personal trip frequency of inhabitants of Paris urban area, by mode, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



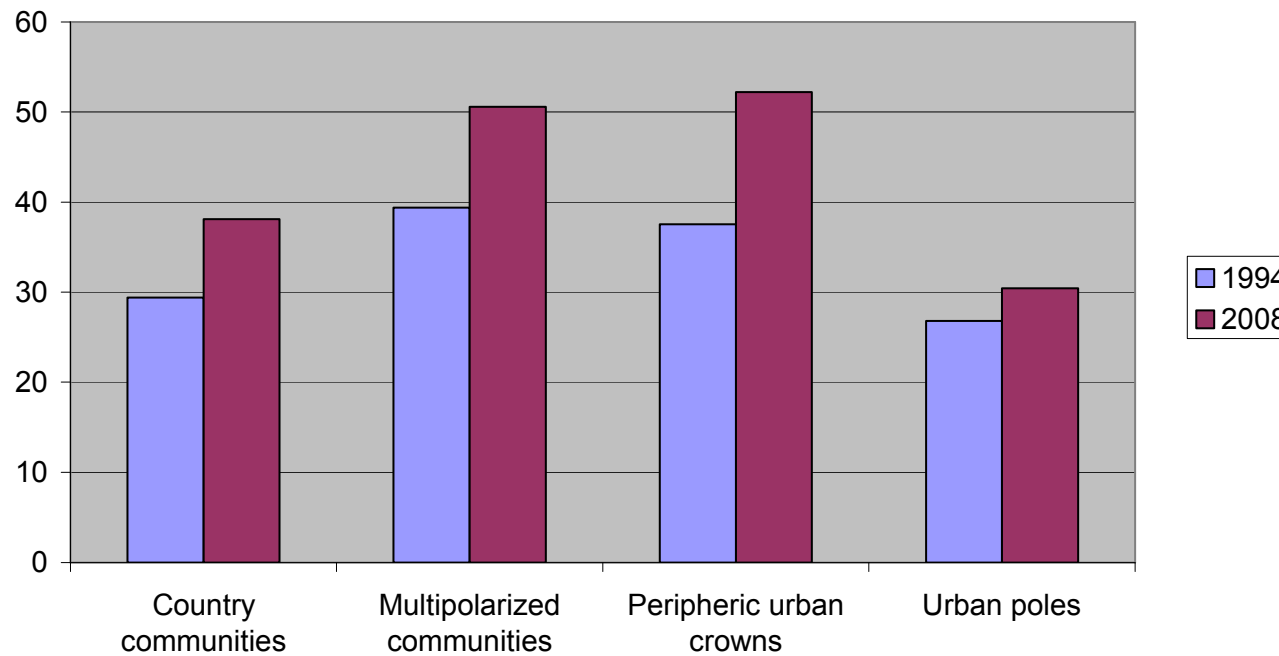
Rate of individuals within households holding at least two cars, depending on the size of urban area, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



