ORTHODOXY OR OPPORTUNITY: THE DIFFICULT MATCH BETWEEN THE ENVIRONMENTAL AND SOCIAL JUSTICE DIMENSIONS OF SUSTAINABLE MOBILITY

Kobe Boussauw[1] and Thomas Vanoutrive[2]

[1] Cosmopolis Centre for Urban Research - Department of Geography, Vrije Universiteit Brussel, Pleinlaan 2, 1050 Brussels, Belgium, email: kobe.boussauw@vub.ac.be

[2] Department of Transport and Regional Economics & Urban Studies Institute, University of Antwerp, Prinsstraat 13, 2000 Antwerpen, Belgium, email: thomas.vanoutrive@uantwerp.be

Keywords: sustainable transport, social justice, limits to growth, Belgium

Abstract

In the field of mobility and environment, recently a number of promising developments can be observed. Despite the sustainability optimism emerging from such observations, the Club of Rome question whether there are any limits to growth is increasingly relevant. Perhaps even more important, policies with respect to mobility, accessibility and environmental impact seem not to contribute automatically to social justice. Through adding a limits-to-growth stance and a social justice perspective to what is called the orthodox sustainable mobility vision, we argue that all possible controversies on environmental impacts eventually boil down to an ethical debate. Such debates are not the exclusive domain of experts, hence we state that there are sustainable mobility . Experts can nevertheless play a particular role in discus *mobility. In order to make our ideas tangible and to demonstrate the consequences, we apply this to a number of policy decisions in Belgium that carry the "sustainable mobility" label. Starting from our Belgian case study, in the conclusions we adopt again a global perspective, in which we stress the importance of looking for synergies between those environmental and social justice measures that allow for accounting the ethical dimension of sustainable mobility debates.*

1. Introduction

In the field of mobility and the environment, a number of promising developments can be observed

In Belgium, as an example, quite some indicators suggest that sustainability objectives are slowly but surely achieved within the field of transport. With an average annual growth of 2.41% between 2000 and 2011, inland navigation in the Flemish region could make a nice report (Meersman et al., 2013:27). In 2011, sulphur emissions from inland shipping, rail and road transport have practically disappeared, but twenty, or even only ten years ago, the situation was entirely different (ibid.: 90) . When looking at Belgium s federal home-to-work travel survey, we see that both public transport and bicycles have gained market share between 2005 and 2011 (Verhetsel et al., 2014:37). Also, national road traffic statistics show that the number of kilometres driven per car registered in Belgium is decreasing, while the number of train passengers increased by as much as 50% between 2001 and 2010 (Statistics Belgium, 2014). Still in Belgium, we see the CO_2 emissions of newly sold cars falling from 160 g/km in 2002 to 130 g/km in 2012 (MIRA, 2013).

And these are just some figures. Sustainable mobility has become a common notion in many policy plans at almost all levels of government, in which emphasis or even general meaning may vary considerably (Bulkeley and Betsill, 2005). At the European level, for example, the term is used to indicate a decoupling between the growth rate of transport and its associated adverse effects (Tight et al., 2004). At national or regional level, under the same heading, new technology is subsidized and efficiency increasing measures are funded. And at the local level, the notion of sustainable mobility is often used to justify investments in pedestrian areas, parking policy, and the construction of bicycle tracks. This goes along with the drawing up of Sustainable Urban Mobility Plans (SUMP). But except in policy circles, sustainable mobility is also live among the public and businesses. In many cities, cycling has actually become fashionable, railway station precincts are refurbished, and the car is no longer the sacred cow it was in the 1960s. Some authors have even identified a paradigm shift, in which the smartphone has become an attribute more importantly to a contemporary lifestyle than the car (Davis et al., 2012). Finally, we can refer to concepts such as Transit Oriented Development, Smart Growth and compact city policies which have increased in popularity. This collection of ideas can be labelled the sustainable mobility paradigm (Banister, 2008) or the ort transport vision (Baeten, 2000).

The spread and acceptance by many scholars and practitioners of the sustainable transport paradigm is a complex process, which is not only about knowledge diffusion, but also about opposition, struggle and the promotion of alternatives to traditional views. A number of papers in transport studies have portrayed sustainable mobility as an alternative to predict and provide transp discussing these two visions on transport policy, Enoch (2012) speaks in terms of camps and tribes Traditional transport planning is the domain of conventional transport engineers and economists, while sustainable mobility is rooted in urban planning and related disciplines. In a similar fashion as with sustainable mobility, Transportation Demand Management (TDM) or mobility management is seen as an alternative to strategies that provide additional capacity to meet travel demand (Giuliano, 1992; Meyer, 1999; Vanoutrive et al., 2010). TDM on the other hand, attempts to manage demand by promoting public transport, the bicycle, telework and flexible work schedules. One of the most cited articles adopting the alternative point of view is The sustainable mobility p 2008 by David Banister. This paper is largely structured around four transition lines that are, according to the author, essential to sustainable mobility: travel mode choice, urban and regional planning, technology, and travel substitution.

In the present paper, the aim is to challenge the orthodox sustainable transport vision, of which Banister s seminal paper is exemplary, by confronting it with two potentially tr being firstly the urge for growth, and secondly the issue of social justice. By doing this, we highlight the ethical dimension of sustainable mobility, and sustainability in general, and we argue that this dimension should be made more explicit in current debates. In the next two sections we will elaborate

on the meaning of each of both issues in relation to the notion of sustainable mobility. Earlier discussions can be found in Baeten (2000), Essebo and Baeten (2012) and Farrington (2007). Here, the focus is on Belgium and thus not on the global level (in contrast to e.g. Holden, et al. 2013, 2014), furthermore, we discuss some recent contributions such as the socio-technical transition approach (Geels, 2012) and the book How Much is Enough (Skidelsky and Skidelsky, 2012).

After a discussion of the environmental dimension in the next section, we illustrate the paradoxical, often ironic and sometimes even cynical situations to which measures in the field of sustainable mobility can lead, when viewing these from an ethical perspective. Again, we turn to a number of examples from Belgium, which may be considered fairly representative in terms of mainstream sustainable mobility policies, considering the central location of the country, and its engagement in relation to the European Union.

2. A limits-to-growth perspective

Despite the sustainability optimism emerging from recent observations, the Club of Rome question whether there are any limits to growth is increasingly relevant

By 1970, environmental reports sounded far less optimistic than the positive introduction of this paper. The oft-quoted report of the Club of Rome (Meadows et al., 1972) argued that the growth of the world population and its consumption would slowly but surely bump against the carrying capacity limits of the earth. And even though in the seventies global warming was not yet on the political agenda, the impending exhaustion of natural resources made the problem outlined very palpable, especially after the outbreak of the first oil crisis in 1973.

Ever since, within many economic sectors, ecological thinking has become the formal reason to adopt a perspective of energy efficiency more often or more quickly. The concept of carbon intensity, which measures the ratio between CO_2 emissions and economic output, is a logical product of this way of thinking. Indeed, today, many economic sectors can rightfully be proud of their improved carbon intensity level. In the developed world, examples include the energy sector, but also heating emissions from new houses are declining.

