39 Troublesome leisure travel: counterproductive sustainable transport policies

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1. INTRODUCTION

The level and growth of passenger transportation – or travel – represents a major challenge to environmentally sustainable development (EEA, 2002; OECD, 2000, 2002). Among a number of environmental consequences, climate change, air pollution and excess energy consumption are the most important.

In developed countries, leisure travel constitutes a major and growing share of total travel. In the EU, for example, leisure travel accounts for approximately one-third of all trips (EEA, 2008). A survey of travel in Norway (Denstadli et al., 2006) suggests that leisure trips are responsible for more than half of total CO_2 emissions from travel because leisure trips tend to be longer and use more energy-consuming modes of transportation than everyday trips. Banister et al. (2000) projected that over the next 20 years, more people will spend more time on leisure activities because of an ageing population in OECD countries. Much of this increased leisure travel could involve long-distance air travel because more people have the means, time and desire to see the world (Gössling, 2010).

Meanwhile, research on sustainable passenger transport has mainly focused on everyday travel. Among the driving forces for everyday travel are globalization, lifestyles and individual travel preferences, demographic trends, household structure, economic growth and household income, urban sprawl, and specialization in education and labour (Banister, 2005; Banister et al., 2000; Tengström, 1999; Black, 2003; Geenhuizen et al., 2002; Salomon and Mokhtarian, 2002).

Although the above-mentioned driving forces may also influence the demand for leisure travel, we generally lack a deeper understanding of which factors affect leisure travel decisions and the sustainability of leisure travel (e.g., see Black and Nijkamp, 2002; Holden, 2007). Leisure travel is usually undertaken by choice, not by necessity. This distinction is important for policymakers because they can explore policies for reducing the need for or length of necessary trips or for enhancing alternatives to driving (Handy et al., 2005), but they may confront greater problems in reducing the amount of leisure travel because this kind of travel may be valued in its own right.

User requirements are also different for leisure travel and everyday commuting. Commuters require timeliness and predictability, but leisure trips are often less time critical. They may involve a greater load (baggage) as well as travel to and in areas with less-developed or unfamiliar public transportation systems. Lifestyle and psychological factors are also crucial in explaining demand for leisure travel, and leisure travel choices are linked to peoples' expression of identity. Thus, designing efficient, sustainable and

comprehensive transportation policies requires an understanding of how leisure travel differs from other types of travel.

As has been true with research, sustainable passenger transport policies have been directed more towards everyday travel and not leisure travel. Some policies have been tailored to reduce energy use and emissions related to everyday travel; for instance, by building more compact cities to reduce the average distances of necessary trips. Such policies, however, may have little or no impact on leisure travel. In addition, some policy instruments are not applied widely enough to encompass important aspects of leisure travel. For example, the success of reducing greenhouse gas emissions in tourism will depend critically on policy and practice changes in the aviation sector, but this sector so far has not successfully been included in binding policy agreements (Scott et al., 2010).

More surprisingly, under some circumstances, some policies that aim at reducing the negative impacts of everyday travel may have the opposite effect on leisure travel. That is, while people respond to these policies by consuming less energy on everyday travel, they consume even more energy on leisure travel, thus reducing the effectiveness in terms of meeting the goals of a sustainable transportation sector and reduced greenhouse gas emissions.

In this chapter, we present three well-established sustainable transport policies – developing more compact cities, building pro-environment awareness and attitudes, and promoting growth of information and communication technologies – designed to reduce emissions from everyday travel and show that these policies may also be associated with increased emissions from leisure travel. Moreover we suggest mechanisms to explain why a given policy may produce these contradictory effects. Finally, we examine the policy implications of the results and discuss further research.

2. THE CONTRADICTORY RESULTS OF SELECTED POLICIES

Compact Cities

The main principle in the theory of compact cities is high-density development close to or within the city core, with a mixture of housing, workplaces, and shops. The supporters of compact cities (e.g., Newman and Kenworthy, 1989; Elkin et al., 1991; McLaren, 1992; Sherlock, 1991; Næss, 2006; Geurs and van Wee, 2006) claim that they result in the least energy-intensive everyday travel pattern, thereby reducing greenhouse gas emissions. The question we raise is whether the reduced amount of everyday travel is counterbalanced by increased leisure travel.