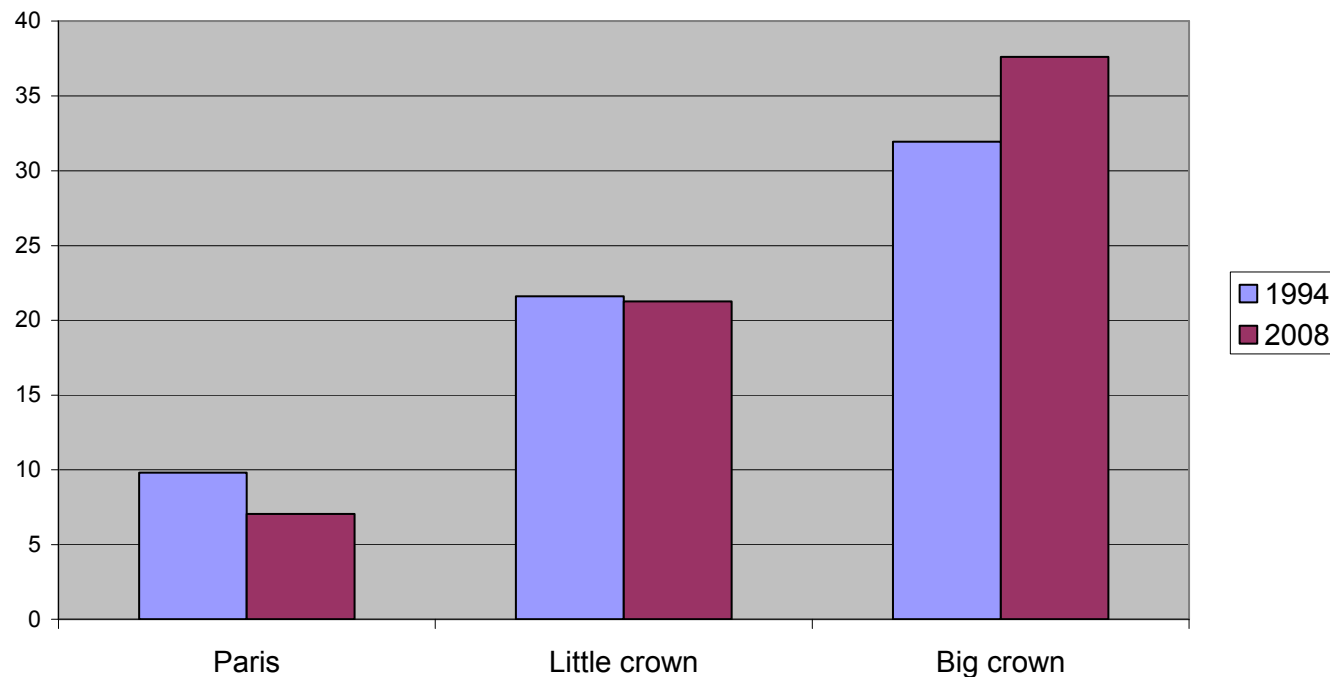
Rate of individuals living within households holding at least two cars, depending on position within the urban area, in 1994 and 2008



