

THE DYNAMICS OF SOCIAL EXCLUSION: SOME INSIGHTS FROM NORWAY

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ABSTRACT

In this paper we explore the interface between the theme of transport & social exclusion and resource allocation within a household. We analyse the consequences high priced driving license within the domain of family structure, gender and the integration of non-western immigrants in Norway. We pose driving license as a skill which has implications for the family as a whole. Further we analyse how decision making within a family and the tenets of social exclusion are therefore affected both by the availability of public transport and price of procuring a driving license in the Norwegian context.

INTRODUCTION

The link between transport and social exclusion is a relatively new understanding both at an epistemological and policy level in the transport research arena. This paper sets out to first briefly discuss the current understandings on this topic and then further a new outlook on the topic highlighting the nexus between public transport provision and car-driving license. It also emphasises that the understanding of transport and social exclusion needs more elaboration on the processes which might lead to social exclusion. Another important claim of this paper is that social exclusion (even the facets occurring due to transport constraints) can lead to disintegration in the society.

In order to explore this facet, we here assume that integration depends upon the differences between the groups and the differences within the group. The larger the differences between the groups and the smaller the differences within, the more difficult it will be to integrate these two groups. While on the other hand, small differences between the groups and large differences within the group will facilitate faster integration. In this context, social exclusion due to transport can be of importance. Studies show that the exclusion of immigrant group, for instance, leads to formation of isolated neighbourhoods and also limit their ability to

access labour market and further get well paid jobs. Both these elements can be argued to cause both larger differences between the immigrants and natives and smaller differences within the immigrant population, thereby increasing further isolation (disintegration). A question which can then be put forth is if social exclusion reduces integration and if this is a process that is growing in strength, can the current regime be called sustainable? And does the current ways and means of measuring transport needs capture this process?

A second question is to what extent the decision making process is able to capture the importance of this theme indirectly. In this regard, there are economic models (for example, the median voter theorem and Nash negotiation) that show that both in the case of democratic decision making and negotiations, the issue would not be addressed.

Having laid out the assumptions, we delve into highlighting the overlapping zone between resource allocation (in this case, of acquiring a driver's license) and its Pareto efficient distribution in a non-western immigrant household. 1 We use the following definition of Pareto efficiency:

‘A situation is said to be Pareto efficient if there is no way to rearrange things to make at least one person better off without making anyone worse off. Much of economics is concerned with identifying inefficient situations and designing policies and institutions that will promote efficiency and reduce inefficiency. A policy or action that makes at least one person better off without hurting anyone is called a Pareto improvement.’

(Webnotes on microeconomics,
<http://wilcoxen.cp.maxwell.syr.edu/pages/225.html>)

We further briefly touch upon how such a decision making framework could back fire on the intergration process.

In order to achieve that, the paper has been divided into the following sections:

- What does the concept of ‘social exclusion’ entail?
- *Transport and social exclusion*
- Is such exclusion measurable? Some comments from the past researches
- *Social exclusion as process orientation*
- The Pareto efficient family and its optimal time distribution
- Summary and discussion

What does the concept of ‘social exclusion’ entail?

A constant refining of the idea of ‘development’ has finally convinced us that analysing development solely through economic growth, increasing GNP etc. suffers from serious fallacies. Through the influential works of Amartya Sen, Martha Nussbaum, Mahbub-ul-Haq and the likes, development has acquired the broader connotations of capabilities, integration etc. (The Human Development Report, published annually by the UNDP since 1990, draws substantially on the idea of capabilities). The last decade witnessed a vigorous pursuit by the European debate on social exclusion and work undertaken at the International Institute of

Labour Studies to include 'social cohesion' as one of the main dimensions of development. Thus 'What has been happening to social exclusion' is a fundamental question that needs to be asked about development and its style and patterns (Bhalla et al. 1997:413). Though there exists myriad forms of interpretation of social exclusion, the three easily discernible dimensions provided by this concept are (i) process orientation (the realisation of a dynamic social process that can be changed), (ii) participation in decision-making (this being posited as an integral feature for inclusion in society) and (iii) the role of space and location (there by identifying isolation, both through self-imposition and spatial processes, in influencing the experience of exclusion). These three dimensions have been explored in the following definitions of social exclusion:

Process Orientation

"Social Exclusion is a dynamic process of being shut out, fully or partially, from any of the social, economic, political and cultural systems which determine the social integration of a person in society" ([Walker and Walker 1997](#)).