Most empirical studies confirm that urban form affects everyday travel behaviour. Newman and Kenworthy (1989) explored the relationship between urban density and transport-related energy consumption in 32 cities in North America. They found that the gasoline consumption per capita was significantly lower in compact cities. Although Newman and Kenworthy (1989) have been criticized on methodological grounds (e.g., Rodriguez et al., 2006), later analysis (e.g., Holtzclaw et al., 2002; Cervero and Kockelman, 1997; Kitamura et al., 1997; Holden, 2004; Holden and Norland, 2005; Næss, 2006) arrived at similar conclusions, even when controlling for socio-economic, socio-demographic, and attitudinal variables. In a recent review of the literature,

Rickwood et al. (2008: 57) concluded that "there is clear evidence from both intra- and inter-city comparisons that higher density, transit oriented cities have lower per-capita transport energy use".

It is possible, however, that people live in city centres because they prefer to travel less, not that they travel less because they live in city centres. Recently, this "self-selection" bias has been given more emphasis when designing empirical models of the relationship between the built environment and the frequency of regular non-work travels (e.g., Boarnet and Sarmiento, 1998; Boarnet and Crane, 2000; Cao et al., 2009). Cao et al. (2009) found that, although residential preferences and travel attitudes significantly influenced the frequency of auto, public transportation and non-motorized trips, neighbourhood characteristics retained a separate influence on behaviour after controlling for self-selection. Thus, it seems that a compact city structure causes lower energy consumption on everyday travel, even after accounting for self-selection bias.

These studies did not, however, examine the effect compact cities have on leisure travel. Titheridge et al. (2000) claimed that the relationship between non-work travel, especially long-distance leisure travel, and urban form has been neglected, but a few empirical studies have been conducted (e.g., Tillberg, 2002; Schlich and Axhausen, 2002; Holden and Norland, 2005; Næss, 2006). These show that although residents in densely populated areas travel less in their everyday life, they do sometimes travel more in their leisure time.

Næss (2006) undertook a comprehensive quantitative and qualitative analysis of households' travel behaviour in the Copenhagen Metropolitan Area. In a multiple regression analysis, he regressed each dependent travel-behaviour variable on land-use, socio-economic, socio-demographic, and attitudinal variables. When controlling for the location of the residence relative to city centre Copenhagen and lower order centres, he found the following significant indications of compensatory travel on weekends among respondents living in dense local areas (Næss, 2006: 206): longer average distance travelled by cars, a lower proportion of public transportation use (by distance travelled) and fewer trips made on foot. Moreover, he found a correlation between city-centre living and the likelihood of making holiday trips by plane.

Holden and Norland (2005) and Holden and Linnerud (2011) conducted quantitative studies of households' travel behaviour in the Greater Oslo region in Norway. They regressed each of the dependent variables – everyday travel and leisure travel by plane – on land-use characteristics as well as socio-economic, socio-demographic and attitudinal variables. However, the regression models in Holden and Linnerud (2011) paid more attention to the relation between attitudes and behaviour. The results showed that the energy consumption for everyday travel increases significantly with distance from residence to the city centre and to the local sub-centre, whereas energy consumption for long-distance leisure travel by plane increases significantly with housing density in residential areas and with lack of access to a private yard.

Three mechanisms may explain the contradictory result found in these studies. First, people who live in densely populated areas may undertake longer trips in their leisure time to compensate for lack of access to a private yard and local greenery. In in-depth interviews, Tillberg (2002) and Næss (2006) found some support for the hypothesis that residents of densely populated areas may compensate for a lack of access to private yards and local greenery by taking longer weekend trips by car. The residents may also spend

less time gardening and maintaining a single family home. Holden and Norland (2005) and Holden and Linnerud (2011) showed that residents having access to a private yard use significantly less energy for long-distance leisure travel by both car and plane than do residents without such access. Taken together, these studies suggest that access to private yards and local greenery reduces the amount of leisure travel – both by car and by plane.

