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Insights from 25 years of research by Bert van Wee published in the European Journal of Transport and Infrastructure Research

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Bert van Wee, professor in Transport Policy at Delft University of Technology, the Netherlands, faculty Technology, Policy and Management, is retiring. Given his large contributions to EJTIR as Editor-in-Chief, editorial board member, author and reviewer, this Editorial Note is dedicated to his work for EJTIR. Over 25 years, van Wee published 18 papers and 1 book review in EJTIR covering a wide range of topics from road pricing to urban rail transport, vehicle automation and port throughput. What his studies have in common is that they explore how transport policies affect land-use and travel behaviour, as well as the economic and wider societal impacts of those policies.

Transport policy

The field of transport policy covers many topics. For EJTIR, van Wee wrote a book review, he co-authored three papers on pricing policies for car ownership, car usage and parking, and when the COVID pandemic hit, he contributed by reviewing the impact of COVID-19 on transport-related policies.

In his 2006 book review, van Wee evaluated the "Handbook of Transport Strategy, Policy, and Institutions," edited by Button and Hensher. The handbook covers a wide range of topics including institutional settings, planning perspectives, and regulatory issues. Van Wee appreciated the comprehensive insights provided but noted that the book is heavily oriented towards economic perspectives, which may be challenging for practitioners without a strong background in economics. Despite this, he recommended it as a valuable resource for academics and professionals in the transport sector.

In their insightful paper, Verhoef and van Wee (2000) explored the intricate relationship between car ownership, social status, and fuel efficiency policies through the lenses of happiness theories

and welfare economics. The authors argued that beyond a certain income level, additional wealth does not significantly enhance happiness. Instead, it often fuels the pursuit of status goods, such as cars, which can have substantial environmental impacts. The authors proposed that policies like "fee-bates", and tradeable permits could be more effective than simple price increases in encouraging the adoption of fuel-efficient cars, because huge price increases would be needed which are generally not accepted.

Besides pricing policies for car ownership, pricing policies may also focus on car usage and on parking. Zhang and van Wee (2011) introduced a new duration dependent parking fee regime based on the travel cost for an entire day, rather than a single commute trip. They showed that a pricing regime with both time-varying road tolls and location dependent parking fees is most efficient, followed by a regime with time-varying road tolls alone.

Although pricing policies have proven to be very effective, they are often hard to implement because of a lack of political support. Ardıç, Annema, and van Wee (2015) explored the non-implementation of road pricing policies in the Netherlands by analysing the policy position changes of 26 major policy actors and the changes in consensus and conflict among these actors over a policy process of 16 years. The results show that non-implementation cannot be ascribed to only the opposition of one policy actor or to one group of policy actors, but rather to features of the Dutch political system/culture and complications peculiar to the road pricing subsystem.

During the COVID pandemic different transport-related policies were introduced. Shortall, Mouter, and van Wee (2022) reviewed those policy measures and identified key factors influencing the design and effectiveness of these measures, including socio-economic, cultural, political, and individual determinants. Their study highlighted the importance of remote work capabilities and civic responsibility in compliance with transport policies. This comprehensive review provided valuable insights for designing effective transport measures during pandemics.

Land-use and travel behaviour

To design effective transport policies and assess their impacts, it is important to understand how those policies affect land-use and travel behaviour. In 2002, van Wee, Holwerda, and van Baren investigated how land use affects travel behaviour. Their study revealed that personal and household characteristics significantly affect travel behaviour. The authors argued that land-use policies should consider these preferences to effectively manage mobility and reduce car use. Their research highlighted the importance of integrating individual preferences into transport planning for more effective and sustainable outcomes.

A year later, Van Wee and Maat (2003) provided a comprehensive review of Dutch research on the interaction between land-use and transport. They presented a conceptual model for passenger transport and evaluated empirical and model studies. Their paper highlighted the significant influence of land-use on travel behaviour, discussed the policy implications of these findings, and suggested directions for future research to enhance the integration of land-use and transport planning.

Another year later, Geurs and van Wee (2004a) reviewed the use of land-use/transport interaction models for assessing the sustainability impacts of transport investments. They highlighted the importance of these models in evaluating long-term environmental and social effects. Their paper emphasized the need for integrating land-use and transport planning to achieve sustainable development goals. The authors also identified research gaps and proposed future directions to enhance the effectiveness of these models in policymaking.

Van de Coevering et al. (2016) examined the causal effects of built environment characteristics on travel behaviour using a longitudinal approach. Their study employed cross-lagged panel structural equation models to analyse data over time, revealing that, in line with above-mentioned papers, the residential built environment significantly influences car use and travel attitudes. This

research also supports the idea that land-use policies can effectively shape travel behaviour by considering the built environment's impact on residents' attitudes and actions.

Chorus, Molin, and van Wee (2006) reviewed the role of travel information in influencing car-drivers' travel choices. Their literature review spanned over 15 years, focusing on how information can encourage shifts from private car use to public transport and optimize departure times and routes. The authors found that while short-term effects of information provision are modest, long-term impacts can be more significant due to learning dynamics. Their study highlighted the potential and limitations of using travel information to promote more sustainable travel behaviours.