Changes in personal long-distance mobility, depending on urban density



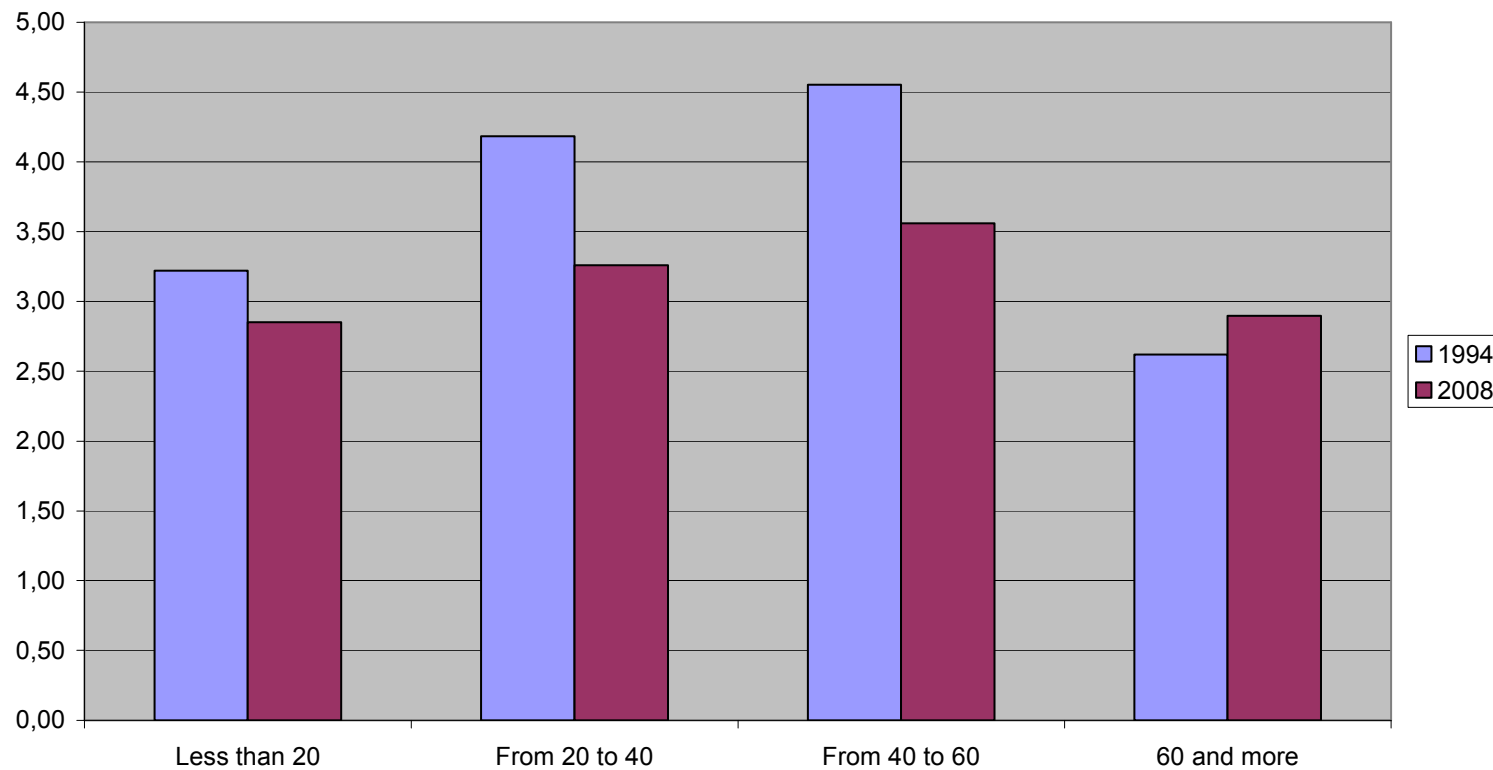
Rate of individuals within households holding at least two cars, in the urban area of Paris, in 1994 and 2008



