the utility at the choice moment may differ from the utility of the choice option itself, limitations related to the marginal utility of income, the fact that the logsum relates to changes in accessibility, not the absolute level of accessibility, the fact that the logsum is a measure for the valuation of accessibility but not for accessibility itself, the fact that the indicator is difficult to communicate. Comparing the LM and gravity based measures we conclude that to go from the LM' measure (that is very close to the gravity based GM measure) to a welfare measure, the logarithmic transformation has to be used in combination with the (1/□) standardization. This reflects the difference between accessibility and the utility of accessibility: an absolute change in accessibility measured according to the LM' definition has a welfare impact that depends on the initial level of accessibility.

[105] ASSESSING THE IMPACT OF ADAPTIVE ACCESSIBILITY ON THE OPTIMAL TRANSPORT POLICY IMPLEMENTATION BY USING AN INTEGRATED LAND-USE/TRANSPORT MODEL FOR MADRID

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Accessibility is an essential concept widely used to evaluate the impact of land-use and transport strategies in transport and urban planning. Accessibility is typically evaluated by using a transport model or a land-use model independently or successively without a feedback loop, thus neglecting the interaction effects between the two systems and the induced competition effects among opportunities due to accessibility improvements. More than a mere methodological curiosity, failure to account for land-use/transport interactions and the competition effect may result in large underestimation of the policy effects. With the recent development of land-use and transport interaction (LUTI) models, there is a growing interest in using these models to adequately measure accessibility and evaluate its impact. The current study joins this research stream by embedding an accessibility measure in a LUTI model with two main aims. The first aim is to account for adaptive accessibility, namely the adjustment of the potential accessibility due to the effect of competition among opportunities (e.g., workplaces) as a result of improved accessibility. LUTI models are particularly suitable for assessing adaptive accessibility because the competition factor is a function of the number of jobs, which is related to land-use attractiveness and the number of workers which is related, among other factors, to the transport demand. The second aim is to identify the optimal implementation scenario of policy measures on the basis of the potential and adaptive accessibility and analyse the results in terms of social welfare and accessibility. The metropolitan area of Madrid is used as a case-study and two transport policy instruments, namely a cordon toll and bus frequency increase, have been chosen for the simulation study in order to present the usefulness of the approach to urban planners and policy makers. The MARS model (Metropolitan Activity Relocation Simulator) calibrated for Madrid was employed as the analysis tool. The impact of accessibility is embedded in the model through a social welfare function that includes not only costs and benefits to both road users and transport operators, but also costs and benefits for the government and society in general (external costs). An optimisation procedure is performed by the MARS model for maximizing the value of objective function in order to find the best (optimal) policy implementations intensity (i.e., price, frequency). Last, the two policy strategies are evaluated in terms of their accessibility. Results show that the accessibility with competition factor influences the optimal policy implementation level and also generates different results in terms of social welfare. In addition, mapping the difference between the potential and the adaptive accessibility indicators shows that the main changes occur in areas where there is a strong competition among land-use opportunities.

[85] INTERNAL TRAVEL TIME MEASURES: EXPLORING ICT DATA

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Accessibility is at the heart of the European Union (EU) policy. The EU underlines the importance of building trans-European transport networks (TEN-T) as a political tool for improving accessibility throughout the whole of Europe, and very particularly in border and peripheral regions hampered by a lack of access to the central markets. Equitable accessibility to markets is considered a factor which is crucial to the success of the social and economic integration of the EU and to the achievement of harmonious economic development. The Green Paper on TEN-T explicitly states that the main objectives of the TEN-T are to guarantee the adequate functioning of the interior market and to guarantee accessibility and reinforce socio-economic and territorial cohesion. Measuring accessibility at a European scale is not an easy task. Data is not always available for all countries and the amount of data required limits the use of more disaggregated accessibility indicators. On the other hand there is a growing potential of ICTs (Information and communication technologies) in providing new sources of data that can be used in accessibility computation and to the improvement of accessibility analysis performed at a European scale. In this study we will use TeleAtlas and TomTom data to calculate internal travel times for NUTS-3 regions in the EU. These internal travel times are estimated according to the level of congestion within each region as well as with its' total area. Internal travel times are an important aspect in accessibility indicators, especially those with a gravity formulation, because they allow the estimation of what is known as self-potential. The self-potential can be defined as the contribution of the internal accessibility of each zone to its overall accessibility. Several studies demonstrate the important role of this factor on accessibility outcomes, especially in the most urbanized regions where the higher agglomeration of economic activities leads to a higher contribution of internal accessibility. It is precisely in urban regions where internal travel times are more difficult to estimate because of congestion. Congestion levels may be influenced by factors such as urban density, urban morphology, network infrastructure, cultural differences in the use of transport modes, etc. Accessibility analysis usually use crude estimates of internal distances, generally based on the regions' area and in some