But do we observe such results in the transport sector too? From time to time car manufacturers show off with new, high efficiency concept cars . But in reality, the fuel consumpti the world is hardly, if at all, going down (Chiara and Canova, 2013). Recently, the market for large cars has only steadily increased, and in smaller cars, part of the potential energy savings are offset by the presence of a range of new gadgets. Furthermore, replacing a thirsty car with a more efficient one does not mean that the old car is removed from the market: used vehicles remain a prized import product in many Third World countries, even the less fuel efficient ones.

Broadly speaking, we can say that mobility has been growing quasi continuously in the course of time. In 1960, the number of motor vehicles registered in the world was estimated at 127 million, while in 2010 more than 1 billion vehicles occurred in the tables (Davis et al., 2011). It is interesting to note that the average increase in the number of cars in this era (slightly more than five per cent per year) was even higher than the world s GDP growth (a little less than five per cent per to indicate that the increase in the number of cars in the world proceeds in interaction with economic development in general. But does this also apply to the amount of kilometres travelled?

Until recently both scholars and policy makers assumed a steady increase in distances travelled. Although global figures on this are not readily available, many developed countries do keep related statistics. For the United States, for example, we see that the mileage increased from 1,600 billion in 1983 (when the effect of the then crisis started to wane) to more than 3,000 billion in November 2007, just before the international fuel prices showed an unprecedented peak (Davis and Baxandall, 2013). Since then, the statistics show some decline, and the 2007 mileage level was not reached again.

Today we see this phenomenon, which was meanwhile baptized peak car (Goodwin, up in many other countries too. In Belgium, our example, we see not so much a decline in the growth of the overall distance travelled, but rather a stabilisation of the number of kilometres per inhabitant since 2007, and a decrease when counting per registered vehicle (Statistics Belgium, 2014). In other words, the Belgians just continue to buy additional cars, but are driving these less than they would have done before.

The discovery of the mentioned kink in the growth curve may have provoked some almost euphoric reactions among activists and even researchers: finally, the limits to growth had become visible in the behaviour of the motorist! It is therefore no coincidence that the term "peak car" was clearly inspired by peak oil . The latter refers to the expected production peak of petroleum, wh bell shaped curve fitting in nicely with the discourse of The limits to growth 2008). Meanwhile, however, it has been demonstrated that the relationship between peak car and peak oil is not unambiguous: there is not a clear correlation between the distances travelled, and the oil price on the commodity market. Perhaps, apart from the fuel market, a number of other developments are at stake as well. Newman and Kenworthy (2011) point out, for example, that decline of private motor traffic is mainly recorded in a number of larger Western cities. In some of these cities, including Vienna, Zurich, Brussels and Stockholm, current policies are not by chance targeted on discouraging additional car traffic. Narrowing roads (for example, by sacrificing a lane to the benefit of a bicycle path or a reserved tram track), the introduction of road pricing or a restrictive parking scheme affect the motorized traffic volumes in the city. However, this does not necessarily mean a reduction of the number of trips: the cities mentioned are known for their traffic growth being shifted towards public transport and cycling.

Perhaps, we have arrived at an important nuance of the peak car discourse. Although today continuous growth of surface traffic should no longer be taken for granted in any context, we cannot just transfer the principle to other forms of mobility. Just as mobility within emerging countries, international trade, and therefore also intercontinental freight transport, keeps growing unabatedly. And the same goes for air travel. In these subsectors, the limits to growth are nowhere near in sight, and this applies too for associated greenhouse gas emissions or consumption of fossil fuels.

Although in the developed world the growth of car traffic may start to collide with spatial and environmental constraints, the human desire for ever more interaction with the world seems to translate into a choice for ever faster means of transport, of which the exploding air travel market is the ultimate outcome.

The foregoing considerations suggest that growth in mobility is inherent to present-day society, in which the increase of travel speed can be seen as the equivalent of the increasing efficiency that is typical of a growing economy. The parallel with the issue of economic growth, and its possible limits, can hardly be denied. Although in his study Prosperity Without Growth (2009) T his utmost to show that the statement reflected by the title of his book is a real option, he only succeeds partially in this. Since increased efficiency is inherent in our system, less and less work is needed to maintain the same standard of living. If we want to stay at work all together, this means that either we need to produce more (with the same amount of labour), either we should work fewer hours in total (Skidelsky and Skidelsky, 2012). But even more free time leads to more consumption, and the desire for more and better of anything seems to be latent in all of us. And even though for many Westerners the degree of saturation at which more consumption no longer equates with more happiness has been reached yet, in most of the world this is still far from being true (Inglehart and Klingemann, 2000).

In our Belgian case too, in the recent past we can distinguish some policy measures which, according to official communication, contribute to greater sustainability, while focusing in practice on additional growth and more consumption of fossil fuels.

In 2004, a new access plan to the national airport in Brussels was decided on. Although at the time, the airport had already a rail connection with the capital, a second and a third rail branch were planned to connect Antwerp (in the north) and Leuven (in the east) as well. These investments were supposed to contribute to the expansion of the airport, offering an alternative to using the congested motorways near the airport. According to regional economic theories, such measures increase the accessibility of the airport, making it thus more attractive for both travellers and airline companies. Since aircraft may be considered among the least efficient forms of transport when it comes to emissions and fuel consumption, we can assume that such investments in airport accessibility will lead to an increase in emissions over time. However, the federal government clearly thought otherwise. In late 2008, the new rail access projects where included in the federal climate accounts, in which it was simply assumed that any new rail passenger is a former car driver (National Climate Commission, 2008, p. 58). So there would be fewer cars on the road, and part of the climate goals would be achieved. Despite the highly questionable nature of such an assumption, the effect of the measure was never monitored. In contrast, in 2013 a plan was launched to add a new motorway access to the airport anyway, in the direction of Leuven.

In the city of Ghent we see a similar paradox in the redevelopment of the central station area. In the context of the Spatial Structure Plan for Flanders, an overarching vision for the sustainable spatial development of the Flemish region, efforts have increasingly been geared towards upgrading the precincts of mainly the larger railway stations (RSV, 1997[2004]). By creating density and functional diversity in areas that are well served by public transport, local modal split adjustments towards public transport where hoped for. Near the Ghent railway station, which is one of the three largest Belgian stations in terms of passenger numbers (45 000 passengers a day, planned to increase to 60 000 (NMBS, 2014)), a large-scale programme was developed including apartments, offices, all kinds of amenities, and a large car park. The construction of the 2800 vehicle large car park fitted explicitly in a programme to encourage train use by long-distance commuters (Coppens, 2010). Employees living in Ghent s suburbs, which were used to go to work by car, would henceforth be ab at the station, then take the train to their office in Brussels or elsewhere. This would lead to quite some savings in terms of CO_2 emissions. However, the local environmental movement was skeptical of the plan, and a couple of years after the opening of the car park, it organized a user survey. The survey results showed that only a very small minority (four out of one hundred surveyed parkers) had indeed switched to the train for their long haul (as could have been expected on the basis of studies reported in the Park and Ride literature (Zijlstra et al., forthcoming)). However, the majority of the users of the car park consisted of commuters who previously arrived by a local train, or by bus or tram before taking the express train in the station. Therefore, the construction of the car park had led to more car use, instead of less. In addition, the parking had contributed to a local concentration of particulate matter production in the surrounding residential area (GMF, 2012).