Second, people may budget approximately fixed amounts of time and money to travel. If people do have a fixed budget and if living in a compact city means saving time and money on everyday travel, more money and time will be used on leisure travel – and vice versa. The assumption of fixed budgets of time and money devoted to travel was originally put forward by Zahavi (1981) and was further explored by Marchetti (1993, 1994). Based upon time-use and travel surveys from numerous cities and countries throughout the world, Schafer and Victor (2000) estimated that a person spends an average of 1.1 hours per day travelling and devotes a predictable fraction of income to travel. They also showed that these time and money budgets, as an average taken at a regional and national level, have been relatively stable over space and time. However, this remains an area of contested points, and while a review by Metz (2008) concludes that travel time budgets are constant, a review by Mokhtarian and Chen (2004) concludes that they are not, except, perhaps, at the most aggregate level.

The underlying mechanisms explaining the regularities in travel budgets are not well understood, but demand theory may provide some insight. A reduction in the price of a normal good will have two effects: (1) a decrease in price of one good relative to others results in a rise in demand for the cheaper good and (2) income saved results in an increase of demand for all goods. The first impact is emphasized by, for example, Crane (2000) who argued that, if compact cities results in less time spent per trip, people will undertake more everyday trips. However, we think it is likely that major parts of everyday travel (such as commuting to a job) are bounded with respect to distance and frequency, and that they therefore are less sensitive to changes in cost (time or money). If so, the income effect dominates, and reductions in time or money consumed on everyday travel may result in increased time and money spent on leisure travel. This is especially the case if consumers divide their total budget into separate sub-budgets, implying a separate travel budget, as suggested by the Mental Accounting Theory (Thaler, 1999).

Third, we cannot rule out that the contradictory result in these studies is at least in part a result of self-selection bias. That is, decisions on where to live and where to travel may be simultaneously determined by values and preferences not included in the model. Also decisions on whether to have a yard or whether to buy a car may be determined by the same values and preferences that determine travel behaviour. If so, including these households and land-use characteristics as right-hand variables in regression models of travel behaviour will result in biased coefficients.

Næss (2006) believes self-selection bias to be the main explanation behind the apparent correlation between urban form and leisure-time travel. He states,

> this [more flights by residents living close to central Copenhagen] is hardly a causal influence of residential location. A possible, yet speculative explanation is that an 'urban' and cosmopolitan lifestyle, prevalent in particular among young students and academics, contributes both to an increased propensity for flights and a preference for inner-city living.
>
> (Næss, 2006: 221).

Like Næss, we find it plausible that values and preferences influence both our housing and leisure travel decisions. However, the causation may also work the other way around; over time, a compact city may facilitate and foster an urban and cosmopolitan lifestyle, which includes a propensity for leisure travel flights. The interrelations between the different variables are complex, and further research is needed involving careful model specification, more sophisticated estimation techniques (e.g., the instrument variable technique) and in-depth interviews.

Pro-environment Attitudes

Authorities can use information-based policies to influence people's attitudes and knowledge and thereby influence people to choose more environmentally friendly transportation technology and pattern and amounts of transportation. If these policies are successful, one could expect that people with pro-environment attitudes would make everyday and leisure travel choices that would contribute to lower emissions. The question we raise is whether people with pro-environment attitudes compensate for reduced everyday travel with increased leisure travel.

Pieters (1988), Ronis et al. (1989), Thøgersen (1999), Moisander and Uusitalo (1994), Ajzen (2005) and Holden (2008) discussed the conditions necessary for environmental attitudes to successfully direct household energy and transportation consumption. They concluded that attitude-behaviour consistency improves when attitudes directly relate to the travel decision that should be changed, when attitudes are developed under direct experience and when environmentally friendly travel options are easily accessible when travel choices are made.

Few empirical studies of travel behaviour and land-use characteristics, however, have included data on environmental attitudes in the list of explanatory variables (e.g., see Kitamura et al., 1997; Næss, 2006; Holden and Linnerud, 2011; Barr et al., 2010, 2011). Kitamura et al. (1997) examined the effects of attitudinal characteristics on the number and proportions of everyday trips by mode of transportation for residents of five San Francisco Bay Area neighbourhoods. Attitudinal variables were drawn from survey responses designed to elicit opinions on the environment, driving, public transportation and related questions. The dependent variables were regressed on land-use, socio-economic, socio-demographic and attitudinal variables. Although each block of variables offered some significant explanatory power to the models, the attitudinal variables explained the highest proportion of the variation in the data. For everyday travel, they found that the pro-environment variable significantly increased the number and proportion of non-motorized trips and significantly reduced the proportion of auto trips.