While most papers of van Wee focused on passenger demand, he also co-authored a paper on freight demand. To provide infrastructure planners with some guidance on the very long-term development of transport demand over the lifetime of the infrastructure, Dorsser, Wolters, and van Wee (2012) presented a forecast for port throughput in the Le Havre – Hamburg range up to 2100. On the basis of the forecast, it can be expected that the port throughput in the Le Havre – Hamburg region will remain growing throughout the first half of the century, but at a reduced pace. Towards the end of the century throughput volumes will stabilize or even decrease.

From a more theoretical perspective, Van Wee (2010) reflected on the application of Prospect Theory (PT) in travel behaviour research. In this paper he highlighted PT's value in understanding travel choices, particularly through concepts like loss aversion and reference points. He also noted that PT is one of several theories challenging traditional Utility Theory (UT). Van Wee emphasized the importance of focusing on PT's unique premises and suggested that PT can enhance both the understanding and evaluation of travel behaviour models.

Economic and wider impact assessment

Managing large-scale transportation infrastructure projects is difficult due to frequent misinformation about the costs which results in large cost overruns that often threaten the overall project viability. Cantarelli, Flyvbjerg, Molin, and van Wee (2010) categorized explanations for cost overruns into four main groups: technical, economic, psychological, and political of which political explanations have been seen to be the most dominant.

Flyvbjerg, Bruzelius, and van Wee (2008) highlighted the prominent position of urban rail in reducing urban transport-related problems, such as congestion and air pollution. They provided insights into the costs of possible new urban rail projects. Their research revealed that in European projects, the capital costs per route-kilometre range between US$50-100 million (2002 prices). Including US projects, the range extends to US$50-150 million. Variations are due to factors such as the ratio of underground to above-ground construction, ground conditions, station spacing, type of rolling stock, environmental and safety constraints, and labour costs.

Besides costs of infrastructure projects and policies, the benefits should be considered. Nowadays, broad prosperity is an important theme in Dutch mobility policy evaluation. Besides the traditional focus on accessibility and the analysis of financial costs and benefits, it is argued that health, safety and liveability impacts of policies and interventions should be considered more explicitly and in a more balanced way. Furthermore, distributional effects between regions and population groups should be considered. But is this really a new approach? And to what extent has the work of van Wee and his co-authors contributed to the shift in focus towards broad prosperity?

Already in 2000, van Wee and Geurs (2000) wrote that ex ante transport policy evaluations often rely heavily on cost-benefit analyses. While this utilitarian approach provides a framework for assessing the economic viability of infrastructure plans, it falls short in addressing broader aspects of accessibility. They highlighted a critical gap in current methodologies, the neglect of equity and social exclusion in accessibility evaluations and proposed an agenda for potential future research in the area of ethics and accessibility.

Annema and van Wee (2000) studied the role research played in the Dutch policy-making process for meeting the targets set in the Kyoto Protocol on the control of Greenhouse Gas (GHG) emissions. They concluded that research played a major role in selecting interventions such as tax differentiation for new cars and in-car instruments such as fuel economy meters and cruise control, but important improvements could still be made such as using a better and clearer method for the calculation of the costs of the measures and using a broader evaluation method of measures including more environmental, economic and social indicators.

Nijland and van Wee (2008) examined the critical issue of noise valuation in ex-ante evaluations of major road and railroad projects. Their study systematically reviewed guidelines for monetizing noise across various European countries, showing firstly that there are guidelines for monetising noise in most western and northern European countries and secondly, that not all noise effects are dealt with. Usually, only annoyance in a residential context is included. Thirdly, the different prices being attached to noise in various countries are mainly due to different unit values applied to the same impacts. Fourthly, a gap has been shown to exist between the theoretical guidelines and their application in practice

Geurs and van Wee (2004b) highlighted backcasting as a powerful tool for sustainable transport policy making. Their study showed how backcasting can help by working backwards from a particular desired future endpoint to the present to determine the physical feasibility of that future and what policy measures would be required to reach that point. They emphasized the need for significant technological and behavioural changes, along with international economic shifts, to achieve environmental sustainability. This proactive approach helps policymakers develop effective long-term solutions.

Finally, Milakis et al. (2017) presented a comprehensive scenario analysis for 2030 and 2050 on the development and transport implications of automated vehicles in the Netherlands. Their study identified key factors and driving forces influencing automated vehicle adoption and explored four distinct scenarios. Their findings suggested that fully automated vehicles could be commercially available between 2025 and 2045, with varying market penetration rates. Their research also highlighted the potential impacts on traffic, travel behaviour, and transport planning, emphasizing the need for adaptive policies to manage these changes effectively.

Conclusion

The above-mentioned studies collectively highlight the importance of innovative, adaptive, and context-sensitive approaches in transport policy to address current and future challenges. Bert van Wee's generalist view on the transport system is rare, but, given the rising complexity of the system, increasingly needed to indeed be able to address the future challenges. In an academic landscape which steers towards the training of specialists, the perspective of generalists is increasingly scarce. We would like to thank Bert van Wee for all his contributions and the valuable insights he has provided. We are convinced that his research has not only inspired many students and academics, but also benefited many policy makers and politicians. Last, but not least, he has always been more than willing to share his research-based insights on actual transport challenges with the public. Bert, it has been a great pleasure to work with you.

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