In 1997, the regional city of Hasselt introduced a subsidy in order to make access to the city bus network free of charge for all passengers, a situation which would last for the next seventeen years. After the introduction of the measure, as expected, the number of bus passengers increased to an important extent. However, a survey found that of all additional bus passengers, only 16% would have taken the car in case the bus would not have been for free. Six out of ten additional bus passengers would simply have stayed at home in that case, and another two out of ten would otherwise have been walking or cycling (Van Goeverden et al., 2006). In the university city of Leuven, between 2001 and 2013, free buses where offered to the student population. Again, an important shift from the bicycle to the bus was noticed. In Leuven too, the subsidy caused an increase in demand and a need for more buses, making it unlikely to meet the original sustainability targets.

Better than any theory, these examples demonstrate that perhaps the growth of mobility is much more intertwined with the present structure of society than experts and activists would like to admit. If that is true, then it seems that only a real shortage of, for example, energy, or physical or environmental space, can obstruct the expansion of the transport system. And it may also mean that any attempt to reduce the environmental impact of an individual trip may be insignificant for the world in its entirety.

However, as we shall argue in the next section, such debates risk to neglect the dimension of social justice.

3. A few considerations on social justice and transport

Policies with respect to mobility, accessibility and environmental impact seem not to contribute automatically to social justice

The development of a transport system which is overall less environmentally harmful does not automatically guarantee a fair distribution of access to transport and to full participation in society. While this argument may not apply to all facets of the sustainable mobility paradigm, it is indeed likely that positive interventions in planning may only affect those who are in the position to have their voices heard, while technological solutions seem to be first and foremost reserved for those who can afford it. Through careless implementation of sustainability-aimed transport policies, we risk limiting access of mainly vulnerable groups in society. Moreover, it is presumably not the aim to *design and develop a low carbon post-car system that does* [ ] become like George Orwell s 1984 (Dennis and Urry, 2009, p.11). This concern was already expressed by Baeten at the turn of the 21st century, who wrote that *the orthodox sustainable transport vision actually leads to the further empowerment of technocratic and elitist groups in society while simultaneously contributing to the further disempowerment of those marginalized social groups who were already bearing the burden of the environmental problems resulting from a troubled transport system* (2000, p.69).

The environmental justice literature focuses on the maldistribution of the environmental burden of, among other things, transport activities. Although the size and even the sign of effects varies across cities and regions, there is some evidence that low-income and minority communities are exposed to higher levels of noise and air pollution (Schweitzer and Valenzuela, 2004). This is one side of the (distributive) justice coin. The other side concerns the morally proper distribution of transport benefits (Martens, 2006, 2012).

The orthodox sustainable transport vision generally favours public transport in general, and rail in particular. However, attempts to attract new customers by investing in suburban commuter rail projects might result in the neglect of poor transit dependents in city centres. In such occasions, public transit is promoted as a solution for congestion and air pollution problems, and thus not as a social service (Garrett and Taylor, 1999). In this context, Reeves (2005) writes that sustainability thinking has changed little in the paternalistic approach of transport planners. In the past, reasoning often departed from facilitating travel with the family car, which used to be driven by the man in the household. Today, the focus has been shifting to the development of large-scale rail infrastructure, which usually focuses on improving access to job concentrations in the larger conurbations, and connecting these with each other by means of fast trains. While such projects are usually viewed as sustainable, they are still mainly serving members of the hyper-mobile society, usually highly educated and often male. The needs of socially vulnerable groups, which are rather located in the sphere of buses, transport on demand, and dense networks of facilities close to home, are much less evident in this discourse.

The outlined dynamics usually apply in the context of an urban area. But also at the regional scale, the orthodox approach to sustainability is not always compatible with social justice. It is known that in the United States residents of poorer states travel, or need to travel, greater distances by car compared to residents of wealthier states (Baxandall, 2013).

But in Europe too, examples may be found: in Belgium, an average inhabitant of the Walloon region has a longer drive to work than his Flemish compatriot (Verhetsel et al., 2007), who on average has a higher income. This means that in some less prosperous regions, people are required to spend a disproportionate share of their salary on transport, at least if they want to be assured of a certain level of income and accessibility. In such cases, environmentally-inspired tax schemes (such as carbon

taxation or some forms of road pricing) aimed at discouraging long distance travel may be detrimental to the poorer regions and their inhabitants (for an overview of studies on equity and road pricing, see Levinson (2010)).

Again in Belgium, a long tradition of commuter subsidies determines travel patterns in questionable ways. Already in the nineteenth century, cheap rail subscriptions were offered to workers, supporting a suburban commuter system and purposely limiting urbanization (Dujardin et al., 2012; De Decker, 2011). Over the last decades, the subsidy was extended to car commuters, in the form of a company car tax deduction. While this measure is very selective, because it only includes that class of staff that can claim a company car, this tax deduction is generally seen as a compensation for the high taxation of labour (Vanoutrive et al., 2010; Zijlstra et al., 2014). Since the scope of this favourable tax regime is mainly on the higher income groups in the private sector, an equivalent measure was introduced for public sector employees and those who choose not to go to work by car. For this purpose, in 2004 the third party payment system was introduced, which meant that almost all staff in the public sector and part of the private sector were allowed to take the train and the bus to work entirely free of charge (Belgisch Staatsblad, 2004). The social-democratic coalition partner in particular communicated this measure as being in favour of sustainable mobility. A large number of employees would change towards public transport instead of going by car, for which they would have to pay themselves. Official communication did not mention that the measure was largely covering those who were already using public transport, for example because they work in the centre of Brussels or another large city. Besides, in 1999, a bicycle allowance was made tax exempt and had already been introduced to many employees commuting by bike (Belgisch Staatsblad, 1999). Because cycling was considered the most sustainable form of travel to work, and thus the cost of bicycle maintenance and specific clothing would no longer have to be borne by the employee. With this combination of measures, finally almost the entire continuum of travel to work seemed to be covered, which compelled the OECD in 2013 to severely criticize the Belgian commuter policy because it was apparently subsidizing every mode of transport mode: car, train, bus, tram and bicycle (OECD, 2013).

OECD s criticism regarding the lack of distinction between travel modes was cer
what was conveniently overlooked is the fact that most of the subsidies might essentially end up with higher income groups. Private employers offer their company vehicles usually only to executive and representative staff members, in contrast to labour class workers and assisting or cleaning staff. In the public sector, jobs with above average salaries are typically located in large urban areas, such as Brussels, where the train is the most efficient means of transport. Less well-paid jobs in the public sector, e.g. in education, health care, maintenance or support services, are often found in places where public transport is hardly a real alternative to the car, e.g. due to low service frequencies. So, public sector employees in decentralized locations are often obliged to cover their own (car) commute expenses. With regard to bicycle subsidies, it is less clear which groups are reached, although, depending on the context, cycling is not necessarily associated with lower incomes (Vandenbulcke et al., 2011). In short, commuting subsidies, whether targeted to sustainable mobility or not, mainly reach the middle class, and therefore contribute negligibly to wealth redistribution. However, finding quantitative evidence for this statement is difficult, since in Belgium such redistribution effect of transport subsidies are not purposely monitored. For the UK, the Sustainable Development Commission (2011, p.7) concluded that The richest 10 per cent of the population effecti
four times as much public spending on transport as the poorest 10 per cent.