Participation in Decision-Making

"An individual is socially excluded if (a) he or she is geographically resident in a society and (b) he or she does not participate in the normal activities of citizens in that society" ([Burchardt et al. 1999](#)).

The Role of Space and Location

"a multi-dimensional process, in which various forms of exclusion are combined: participation in decision-making and political processes, access to employment and material resources, and integration into common cultural processes. When combined, they create acute forms of exclusion that find a spatial manifestation in particular neighbourhoods." ([Madanipour et al. 1998](#)).

Undoubtedly, social exclusion is a complex and multi-faceted concept, referring to the interplay between individuals and societies expressed through disadvantage, alienation and lack of freedom. The challenge lies in delineating the different facets of social exclusion and addressing them both individually and as a part of an integrated development process. One of such facets of social exclusion has been recognised to be the inability to participate in normal societal activities due to lack of accessibility or transport disadvantage. Transport primarily has been recognised as a vital medium of alleviating or exacerbating social exclusion through inhibiting access to different space and location. The next section explores this particular nuance of social exclusion.

Transport and social exclusion

Transport has been recognized as an important factor leading to social exclusion (Lyons 2003a and 2003b, Miller 2003, Social Exclusion Unit 2003, Preston et al. 2003, Grieco 2003, Kenyon et al. 2003, Lucas et al. 2001, Simma and Axhausen 2000, Carter and Grieco 2000 etc.). Breaking through the traditional association of transport to revealed travel behaviours, the theme of social exclusion brings forth an entire array of physical, social, cultural, age-related, gendered, economic etc. differentiations. Lucas et al. (2001) highlight four main ways in which transport can contribute to social exclusion. These are: (i) the negative impact of road traffic, (ii) inadequate public transport (see TraC 2000), (iii) reduced or poor

accessibility to basic facilities (ex. Church et al. 2000, Nutley et al. 1995) and (iv) travel poverty (Root 1998).

In a pioneering effort to streamline this subject, UK's Social Exclusion Unit (SEU) finally took it up as a policy issue. Within the UK transport sector, the existing policy discussion around transport and social exclusion envisages transport's role as a constraint on effective service delivery in a range of policy areas targeted by the current Government, such as health, healthy food, education and training ([Social Exclusion Unit 2003](#), 1999,1998, [DETR 2000](#) and [Callender and Metcalf 1998](#)). The recent report from ([Social Exclusion Unit, 2003](#)) makes significant movement towards 'access to services' understanding. It proposes a set of processes and protocols for the transport planning community called 'accessibility planning' by which access to services can be improved and the negative role of transport in the experience of social exclusion can be tackled. Similar work as part of the Scottish Executive funded-work on Social Exclusion and Transport ([Hine and Mitchell, 2001](#)) have also adopted the accessibility planning principle.

Further, an analysis of the contexts through which social exclusion was being created and perpetuated in Britain revealed the following five key barriers in accessing key services (SEU 2003):

The availability and physical accessibility of transport: For some people there was no public transport, or it did not go to the right places or at the right times, or it did not go often enough or reliably enough, or vehicles were not accessible to disabled people.

Cost of transport: Some people found the costs of personal or public transport to be very high or unaffordable. Bus fares have reportedly risen by nearly a third since 1985 in UK. Motoring costs accounted for 24 per cent of the weekly expenditure of households in the lowest income quintile who had cars.

Services and activities located in inaccessible places: Developments including housing, hospitals, business and retail were often located in areas not easily accessible to people without a car. Between 1986 and 1997, the number of out-of-town shopping centres increased four-fold.

Safety and security: Some people were unwilling to use public transport or walk to key services because of fear of crime or antisocial behaviour, or fear of road accidents. For example, 53 per cent of women and 23 per cent of men felt unsafe waiting on a train platform after dark.

Travel horizons: Some people were unwilling to travel long journey times or distances, or did not know about or trust transport services. The average distance to work for people on low incomes was three miles compared with eight for the general population.

We see that the present understandings of this theme revolve broadly around the interface of accessibility and space (and location). Past studies have dealt in a very limited way with some other important dimensions of SE, namely, ease of procuring driving license, participation in decision-making and how certain processes are leading to social exclusion. In this paper, we elaborate these themes further by borrowing from the field of economics. But before that we briefly review the ways in which social exclusion has been measured in the transport field till now.

Is SE (created by transport disadvantage) measurable?