Holden and Linnerud (2011) analysed the impact of attitudes on travel behaviour by constructing three pro-environmental indicators that differ with respect to how directly the attitudes relate to the travel decision that should be changed: an index for general pro-environmental attitudes; a dummy variable for membership of one or more environmental non-governmental organizations (NGOs); and an index for specific pro-environmental attitudes related to transport. They draw three conclusions on the basis of the results. First, while general environmental attitudes are poor predictors of travel behaviour, specific transport environmental attitudes are significantly correlated with

travel behaviour. These results are in accordance with the attitude-behaviour consistency theories referred to above.

Second, respondents who express concern for the environmental consequences of transportation have significantly lower household energy consumption related to everyday travel compared to other people. For example, respondents who very much agreed with all three pro-environment transport-specific statements (an index value of 15) consumed an average of 1,008 kWh less on everyday travel as compared to respondents who very much disagreed with the statements (an index value of 3). Third, and most surprisingly, respondents who have a high score on the transport-related environmental attitude factor travel more by plane for leisure than do others. For example, respondents with an index score of 15 consumed an average of 1,188kWh more on leisure travel by plane as compared with respondents with a score of 3. Thus, whereas "green" individuals to some extent comply with their green attitudes (e.g., by using public transportation in their everyday lives), their attitude and behaviour are not consistent when travelling for leisure.

Barr et al. (2011) draw similar conclusions on the inconsistency between pro-environmental attitudes and leisure travel behaviour. They defined three lifestyle groups based on respondents' environmental behaviours in a UK survey among households. They found that those with higher levels of environmental commitment in and around the home also tended to be those who flew furthest and most frequently thus failing to transfer these activities to their holiday environments.

As with compact cities, these results may be partly a result of self-selection bias. That is, preferences and values not included in the models may affect both people's environmental awareness and their preferences for travel to distant locations. For example, people who are interested in distant cultures and concerned about global issues simultaneously may be concerned about climate change and have a strong preference for leisure travel by plane. This conflict of interest (environmental concerns and preference for long leisure travel by plane) may be solved in a moral accounting context, in which long leisure travel by plane may be justified or offset by environmental contributions in other parts of a household's consumption. This line of reasoning is similar to and extends the fixed time and money budget line of reasoning presented above.

Some support for the moral accounting explanation is found in Holden (2001, 2007), who used in-depth interviews of Norwegians to study the relationships between environmental attitudes and household consumption. The interviews revealed three mechanisms that influence whether individuals behave in an environmentally friendly way: a desire to project an environmentally friendly image (being a "hero"), a sense of powerlessness (being a "victim") and a desire to indulge oneself (being a "villain"). Holden suggests that the sense of powerlessness is related to running a home and everyday travel and that the desire to indulge oneself dominates during leisure hours. Consequently, "other consumption" (e.g., food and clothing) becomes the primary way one projects an environmentally friendly image. From our perspective, the important point is that the third mechanism, in particular, influences long-distance leisure travel by plane.

Thus, while green individuals strive to act in an environmentally responsible manner in their everyday lives, they seem to have a conflicting need to cast aside their environmental concerns when travelling for leisure. Many respondents indicated that they have a desire to indulge themselves in some situations – to free themselves from the constraints

involved in environmentally friendly behaviour. Moreover, they seem to feel that they do their fair share for the environment in their non-leisure time and that they therefore should not have to continue behaving environmentally responsibly during their leisure activities.

A qualitative study by Barr et al. (2010) shows similar evidence that actions for sustainability are heavily contextualized by the sites in which they are performed. They find that social practices in a domestic setting are relatively easily adapted to accommodate environmental behaviours, yet in tourism settings embedded practices of leisure are often highly consumptive and imbued with important symbolic value that makes adaptations problematic. In interviews addressing environmental behaviours in a touristic setting, particularly in response to climate change, many argued that "a holiday is a holiday", contesting the view that spaces of leisure and tourism were appropriate sites in which to be environmentally conscious.