Another example is situated in the domain of subsidizing electric vehicles. On January 1, 2010, tax
deduction of company cars in Belgium was linked to emissions. This means that CO2
accounting, very economical cars on diesel or gasoline may be deducted from taxable revenues at a rate of 100%, while electric car expenses may be deducted at a rate as high as 120%, which should be regarded as an important subsidy. Since the tax deduction system is proportional, this also meant that expensive electric cars would receive a larger subsidy compared to more democratic, small electric cars. In the first months after the introduction of the new tax regime, eight out of the fifteen electric cars that were sold in Belgium where Tesla Roadster, which then cost around 84,000 euros (Mobimix, 2010). These sports cars were sold to company managers which were looking for an ecological

showcase for their business. The Tesla Roadster was characterized by a zero local emission rate, an incredible acceleration potential, space for one passenger at max, and the quasi absence of a trunk. Although the assortment of electric cars sold in the following years would better correspond with the image of the zero-emission car as an efficient, useful and responsible vehicle, the Tesla sports car may have become an icon of the discrepancy between a techno-optimistic sustainability discourse and the pursuit of social justice.

In other words, the sustainable transport discourse may be used to support policies that are potentially socially inequitable. But then the question remains, what is just, fair or equitable? Numerous principles have been proposed by transport scholars to distribute benefits and burdens among members of society (Hay, 1995; Langmyhr, 1997). The dominant principle is that of demand, which is a key element of standard transport models. A simple example of a demand-based strategy is the building of a new railroad where, according to model estimates, there is a large enough customer base. The number of people that is willing or able to pay is a crucial element of cost-benefit analyses for such and similar projects, together with travel time savings and the related value of time. It is now common to use the equity value of travel time in order to avoid evaluations that favo incomes (van Wee, 2011). However, even when the average income is used, the approach works to the advantage of the more mobile higher income groups, in particular since current travel patterns are used to estimate future demand (Martens and Hurvitz, 2011; Martens, 2006).

Martens (2006) argues in favour of a need-based approach as an alternative to demand-based models. Accessibility gains are seen as the prime benefit, while a less well-off individual facing a gain in accessibility is valued higher than the same increase in accessibility faced by someone who was already better off. Defining needs empirically is, however, not without challenges. It is difficult to distinguish between needs and wants, since defining needs might turn into a paternalistic exercise, while these are heavily dependent on personal and contextual characteristics. Nevertheless, a novel paradigm with needs, access(ibility) and social inclusion as key concepts, that accessibility narrative , has gained some popularity (Cass et al., 2005; Martens, 2012; Preste Raje, 2007; Farrington, 2007; Farrington and Farrington, 2005).

Social inclusion refers to the ability to participate in normal activities of society. Accessibility is a crucial concept since exclusion is a constraints-based process, i.e. exclusion is a lack of access to opportunities (Cass et al., 2005; Preston and Raje, 2007; Clifton and Lucas, 2004). The concept of accessibility is preferred over mobility since in a situation where potential destinations are located in the neighbourhood, less mobility is needed to reach a standardized set of destinations (Levine and Garb, 2002). This illustrates that accessibility is a derived need, i.e. transport is needed to reach destinations.

According to Martens (2012), transport should be distributed independent from the way in which other goods are allocated, notwithstanding the derived nature of transport and accessibility. He claims that:

> a strong case can be made for the recognition of transport as a separate *sphere. Transport has developed from a taken-for-granted and hardly disputed good, to a* highly desirable good, an indispensable resource shaping one s life path, availability is subject of public debate.

Given the increased spatial reach of daily lives, people need a certain level of mobility and accessibility to be socially included. Accordingly, authors refer to mobility r accessibility rights (Farrington, 2007) and basic levels of accessibility (Preston an Although a significant part of the sustainable mobility literature does not explicitly refer to accessibility rights, social justice is often implicitly present. Calls for mixed land use, proximity and compact cities are not only motivated by decarbonisation dreams, but also by the new narrative of accessibility. Studies on the adverse effects of sustainable transport policies illustrate that the aspiration of social justice cannot be replaced by objectives like compactness, transit-oriented development and bicycle friendliness (see, for example, the discussion of social equity and

investments in transit cited earlier (Garrett and Taylor, 1999)). As a consequence, ethics and social justice deserve a central place in the sustainable mobility paradigm.

Besides demand and need other distributive principles are mentioned in the literature such as merit, expectations ((legal) certainty), procedural fairness, formal equality, and outcome equality (Langmyhr, 1997; Hay, 1995). In practice, a mix of these and other often overlapping principles will be applied. Indeed, theoretical purity is impossible, but ignoring the ethical dimension of transport policy and research might relegate social justice to the background.

4. From the limits to growth to ethics

All possible controversies on environmental impacts eventually boil down to an ethical debate

The aim of the present paper is to challenge the orthodox sustainable transport vision from two perspectives that may draw too little attention in current debates. First, we discussed this paradigm by confronting it with the troublesome issue of the limits to growth. Then, we challenged the sustainable mobility paradigm by confronting it with the literature on social justice and transport and studies on social exclusion and transport. Apparently, the discussion seems to confirm the idea that all debates on sustainability eventually boil down to ethical discussions.

While the report of the Club of Rome has achieved an iconic status in the environmentalist movement and has played a significant role in the development of the sustainability discourse, economic growth is generally not questioned by sustainable mobility scholars and practitioners. From the same observation, Essebo and Baeten (2012) problematize sustainable mobility, and sustainable development in general, since such visions unconvincingly attempt to integrate the opposing goals of growth and biophysical limits. Also Tim Jackson s work (2009) points out the co the current economic system, in which growth is necessary to maintain employment levels, and the physical limits of the earth in terms of raw materials, energy and environmental space.

The sustainable mobility literature acknowledges biophysical limits which are made concrete by making reference to peak oil, climate change and greenhouse gas emissions. A typical paper starts as follows:

> Environmental problems such as climate change pr*esent formidable challenges for trans* *which is one of the few sectors where CO_2* emissions continue to rise. (Geels, 2012, p.4
>
> Car travel is related to climate change, dependence on fossil fuels, and *(Buehler, 2011, p.644)*
>
> The carbon dioxide (CO*2*) *level that causes global warming has been increasing rapidly since 1990 and many countries are trying to reduce these CO_2* emissions. (Ding et al., 2014, *p.109).*

These three randomly selected examples illustrate that biophysical limits are commonly expressed in scientific terms. It is about tons and atmospheric levels of CO_2, estimated oil consumption and percentages of carbon reduction and some other IPCC terminology.

Although we do not call into question the added value of research on climate change or estimations of effects of greenhouse gas emissions, we want to point to the moral and ethical dimension of anti-growth (or pro-growth) claims. As father and son Skidelsky (2012, p.131) argue: *the environmentalist case for growth reduction cannot be explained as a pragmatic response to known facts. It betrays a passion, a will to believe, to which the facts are incidental.* Interestingly, they illustrate this wi example in the field of transport: *if current fears about global warming turn out to be baseless, climate radicals will not abandon their opposition to long-distance flying and four-by-fours; rather,*

they will find new arguments to justify their austerities. (p.132). Although this quote does not do justice to the variety of visions hold by environmentalists, the point is clear: it is very likely that carbon emissions will have a significant effect on climate, but the apocalyptic visions that regularly accompany such scientific findings, are part of a storytelling process (in the sense of Hajer, 1995). Although this does not mean that efforts to limit greenhouse gas emissions and air pollutants serve no goal, it mainly suggests that we should take the ethical nature of environmentalist debates into account in any case.