The generational factor in changing behaviours



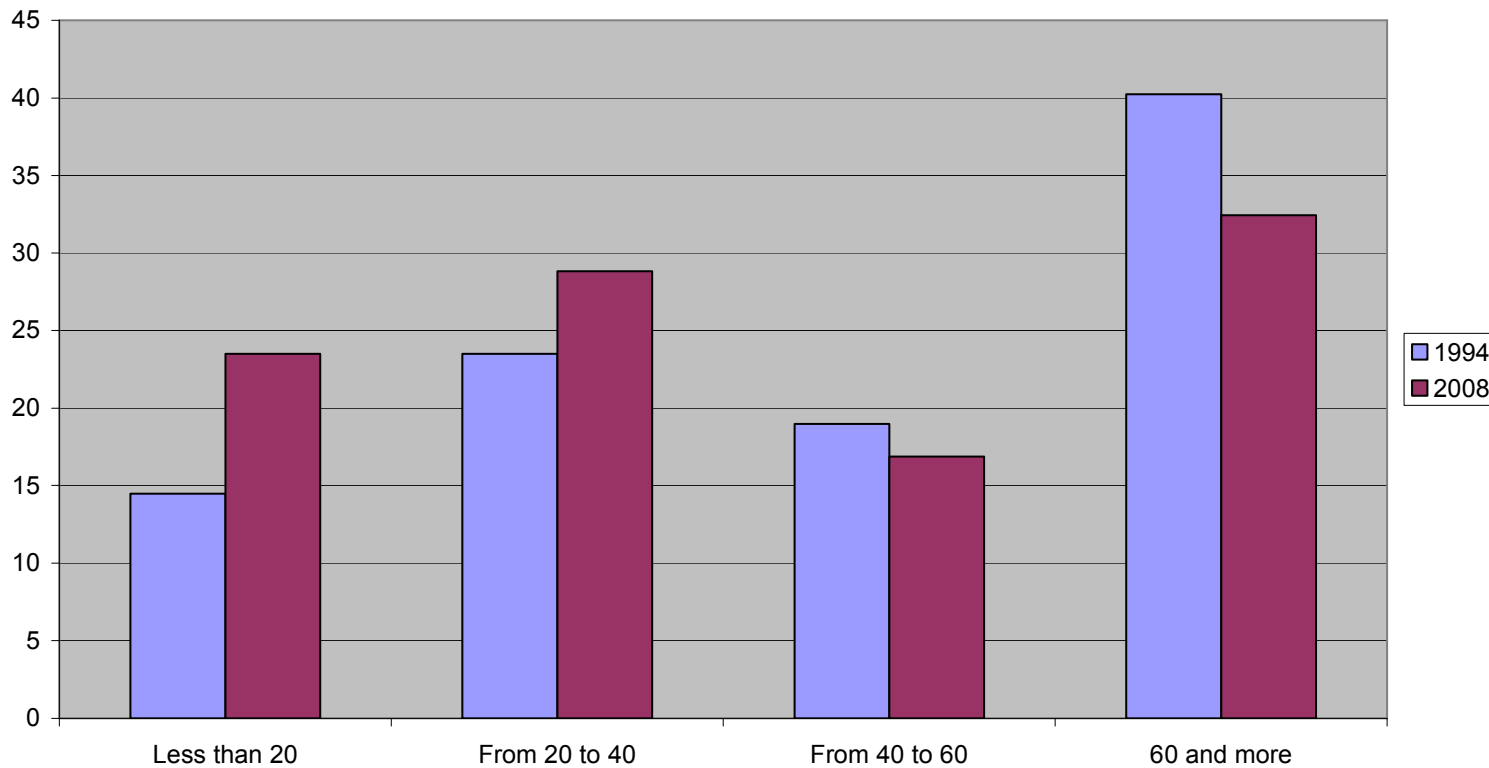
Average yearly individual long-distance car personal trip frequency, depending on age, in 1994 and 2008, in the Paris urban area