Information and Communication Technology (ICT)

The interaction between ICT and personal activities and related travel has been an important theme in transportation research in recent years.[1] From the evidence provided by these studies, it is apparent that this interaction is highly complex and that there is no clear-cut evidence as to whether ICT use is neutral to, increases or decreases total travel demand. There are, however, some findings that suggest that although ICT may reduce the need for everyday travel, it may stimulate the demand for leisure travel.

Salomon (1986) classified the direct[2] impacts of ICT on travel: substitution (ICT replaces travel), complementarity (ICT generates new activities that result in increased travel), modification (travel is modified in different ways, such as choice of different travel modes and trip timing, trip chaining and activity sequencing) and neutrality (no effect on travel). Using this classification, Andreev et al. (2010) reviewed about 100 studies on the impacts of ICT on personal activities and travel and concluded: "Of the four major direct impacts of ICT on travel, i.e. substitution, complementarity, modification and neutrality, substitution has been the most prevalent impact for telecommuting, with complementarity most prevalent impact for teleshopping and teleleisure" (Andreev et al., 2010: 3).

Telecommuting is the most studied activity. According to Andreev et al. (2010: 10): "It is safe to say, in general, that in the short term telecommuting leads to reduction of the various travel characteristics (e.g., vehicle kilometres, passenger kilometres, morning-peak hours, emission and number of commuting trips). In the long term, however, telecommuting impacts are still blurred." Teleleisure can be defined as the use of ICT to enable leisure activities (including leisure travel). Investigation of the impacts of teleleisure remains the most understudied issue in teleactivities studies (Mokhtarian et al., 2006; Andreev et al., 2010). A few empirical studies have been carried out, however, and some did not find a substitution effect (e.g., Handy and Yantis, 1997; Krizek et al., 2005) and others found complementary impacts (Hjorthol, 2002; Senbil and Kitamura, 2003; Wang and Law, 2007). Thus, there appears to be some support for the claim that ICT currently results in decreased travel related to mandatory personal activities (e.g., work) and increased travel related to discretionary activities (e.g., leisure travel).

If, as previously stated, people have a fixed time and income budget related to travel,

we would expect that saved money and time on everyday travel resulting from ICT enables more use of money and time on leisure travel. As pointed out by Banister and Stead (2004: 613), "even if there are reductions in one set of transport-related activities (e.g., the journey to work), there may be compensating increases elsewhere as the car is now available during the day for other uses (e.g., for shopping and social activities) or for other users". Early empirical support for such compensatory mechanisms between work and non-work travel can be found in Henderson and Mokhtarian (1996), Gould and Golob (1997) and Balepur et al. (1998). For example, Henderson and Mokhtarian (1996) observed a considerable reduction in commute-related travel and a slight increase in non-work travel as a result of telecommuting. Gould and Golob (1997) found that people working exclusively at home spend significantly more time shopping on work days than people who work away from home.

Although ICT may be a substitute for work travel (moving information rather than people), it may be a complement for leisure travel by plane. That is, ICT may influence the demand for flights, for example, through using the Internet to provide last-minute deals to sell excess capacity, particularly for flights, hotels and holiday packages. Apart from the cost savings on marketing, companies can build up a profile of that market and adapt their products to meet the perceived requirements of the customer. Banister and Stead (2004: 624) stated: "The potential increase in travel is immense, as people take more overseas holidays and cheap trips to see friends, sites or other destinations. It has facilitated new ownership patterns of second homes in the Sunbelt of Europe and the ability to regularly reach them for long weekends." In a similar fashion, Gössling and Nilsson (2010) illustrated how frequent flyer programmes, facilitated by the use of ICT, may work as an institutionalized framework for high mobility by rewarding and thus increasing interest in aeromobility.

On the other hand, ICT is to an increasing extent used to facilitate public transportation and thus reduces the emissions from everyday travel. One of the greatest obstacles in convincing people to use surface-bound public transportation systems is the real or perceived inconvenience in travelling from point A to point B, which usually involves covering some distance by foot and the coordination of different modes of transportation. In Gössling (2010) a solution to this coordination problem, involving the use of iPhone, is suggested. The idea is based upon a public transportation initiative called Dutch 9292, which includes a database with schedules for all Dutch public transportation systems. Another initiative is WISETRIP, which includes multi-modal door-to-door solutions for journeys involving international travel.[3] These examples illustrate how ICT can be used to stimulate an environmentally friendly change of transport mode.