The Skidelskys prefer an environmentalism based on ethical values, called good-life environmentalism, over one that hides behind climate models. Their openly paternalistic approach condemns greed, insatiability and other vices in themselves, and thus not for their climate impact. They put forward seven basic goods which are essential for the good life: heal personality, harmony with nature, friendship and leisure. We will not go into detail on the exact meaning of these goods, but we highlight that this is a positive stance towards life. Note that also for Jackson (2009) the aspiration is to provide capabilities for flourishing. This is particularly the case when we realize that in the past, the move towards a more egalitarian society has mostly been a matter of redistribution of surplus wealth. In a society without growth, welfare redistribution can only happen if the well-off would surrender a portion of their wealth. Although inequality is not necessarily linked to growth (Aghion et al., 1999), it is clear that the reproduction of power relations ensures that wealth redistribution in a stagnant or declining economy is hardly happening beyond mere philanthropy. The argument of the Skidelskys can straightforwardly be applied to the case of sustainability, as can be illustrated by Neuman s discussion of sustainable urbanism (Neuman, 2005). To hi too vague a term, and the search for an exact definition is doomed to failure. *the way things ought to be and how we ought to live.* (p.17), it is *a category of the good.* (p.17). An if the ethical nature of sustainability is not taken into account, dogmatism is likely to prevail. Ethical questions do not have an answer, they require a dialogue. For Neuman (p.17), *Sustainability is a debate about how to live.* , and according to us, we can simply replace sustainability by mobility or sustainable urbanism.

Seeing sustainable mobility as a debate or as an ethical question might have some implications for scholars in the field. It implies that everyone has something to say about sustainable mobility. Given that *there are no experts in morality* (Skidelsky and Skidelsky, 2012, p.145), the role o is not to prescribe what to do, but to substantiate the debate, to point to adverse effects, to indicate what is possible and to reduce illusion, especially when illusion leads to exclusion. This view on the role of research is not new (see e.g. Sayer, 1992; Feyerabend, 2011), but we would like to stress this point again. The statement that *there are no experts in sustainable mobility* must be understo way. It does, however, not imply that all moral opinions are of equal worth, or that scientific findings are nothing more than opinions. And even though scientific findings may lead to disenchantment, they can also nourish the debate and bring it to higher standards.

5. How to achieve Utopia?

It is yet unclear how the highly popular sustainability transition approach incorporates questions of growth and social justice

The previous section indicates that sustainability and sustainable mobility relate to the good life. This is a positive approach which stresses what sustainable mobility is or ought to be. This stands in contrast to approaches where the focus is on the negative, i.e. sustainable transport is about mobility with *less* CO_2 and *less* congestion. Among others, Goldman and Gorham (2006) make such a distinction between emphasising *what sustainable transport should not do* and *what the ideal system should do* (p. 264). They also distinguish between end-state visions and efforts that see sustainability as a pathway. Good-life mobility can be seen as a pathway or a good life or a permanent dialogue on mobility, but it can also be seen as some kind of desired end-state, a world where the good life is the norm. In order to be able to continue our story, we

provisionally define the good life as a situation characterised by a permanent dialogue on ethical questions. In line with Sen (2009), we do not put too much emphasis on highly idealist descriptions of utopias that show little correspondence to the world today. What is of importance here is that it brings us to the following essential question: how to achieve a situation which is considered more just and sustainable?

Besides a description of some essential features of the sustainable mobility paradigm, the iconic paper by Banister (2008) provides an overview of the necessary conditions for change. He a public acceptability and confidence are the keys to turn sustainable mobility into practice. Essential elements to promote the public acceptability of sustainability include information, communication and involvement, policy packaging and coordination across sectors, the adoption of more controversial policies in stages, and a reflexive attitude in order to remain flexible. In ess pragmatic and down-to-earth guide for the promotion of sustainable mobility.

Banister s pragmatic approach is one way to deal with the pathway to a more desi discussion to a meta-level is another. Most likely, the fastest growing family of perspectives on change is the so-called transition approach (Rotmans et al., 2001; Geels, 2012; Schwanen et al., 2011). In order to promote his socio-technical approach to transitions, Geels (2012, p.471) critici alternative approaches such as environmental economics, political science and industrial ecology since these focus *on a limited set of dimensions of (un)sustainability. The socio-technical approach to transitions instead highlights co-evolution and multi-dimensional interactions between industry, technology, markets, policy, culture and civil society.* (p. 472). Although this multi-dimensional approach looks promising, the transition literature largely neglects social justice and limits to growth related issues. Geels (2012) (awkwardly) refers to political scientists as being too on decision making processes, but the fact that he cites Newell (2008) to position this approach in the literature indicates that he actually means political ecologists and cognate scholars. The reduction of political science or political ecology to studies on political debates about emission targets and the bureaucratic implementation thereof in Geels (2012), ignores relevant issues discussed in that literature (e.g. Braun, 2006; Castree, 2000). Social justice and uneven development are core concepts in this stream of research, themes which only occupy a marginal position in transition studies. Note that Geels (2014) cautiously discusses political economy issues in a recent paper, including the role of firms and industries, economic growth, neo-liberal thinking and the role of the state in establishing the conditions for capital circulation. However, he did not without a long introduction on carbon-dioxide levels and tipping points, and without making clear how insights from political ecology have changed the transition approach.

Also in two well-cited other papers in the transition literature that deal with power (Avelino and Rotmans, 2011) and the geographical unevenness of transition processes respectively (Coenen et al., 2012) at least one difficult question raised in work on political ecology is not treated to some extent. And that question is whether the growth in energy consumption and transport is an essential feature of present-day society. Avelino and Rotmans (2011) give an overview of the conceptualisation of power in different literatures in an attempt to give the concept a place in the interdisciplinary transition framework. However, this has not yet resulted in the integration of uneven development in the transition approach. The second paper, by Coenen et al. (2012), cites virtually all famous, especially radical, geographers (Amin, Baeten, Brenner, Coe, Cooke, Cox, Harvey, Massey, Peck, Theodore, Sayer, Swyngedouw, ; admittedly, several of them without a formal background in g However, difficult issues are circumvented and the idea that the elimination of spatial barriers is an essential element of world capitalism (often referred to as the annihilation o `time-space compression (Brenner, 1999)), is not discussed.

Outside the transition literature, Schwanen et al. (2011) argue that the socio-technical approach to transitions offers an interesting perspective. However, they add practice theories as a promising research framework, an argument based on the critique of Shove and Walker (2007, 2010) on the transition approach. This focus on everyday practices illustrates that behavioural change is constrained, and shows the complexity of practices like daily showering or driving. Doing so, practice

theory stresses the importance of the demand-side which is less well developed in the socio-technical transition literature. The practice approach also illustrates that individuals are not the (self-)entrepreneurial, rational, utility-maximising, well-informed agents imagined in the neoliberal discourse.