The generational factor in changing behaviours



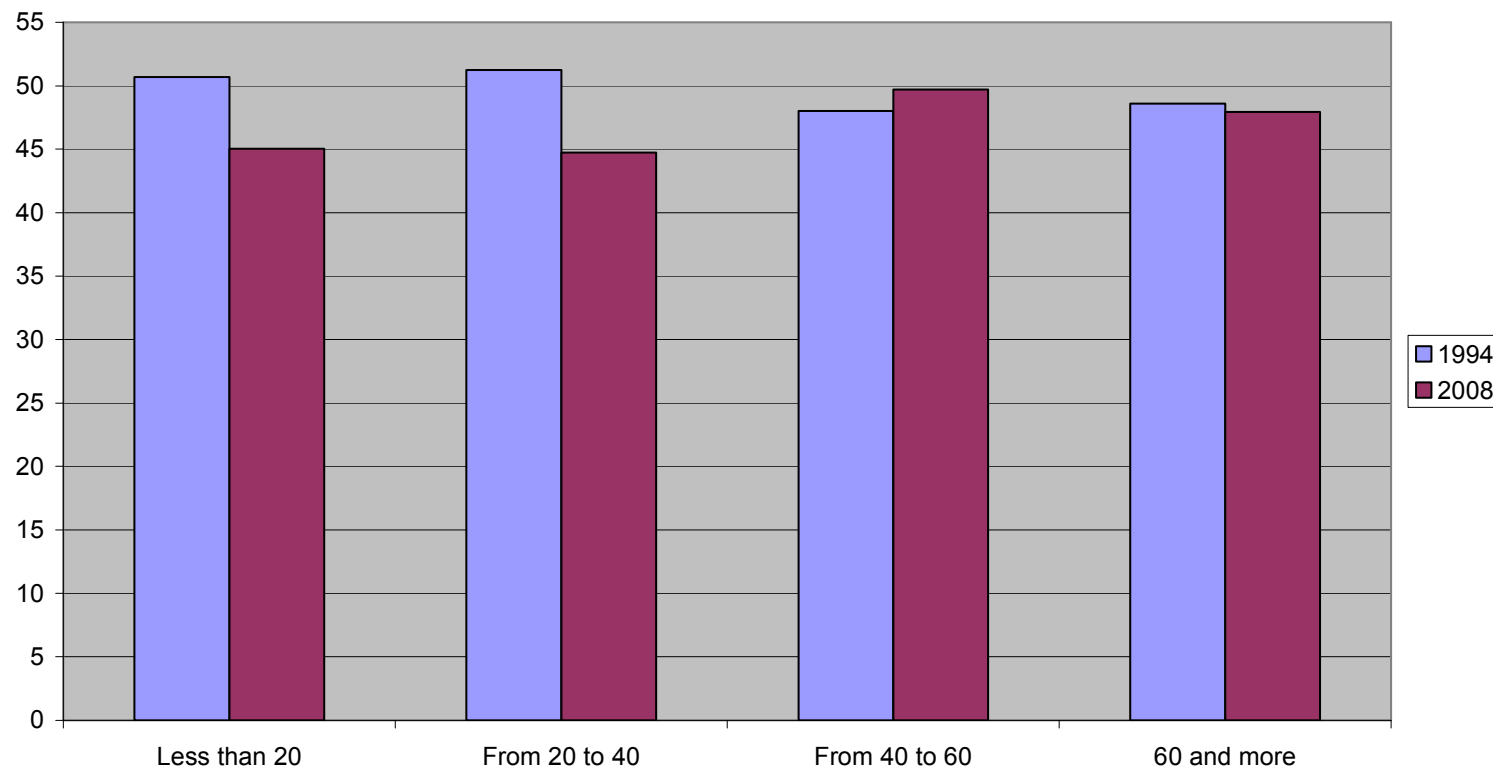
Rate of individuals within "no-car" households in "Ile-de-France", in 1994 and 2008 (%)