A common problem in operationalising concepts like capabilities and exclusion is how to develop yardsticks against which progress can be measured and monitored. Such yardsticks are said to be important because the impact of government policies, measures and programmes can be examined over time only if improvements can be measured and shortfalls identified and corrected (Bhalla et al. 1997: 424). As Streeten (1994:236) notes, 'there is considerable political appeal in a simple indicator that defined important objectives and contrasts them with other indicators'. However, being a relatively new concept, there does not exist an established frame of reference for measuring social exclusion in the transport sector. The initiative in this field has been taken up by SEU's approach through its focus on accessibility to local services and activities and developing the said accessibility indicators. Accessibility indicators comprise a set of local indicators and target to measure accessibility and the analysis undertaken has concentrated primarily on the following six areas:

- Access to work
- Access to learning
- Access to healthcare
- Access to food shops
- Access to social, cultural, and sporting activities
- Impact of traffic on deprived communities

Further, the box below offers some tentative examples of the type of indicators that SEU underlines as likely to be needed to monitor and evaluate delivery on the plan.

Potential indicators for monitoring improvements in accessibility

Journey times and distance to bus stops

- Proportion of people within 10 minutes walk of a [5, 10, 15]-minute bus service
- Proportion of people who can get to [key employment locations/appropriate hospital/affordable food shop/] within [45] minutes door-to-door by public transport
- Proportion of 5–11-year-olds who can get to [xx] primary schools within [1 kilometre]
- Barriers to using public transport
- Proportion of fully accessible buses on certain routes or in areas
- Proportion of people who say they do not use public transport because of fear of crime

Trip rates

- Trips per person by mode of transport or journey purpose
- Customer care and satisfaction
- Proportion of transport staff trained in customer care and disability awareness
- Overall customer satisfaction with public transport services

Impacts

- Number of child pedestrian casualties per 1,000 children in population
- Levels of air pollution

Driving/car access

- Proportion of households with access to cars

Cost of travel

- Average local bus fare per mile
- Average bus fare

Access to services

- Proportion of people saying they find access to work difficult
- Access to learning
- Access to healthcare
- Access to food shops
- Access to social, cultural, and sporting activities
- Impact of traffic on deprived communities
- Access to specific services (for example, hospital, GP, school, college etc.) difficult

Access to food shops

- Proportion of people within [500 metres] walk of a food shop

Source: Social Exclusion Unit 2003

With a strong focus on the role of space and location in developing these indicators, clearly the point completely amiss here is the omission of the two other dimensions of social exclusion, namely the elements of process orientation and participation in decision making (refer page 4). We propose that this arises primarily due to a constricted understanding of social exclusion itself. A much better understanding can be generated through framing social exclusion as a process. Only then can we ensure its inclusion in the traditional policy analysis and have a strong impetus to put forward the development of alternatives for reducing social exclusion. The next section delves into this concept and puts forth arguments for it.

Social exclusion as process orientation

We saw that the SE was also defined as a dynamic process of being shut out, fully or partially, from any of the social, economic, political and cultural systems which determine the social integration of a person in society. This process inevitably occurs as a by product of the actions taken by the society as a whole. For example, if the natives are primarily dependent on cars, and the immigrants face it hard to procure a car/car-driving license, then the market takes into account the revenue which will be generated through the percentage of public transport users and allocate weightage to this product according to this calculation. This inevitably leads to a limited supply of public transport. Economists often claim that markets allocate resources efficiently. Does this mean that having people excluded is efficient? To answer this question, it helps to begin by distinguishing different ways in which people can affect each other's welfare.

Since large numbers of people are using private cars, the traditional transport model captures this tendency and the future transport planning follows this trend. In lack of substantial patronage, the price of public transport increases. Car owners/users are better off, but the welfare of public transport users decreases. In this example, all effects are transmitted via changes in market prices. Suppose that the allocation of resources was Pareto efficient. The shifts in supply and demand curves change relative prices, but competition guarantees that these will be brought into equality with the relevant marginal rate of substitution. Thus the fact that the behaviour/preference of one group affects the welfare of others does not

necessarily cause market failure. As long as the effects are transmitted via prices, markets are efficient. However, the ‘loss of opportunities’ and inability ‘to procure jobs’ etc. puts forth a different type of interaction. The decrease in welfare of the PT users is not only a result of price changes. Rather the preference of car-users directly affects the utilities of the public transport users. This presents both a process and cost which is still not being taken into consideration while discussing social exclusion. The next section puts forth certain economic understandings related to the case of high-priced driving license in the context of a Pareto efficient family to initiate economic interpretations of transport and resultant social exclusion.