3. CONCLUSION

Our main finding is that well-known policies aimed at reducing energy consumption and CO_2 emissions of everyday travel may have the opposite effect on leisure travel. We examined studies related to three sustainable transport policies – developing more compact cities, fostering pro-environment attitudes and promoting the use of ICT – and found that they may facilitate more use of public transportation and reduce trip distances in everyday life, but they may also directly or indirectly stimulate leisure travel.

The main reason for this unintended side-effect is that the policies are not directed towards the main objective – reducing CO_2 emissions from all travel. Instead, they are tailored to achieve an intermediate objective, which almost always is targeted at everyday transportation. For instance, the intermediate objective of a city planner may be to reduce average trip length for cars or other vehicles. But reducing the distance travelled also affects the cost of travelling and the quality of life in a city, which in turn may influence the demand for leisure travel.

Several mechanisms may contribute to this result. People seem to have relatively fixed money and time budgets for travel, and the time and money saved on everyday travel are then consumed on leisure travel. In addition, a given policy may stimulate substitutes to everyday travel and complements to leisure travel. And, finally, people seem to find it difficult to align their behaviour with their environmental attitudes during their leisure time. They, therefore, may keep a moral account, and long-distance leisure trips may be justified or offset by environmental contributions in other parts of a household's consumption. More descriptive research is needed in this area to test whether and why such compensation mechanisms exist. More generally, there is still a lack of knowledge of the complex relation between everyday and leisure travel.

As the understanding of these relationships and mechanisms deepens, policymaking must change. According to economic theory, the optimal strategy would be to apply policies that directly target the problem of emissions from transportation. This implies setting a price on CO_2 emissions on all modes of transportation – including aviation. A widely applied emission price would create incentives for reducing travel volumes as well as choosing environmentally friendly technologies, travel patterns and modes. Moreover, it would promote development of city infrastructures, ICT solutions and attitudes in which the emissions from both everyday and leisure activities would be considered and reduced. This emission price could be implemented as a global tax on fuels differentiated to reflect the amount of CO_2 emissions (similar to the system introduced in Sweden and Norway in 1991) or by a global quota system (similar to the EU Emission Trading System).

However, a widely applied emission price of the required level may not be publically or politically acceptable. While the cost is clearly visible, the benefits are not. Also, public acceptance may be especially lacking for decreasing desirable travels, like leisure-time travels, as compared to necessary travels, like work-related travels (Mokhtarian, 2005; Holden, 2007). And policymakers may view leisure-time travels as less economically productive than work-related travels and, thus, less relevant for policy making (Andreev et al., 2010).

Thus, a carefully designed policy mix is needed, in which a CO_2 price is complemented by other instruments. Since traditional sustainable transport policy measures may be less relevant to leisure travel, these must be improved and complemented with other policy measures to achieve comprehensive sustainable travel. Three ideas worth considering are the following.

- First, limits to urban density: decentralized concentration of smaller cities or polycentric development within larger cities could be promoted. While offering good opportunities for developing an affordable and well-functioning public transport system that may lead to lower energy consumption for everyday travel, it

also avoids some of the disadvantages caused by extreme densities and may reduce the incentives for long-distance journeys by plane.

- Second, attitudes to leisure travel: the public could be informed about the environmental consequences of leisure-time journeys, especially by plane. In-depth interviews reveal that people generally are not aware of the negative environmental consequences of leisure-time journeys (Holden, 2008). Tailored information campaigns may alter leisure travel behaviour. And increased environmental awareness could give the political legitimacy to levy taxes on emissions from such journeys.
- Finally, ICT and leisure travel choice: the use of ICT could be promoted to facilitate environmentally friendly modes of transport in people's leisure time. For instance, multimodal journey planners involving international travel could be developed along the same lines as the WISETRIP project funded by the EU Seventh framework programme – although, for each journey, the total emissions should be given, enabling the traveller to choose the most environmentally friendly option.

NOTES

1. See, for example, *Transportation Research Part A*, **41** (2007) and *Transportation Research Part C*, **18** (2010).
2. Banister and Stead (2004) also noted longer-term, more subtle indirect and direct effects of technology innovation on travel.
3. www.wisetrip-eu.org.

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