The generational factor in changing behaviours



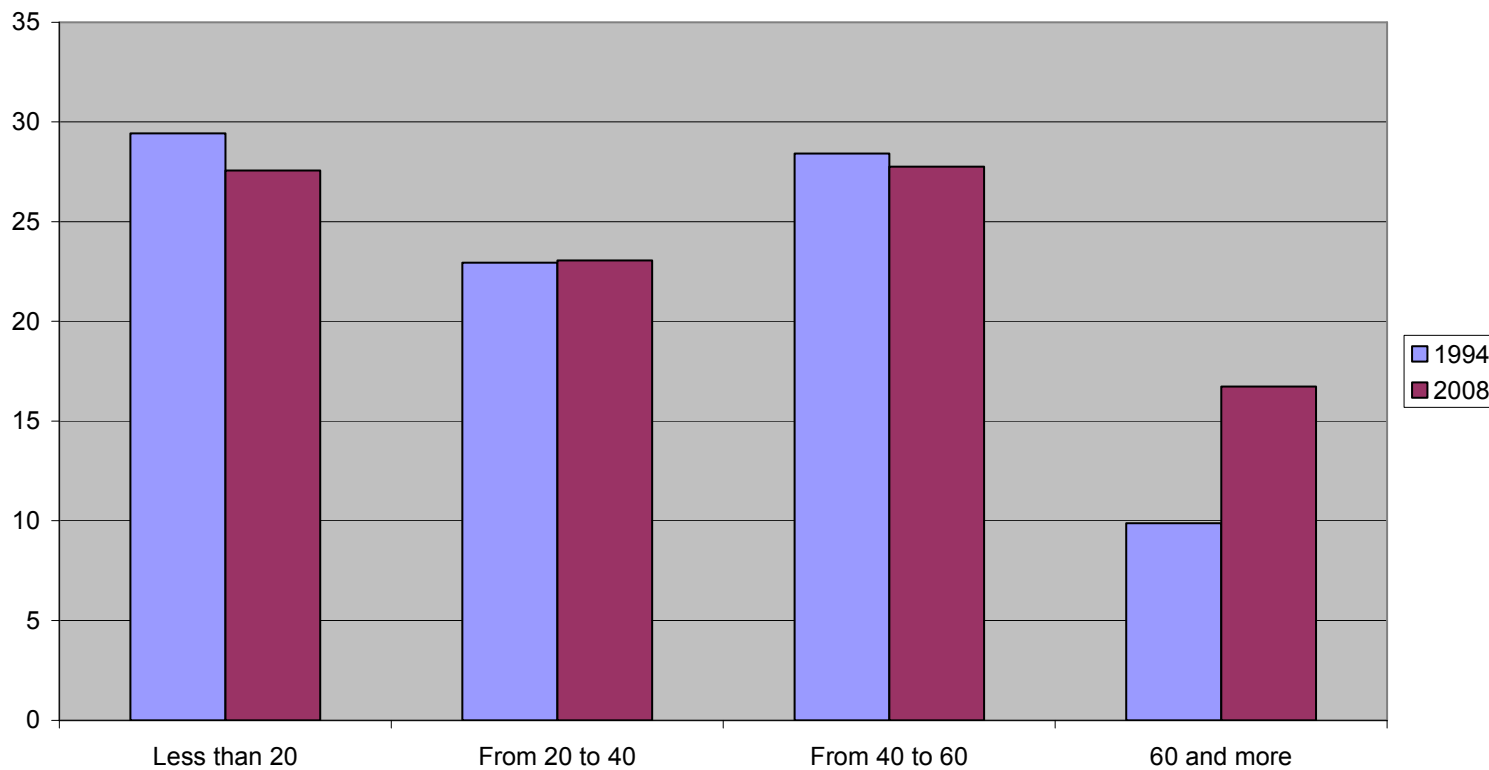
Rate of individuals within "single-car" households in "Ile-de-France", depending on age group, in 1994 and 2008 (%)



The generational factor in changing behaviours



Rate of individuals in "two-cars" households in "Ile-de-France", depending on age group, in 1994 and 2008



Some conclusions and assumptions



- A) The facts :

- Long-distance mobility and car equipment dynamics correlated with urban density.
- opposite trends in long-distance mobility and car equipment growth between densest urban territories, where alternatives may be found to car in regular trips, and other territories, where car remains essential to daily life.
- Decrease in car long-distance mobility (in < 60 groups) and even car equipment (in < 40 groups) in the urban area of Paris.

Some conclusions and assumptions



- B) The assumptions :
 - Changes in people's attitude to car in Paris urban area, among currently working people, may be related to congestion, parking difficulties, car costs.
 - Gains of accessibility and time related with modern collective transport modes (high-speed train and plane) are also higher in densest urban areas, and especially in the urban area of Paris. Train may replace car for one part of the lost car trips.

Some conclusions and assumptions



- Behavioural change in currently working generations living in densest urban areas may itself receive at least three distinct and may be complementary explanations :
 - Under growing economic uncertainty about their personal situation, people's relationship to car becomes more and more sensible, dependent on basic utility, explaining differential trends between urban and non-urban, central and peripheric areas.
 - Environmental awareness may have become stronger in currently working generations.
 - Lost time and stress caused by congestion has become so high that car is less and less often considered as an effective mode. Changes in short-distance mobility would also have side-effects on long-distance car trip frequency.

Where to see this presentation ?



- SETRA website :
- <http://www.setra.developpement-durable.gouv.fr/Fiches-Mobilites.html>