The adoption of the transition label by policy making in Belgium illustrates that the introduction of this concept, like sustainability, does not automatically lead to major changes. In the Flemish region, Flanders in Action (Vlaanderen in Actie, ViA) is a project set up by the regional government to achieve an innovative, sustainable and warm society by 2020. Major challenges consequences of the economic crisis, the energy question, mobility problems, ageing and poverty. Transition is proclaimed to be the method used, since small adaptations to the as the transport system) are not considered sufficient. The goal is to develop new systems, meant to replace the existing unsustainable ones through many small improvements. This process is seen as a partnership between all sorts of societal stakeholders and is subject to permanent evaluation (Flemish Government, 2014). However, critical observers note that such transition initiatives are exemplary of green washing, post-political policy making and the persistence of power imbalances, despite the sometimes radical discourse (Debruyne and De Bisschop, 2013).

We can conclude that the predominant focus on climate change and decarbonisation in transition studies reflects a negative interpretation of sustainability, which stands in contrast to the good-life environmentalism of the Skidelskys, and, strikingly, the Transition Movement which emphasises community building (Hopkins, 2011). But as the study on scientific research about clima mitigation in transport by Schwanen et al. (2011) illustrates, a negative perspective on sustainab leaves some fundamental questions unanswered. At the very end of their paper, Schwanen et al. (2011, p. 1004) actually raise the questions *What is the kind of world that we would like to live in and fir desirable and how should mobility be configured in that world?* and *Is mobility in principle a right to which people are entitled?* . In a way, this can be interpreted as what we have called limits to growth to ethics . They carried out a review of studies on climate change mitigation in transport and they ended up with some ethical questions.

It will bring us too far to criticise transition studies from a political ecology perspective, but the point that we want to make here is that a key paper by a leading scholar who wants to introduce the topic into transport studies (Geels, 2012) tends to reduce it to low-carbon transitions , thereby i questions of social justice and the nature of society. However, some other authors on which our discussion above was based, at least recognise the problem. Again, we refer to Schwanen et al. (2011, p. 1004) who raise following question: *Will neo-liberal ways of decarbonising transport not exacerbate inequalities in travel patterns along lines of gender, race/ethnicity, class, residential location and their intersections?* . Although the work of the Skidelskys is more on ethics than on political ecology, they state: *Natural limits to growth, even if they do exist, will come into play far to late to meet the requirements of the good life.* (Skidelsky and Skidelsky, 2012, p. 143). In other words, the Skidelskys share with political ecologists concerns related to social justice.

6. Conclusion

But where do the above considerations lead us? The apparent incompatibility of the potentially systemic urge for growth and the expected climate induced problems are reminiscent of the tragedy of the commons, as described by Hardin (1968). According to the same author, a collapse of the system could only be avoided through judicious management of individual appropriation, thus through regulation. In the context of this article, regulation reminds us of what we have called the orthodox concept of sustainable mobility. For indeed, an environmentally friendly modal shift, substitution of trips that are less necessary, increasing the energy efficiency of vehicles, and the pursuit of compact urban development are all part of a vision in which government intervention is essential. When it appears that a number of possible interventions needed to reduce the environmental burden are not

effective, while on the other hand these can lead to more inequality, the whole concept of sustainable mobility could be collapsing like a house of cards.

Our main point is that mobility is worth a debate, where we recognize that the nature of such a debate is ethical. Consequently, everyone must be given a voice, hence our statement that there are no experts in sustainable mobility. But we also indicated that experts should be a role in the debate. Because in debates on sustainable mobility, often everything is lumped together, we try to introduce some structure. A first element is the distinction between relative and absolute figures. While climate change is about absolute levels (tons) of atmospheric components, the success of strategies is regularly measured in relative figures (e.g. percentage car commuters). This mixing of absolute and relative measures confuses the debate. Second, we suggest to distinguish more clearly between scales.

Debates on mitigating climate change are associated with the global scale. Key themes are aviation and international freight, and discussions about limiting such forms of transport are necessary. Perhaps it is effective to charge aviation and international freight transport with an appropriate carbon tax. In terms of CO_2 emissions, the potential gains by such measures are impressive, while the effects on social justice may be relatively limited. Because at the global level, it are not the weakest groups in society who are dependent on regular air travel and consumer goods produced overseas. A broad discussion on the wider social impact is needed, as it requires rethinking consumption and production patterns and an analysis of the impact on poor migrant populations is also recommended. Nevertheless, let it be clear that anyone who talks about climate change and transport without talking about aviation misses an important dimension. Since in such a debate with a global scope, it would be much less far-reaching to neglect the bicycle.

Conversely, it might be a good idea to continuously favour the use of public transport and the bicycle in cities. Even though the expected impact on greenhouse gas emissions is only little, such policies will contribute to the quality of life of those living in urban areas, especially with respect to the socially weakest. This does not mean that all vulnerable groups will benefit from a car discouraging policy, but by offering public transport and bicycle paths as a public service, all segments of the population would face additional travel opportunities. Road safety too can benefit from such measures, while compact urban planning may improve accessibility by limiting distance between origins and destinations of journeys. Several existing ideas about sustainable mobility dovetail with these considerations, even though the contribution to social justice is often not explicitly mentioned. In this case, the suburbanisation of poverty is a possible side-effect that calls for a debate.

By stressing context sensitive use of figures, and the importance of scale, we want to show that the sustainable mobility debate would benefit from a distinction between e.g. daily urban travel, and intercontinental transport. Thinking in levels of scale does not imply, however, that global dynamics necessarily happen above our heads (Herod, 2011). Apart from awareness about the necessary distinction between various levels, also the connection between these is of prime importance. The popularity of sustainable city logistics may not result in the neglect of what origin of goods, regularly hundreds or thousands of kilometres away, and the city edge. Even more, in order to label a logistics flow as being sustainable, the production process a should be taken into consideration. In the case of food and putting it frankly, sustainable logistics is either organic fair trade, either *artisan food production* [ ] *that would help maintain links wi soil.* (Skidelsky and Skidelsky 2012, p.143). So, whether it is in aviation, cycli the real challenge is to find solutions that combine benefits in terms of climate impact, pollution and resource depletion, with more social justice, and this at all levels.

References

- Aghion, Philippe, Eve Caroli, and Cecilia García-Peñalosa. "Inequality and Economic Growth: The Perspective of the New Growth Theories." *Journal of Economic Literature* 37, no. 4 (1999): 1615-60.
- Avelino, Flor, and Jan Rotmans. "A Dynamic Conceptualization of Power for Sustainability Research." *Journal of Cleaner Production* 19, no. 8 (2011): 796-804.
- Baeten, Guy. "The Tragedy of the Highway: Empowerment, Disempowerment and the Politics of Sustainability Discourses and Practices." *European Planning Studies* 8, no. 1 (2000): 69-86.
- Banister, David. "The Sustainable Mobility Paradigm." *Transport Policy* 15, no. 2 (2008): 73-80.
- Baxandall, Phineas. *Moving Off the Road: A State-by-State Analysis of the National Decline in Driving*. Boston: USPIRG Education Fund, 2013.
- Belgisch Staatsblad. "Koninklijk Besluit Houdende Goedkeuring Van Het Vierde Bijvoegsel Bij Het Tweede Beheerscontract Van De Nationale Maatschappij Der Belgische Spoorwegen ". *Belgisch Staatsblad - Moniteur belge*, no. August 27th (2004).
- Belgisch Staatsblad. "Koninklijk Besluit Van 20 April 1999 Houdende Toekenning Van Een Vergoeding Voor Het Gebruik Van De Fiets Aan De Personeelsleden Van Sommige Overheidsdiensten." *Belgisch Staatsblad - Moniteur belge*, no. April 29th (1999).
- Braun, Bruce. "Towards a New Earth and a New Humanity: Nature, Ontology, Politics." In *David Harvey: A Critical Reader*, edited by Noel Castree and Derek Gregory. 191-222. Oxford: Blackwell, 2006.
- Brenner, Neil. "Globalisation as Reterritorialisation: The Re-Scaling of Urban Governance in the European Union." *Urban Studies* 36, no. 3 (1999): 431-51.
- Buehler, Ralph. "Determinants of Transport Mode Choice: A Comparison of Germany and the USA." *Journal of Transport Geography* 19, no. 4 (2011): 644-57.
- Bulkeley, Harriet, and Michele Betsill. "Rethinking Sustainable Cities: Multilevel Governance and The'urban'politics of Climate Change." *Environmental Politics* 14, no. 1 (2005): 42-63.
- Cass, Noel, Elizabeth Shove, and John Urry. "Social Exclusion, Mobility and Access." *Sociological Review* 53, no. 3 (2005): 539-55.
- Castree, Noel. "Marxism and the Production of Nature." *Capital and Class* 24, no. 3 (2000): 5-36.
- Chiara, Fabio, and Marcello Canova. "A Review of Energy Consumption, Management, and Recovery in Automotive Systems, with Considerations of Future Trends." *Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering* 227, no. 6 (2013): 914-36.
- Clifton, K., and K. Lucas. "Examining the Empirical Evidence of Transport Inequality in the Us and Uk.". In *Running on Empty: Transport, Social Exclusion and Environmental Justice.*, edited by K. Lucas. 15-36. Bristol: Policy Press, 2004.
- Coenen, Lars, Paul Benneworth, and Bernhard Truffer. "Toward a Spatial Perspective on Sustainability Transitions." *Research Policy* 41, no. 6 (2012): 968-79.
- Coppens, Tom. "Understanding Land Use Conflicts in Strategic Urban Projects, Lessons from Ghent Sint Pieters." In *Strategic Spatial Projects: Catalysts for Change*, edited by Stijn Oosterlynck, Jef Van den Broeck and Louis Albrechts. 189-211: Routledge, 2010.
- Davis, Benjamin, and Phineas Baxandall. *Transportation in Transition: A Look at Changing Travel Patterns in America s Biggest Cities*. Boston: USPIRG Education Fund, 2013.
- Davis, Benjamin, Tony Dutzik, and Phineas Baxandall. *Transportation and the New Generation: Why Young People Are Driving Less and What It Means for Transportation Policy*. Boston: Frontier Group & USPIRG Education Fund, 2012.
- Davis, Stacy C., Susan W. Diegel, and Robert G. Boundy. *Transportation Energy Data Book*. Oak Ridge, TN: Oak Ridge National Laboratory, 2011.
- De Decker, Pascal. "Understanding Housing Sprawl: The Case of Flanders, Belgium." *Environment and Planning A* 43, no. 7 (2011): 1634-54.
- Debruyne, Pascal, and An De Bisschop. "Transitie: De Meesterzet Van De Ideologie?". *Oikos*, no. 2 (2013): 46-62.

- Dennis, Kingsley, and John Urry. *After the Car*. Cambridge: Polity Press, 2009.
- Ding, Chuan, Chao Liu, Yaoyu Lin, and Yaowu Wang. "The Impact of Employer Attitude to Green Commuting Plans on Reducing Car Driving: A Mixed Method Analysis." *Promet - Traffic and Transportation* 26, no. 2 (2014): 109-19.
- Dujardin, Sébastien, Kobe Boussauw, Florence Brévers, Jean-Marc Lambotte, Jacques Teller, and Frank Witlox. "Sustainability and Change in the Institutionalized Commute in Belgium: Exploring Regional Differences." *Applied Geography* 35, no. 1-2 (2012): 95-103.
- Enoch, Marcus. *Sustainable Transport, Mobility Management and Travel Plans*. Farnham, Surrey: Ashgate, 2012.
- Essebo, Maja, and Guy Baeten. "Contradictions of Sustainable Mobility : The and the Logic of Myth." *Tijdschrift voor Economische en Sociale Geografie* 103, no. 5 (2012): 555-65.
- Farrington, John, and Conor Farrington. "Rural Accessibility, Social Inclusion and Social Justice: Towards Conceptualisation." *Journal of Transport Geography* 13, no. 1 (2005): 1-12.
- Feyerabend, Paul. *The Tyranny of Science*. Cambridge: Polity Press, 2011.
- Flemish Government. "Vlaanderen in Actie." http://www.vlaandereninactie.be/.
- Garrett, Mark, and Brian Taylor. "Reconsidering Social Equity in Public Transit." *Berkeley Planning Journal* 13, no. 1 (1999): 6-27.
- Geels, Frank W. "Regime Resistance against Low-Carbon Transitions: Introducing Politics and Power into the Multi-Level Perspective." *Theory, Culture & Society* 31, no. 5 (2014): 21-40.
- Geels, Frank W. "A Socio-Technical Analysis of Low-Carbon Transitions: Introducing the Multi-Level Perspective into Transport Studies." *Journal of Transport Geography* 24 (2012): 471-82.
- Gilbert, Richard, and Anthony Perl. *Transport Revolutions: Moving People and Freight without Oil*. London: Earthscan, 2008.
- Giuliano, Genevieve. "Transportation Demand Management: Promise or Panacea?". *Journal of the American Planning Association* 58, no. 3 (1992): 327-35.
- GMF. "Openbaar Vervoer Richting Gent-Sint-Pieters Onvoldoende Concurrentieel Met Parking." Gents MilieuFront, http://www.gentsmilieufront.be/index.php/id/777.
- Goldman, Todd, and Roger Gorham. "Sustainable Urban Transport: Four Innovative Directions." *Technology in Society* 28, no. 1-2 (2006): 261-73.
- Goodwin, Phil. "Three Views on Peak Car." *World Transport, Policy & Practice* 17, no. 4 (2012): 8-17.
- Hajer, M.A. *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Clarendon, 1995.
- Hardin, Garrett. "The Tragedy of the Commons." *Science* 162, no. 3859 (1968): 1243-48.
- Hay, Alan M. "Concepts of Equity, Fairness and Justice in Geographical Studies." *Transactions of the Institute of British Geographers* 20, no. 4 (1995): 500-08.
- Herod, Andrew. *Scale (Key Ideas in Geography)*. London: Routledge, 2011.
- Holden, Erling, Kristin Linnerud, and David Banister. "Sustainable Development: Our Common Future Revisited." [In English]. *Global Environmental Change-Human and Policy Dimensions* 26 (May 2014): 130-39.
- Holden, Erling, Kristin Linnerud, and David Banister. "Sustainable Passenger Transport: Back to Brundtland." [In English]. *Transportation Research Part A* 54 (Aug 2013): 67-77.
- Hopkins, R. *The Transition Companion: Making Your Community More Resilient in Uncertain Times*. Totnes, Devon: Green Books, 2011.
- Inglehart, Ronald, and H.-D. Klingemann. *Genes, Culture and Happiness*. Boston, MA: MIT Press, 2000.
- Jackson, Tim. *Prosperity without Growth: Economics for a Finite Planet*. London: Earthscan, 2009.
- Langmyhr, Tore. "Managing Equity: The Case of Road Pricing." *Transport Policy* 4, no. 1 (1997): 25-39.
- Levine, Jonathan, and Yaakov Garb. "Congestion Pricing's Conditional Promise: Promotion of Accessibility or Mobility?". *Transport Policy* 9, no. 3 (2002): 179-88.

- Levinson, David Matthew. "Equity Effects of Road Pricing: A Review." *Transport Reviews* 30, no. 1 (2009): 33-57.
- Martens, Karel. "Basing Transport Planning on Principles of Social Justice." *Berkeley Planning Journal* 19, no. 1 (2006): 1-17.
- Martens, Karel. "Justice in Transport as Justice in Accessibility: Applying W Justice to the Transport Sector." *Transportation* 39, no. 6 (2012): 1035-53.
- Martens, Karel, and Eyal Hurvitz. "Distributive Impacts of Demand-Based Modelling." *Transportmetrica* 7, no. 3 (2011): 181-200.
- Meadows, Donella H., Jorgen Randers, Dennis L. Meadows, and William W. Behrens. *The Limits to Growth: A Global Challenge*. New York: Universe Books, 1972.
- Meersman, Hilde, Eddy Van de Voorde, Cathy Macharis, Thierry Vanelslander, Christa Sys, Katrien De Langhe, Roel Gevaers, *et al. Indicatorenboek 2012: Duurzaam Goederenvervoer Vlaanderen*. Antwerp: Policy Research Centre on Commodity ad Passenger Flows (MOBILO), 2013.
- Meyer, Michael D. "Demand Management as an Element of Transportation Policy: Using Carrots and Sticks to Influence Travel Behavior." *Transportation Research Part A* 33, no. 7-8 (1999): 575-99.
- MIRA. "Co_2-Emissie Van Nieuwe Personenwagens." Vlaamse Milieumaatschappij, http://www.milieurapport.be/nl/feitencijfers/sectoren/transport/emissie-naar-lucht-door-transport/co2-emissie-van-nieuwe-personenwagens/.
- Mobimix. "15 Elektrische Wagens Verkocht in België." http://www.mobimix.be/inhoud/2010/6/20/1721.
- National Climate Commission. *Nationaal Klimaatplan Van België / Plan National Climat De La Belgique 2009-2013*. Brussels: FPS Public Health, Food Chain Safety and Environment, 2008.
- Neuman, Michael. "The Compact City Fallacy." *Journal of Planning Education and Research* 25, no. 1 (2005): 11-26.
- Newell, Peter. "The Political Economy of Global Environmental Governance." *Review of International Studies* 34, no. 3 (2008): 507-29.
- Newman, Peter, and Jeff Kenworthy. "'Peak Car Use : Understanding the Demise o Dependence." *World Transport Policy and Practice* 17, no. 1 (2011): 31-42.
- NMBS. "Project Gent Sint-Pieters." http://www.projectgentsintpieters.be/.
- OECD. *Oecd Economic Surveys: Belgium 2013*. Paris: Organisation for Economic Co-operation and Development, 2013.
- Preston, John, and Fiona Rajé. "Accessibility, Mobility and Transport-Related Social Exclusion." *Journal of Transport Geography* 15, no. 3 (2007): 151-60.
- Reeves, Dory. *Planning for Diversity: Policy and Planning in a World of Difference*. Oxon - New York: Routledge, 2005.
- Rotmans, Jan, René Kemp, and Marjolein van Asselt. "More Evolution Than Revolution: Transition Management in Public Policy." *Foresight* 3, no. 1 (2001): 15-31.
- RSV. *Ruimtelijk Structuurplan Vlaanderen*. Brussels: Ministry of the Flemish Community, 2004[1997].
- Sayer, Andrew. *Method in Social Science: A Realist Approach*. London: Routledge, 1992.
- Schwanen, Tim, David Banister, and Jillian Anable. "Scientific Research About Climate Change Mitigation in Transport: A Critical Review." *Transportation Research Part A* 45, no. 10 (2011): 993-1006.
- Schweitzer, Lisa, and Abel Valenzuela. "Environmental Injustice and Transportation: The Claims and the Evidence." *Journal of Planning Literature* 18, no. 4 (2004): 383-98.
- Sen, A. *The Idea of Justice*. London: Allen Lane, 2009.
- Shove, Elizabeth, and Gordon Walker. "Caution! Transitions Ahead: Politics, Practice, and Sustainable Transition Management." *Environment and Planning A* 39, no. 4 (2007): 763-70.
- Shove, Elizabeth, and Gordon Walker. "Governing Transitions in the Sustainability of Everyday Life." *Research Policy* 39, no. 4 (2010): 471-76.

- Skidelsky, Robert, and Edward Skidelsky. *How Much Is Enough? The Love of Money, and the Case for the Good Life*. Harlow: Penguin Books - Allen Lane, 2012.
- Statistics Belgium. "Verkeer En Vervoer." FOD Economie, KMO, Middenstand en Energie, http://statbel.fgov.be/nl/statistieken/cijfers/verkeer vervoer/.
- Sustainable Development Commission. *Fairness in a Car-Dependent Society*. London: Sustainable Development Commission, 2011.
- Tight, M.R., P. Delle Site, and O. Meyer-Rühle. "Decoupling Transport from Economic Growth: Towards Transport Sustainability in Europe." *European Journal of Transport and Infrastructure Research* 4, no. 4 (2004): 381-404.
- Van Goeverden, Cees, Piet Rietveld, Jorine Koelemeijer, and Paul Peeters. "Subsidies in Public Transport." *European Transport \ Trasporti Europei*, no. 32 (2006): 5-25.
- van Wee, Bert. *Transport and Ethics*. Cheltenham: Edward Elgar, 2011.
- Vandenbulcke, Grégory, Claire Dujardin, Isabelle Thomas, Bas de Geus, Bart Degraeuwe, Romain Meeusen, and Luc Int Panis. "Cycle Commuting in Belgium: Spatial Determinants and Re-Cycling Strategies." *Transportation Research Part A* 45, no. 2 (2011): 118-37.
- Vanoutrive, Thomas, Laurent Van Malderen, Bart Jourquin, Isabelle Thomas, Ann Verhetsel, and Frank Witlox. "Mobility Management Measures by Employers: Overview and Exploratory Analysis for Belgium." *European Journal of Transport and Infrastructure Research* 10, no. 2 (2010): 121-41.
- Verhetsel, Ann, Isabelle Thomas, Etienne Van Hecke, and Marjan Beelen. *Pendel in België. Deel I: De Woon-Werkverplaatsingen*. Brussels: Statistics Belgium, 2007.
- Zijlstra, Toon, Thomas Vanoutrive, and Ann Verhetsel. *Het Mobiliteitsbudget: Een Verkenning*. Antwerp: Policy Research Centre on Commodity ad Passenger Flows (MOBILO), 2014.
- Zijlstra, Toon, Thomas Vanoutrive, and Ann Verhetsel. "A Meta-Analysis of the Effectiveness of Park-and-Ride Facilities." *European Journal of Transport and Infrastructure Research* (forthcoming).