The Pareto efficient family and its optimal time distribution

As the DL is not a good in the normal sense, either one has it or one doesn’t, and once one has it, one cannot sell or transfer it. And as it is not the DL itself that is being “consumed” but rather the services made available by it, we choose to treat it as if it’s a common good. The reasons behind this lie first of all in our wish to capture the fact that a family as a whole may derive benefit from an additional DL in the household, both by the increased potential for mobility and by the saved time cost. Second of all, because this let us capture the fact that many who buy a DL, receive various degrees of support from their family. It is then clear that we cannot analyse the DL demand through the reservation prices of the individual purchasers alone, but that we also need to take regard to the reservation price of their family as well.

The reservation price in general is the maximum amount that someone is willing to pay for a good and is normally represented by the point at which one is indifferent between possessing the good and not possessing it.

The size of the individual reservation price will depend on their income/wealth, but since it also has implications for the mobility/time-cost, we assume that it also depends on the public transport system. For a given travel need, the better the PT system is the lower the potential gains from the DL and thereby the derived utility. As a measurement for this we then choose to use the substitution elasticity between PT and car usage as this indicates the ease with which individuals can switch between car usage and PT usage. The higher the substitution elasticity, the lower the potential gains from the DL and the lower the reservation price.

In our attempt to capture the implications of the family aspect we start with dealing with the Pareto efficiency problem the family faces, hence we will look on the case where we have one buyer (B) and his/her family (F) that contributes to the DL.

Now if we let the income/wealth of each be given by W_i , ($i = B, F$) out of which each contribute a sum $c_i \geq 0$, the budget restrictions can be represented by $W_i - c_i = x_i$. For a given price P , the DL will be purchased as long as the sum of the contributions is larger or equal to the price.¹

Here the utility is assumed to depend on the available wealth for consumption W_i and the availability of the DL, the “common” good. And we will capture this through the use of the utility function $U_i(x_i, DL)$, where DL can be either 1 indicating getting the DL or 0 indicating not. How each individual then values the DL may differ and is given by their reservation prices r_i which are given by the indifferent point between having and not having access to the

¹ $c_F + c_B \geq P$

services from the DL2. As both parts are assumed to derive some utility from the DL and we analyse this within the Pareto efficiency context. This gives us two possible allocations of interest. The allocation $(W_B, W_F, 0)$ meaning no DL and the allocation $(x_B, x_F, 1)$ meaning the DL was acquired. Now as long as the allocation $(x_B, x_F, 1)$ represents a Pareto improvement for the family the DL will be provided, where it is required that both must be better off with it than without.³

And as contributing to the DL means less private consumption, the utility gained by the DL there must be larger than the corresponding loss of utility from less consumption. This means that for the Pareto efficiency conditions to be fulfilled, the utility corresponding to the reservation price must be less than that implied by having the DL.⁴

In short the DL therefore represents a Pareto improvement as long as the contributions of each is less than their willingness to pay for the DL, $r_i > c_i$. Given our argument that the reservation prices should depend on both the income/wealth and the substitution elasticity σ , we can write the reservation prices as the function

$$r_i = r_i(W_i, \sigma) \begin{cases} \frac{\delta r_i}{\delta W_i} > 0 \\ \frac{\delta r_i}{\delta \sigma} < 0 \end{cases} \quad i = F, B$$

This means that the Pareto efficiency condition for the family as a whole can be written as

$$\begin{aligned} r_B(W_B, \sigma) &> c_B \\ r_F(W_F, \sigma) &> c_F \end{aligned}$$

From this we have two important aspects:

First, as the condition describing when provision of the DL will be a Pareto improvement only depend on their willingness to pay and total cost, there will always exist a payment scheme such that both will be better off having the DL than not having it, as long as the sum of the reservation prices exceeds the cost of the DL.

Second, to what extent providing the DL will be Pareto efficient will, in general, depend on the initial distribution of wealth (W_B, W_F) and the substitution elasticity σ . This means that it is perfectly possible that for some distributions of wealth, the case will be represented by the following equation: $c_F + c_B > P$ while for another distribution, the case would be $c_F + c_B < P$. Also depending on the substitution elasticity σ , two identical distributions may have different outcomes because of differences in σ . In other words, with everything else being equal, is it more probable that getting the DL is Pareto efficient in a place with a poor PT system, than that with a well developed one?

² $U_i(W_i - r_i, 1) = U_i(W_i, 0)$

³ $U_i(W_i, 0) < U_i(x_i, 1)$

⁴ $U_i(W_i - r_i, 1) = U_i(W_i, 0) < U_i(x_i, 1) = U_i(W_i - c_i, 1)$

Since these Pareto efficiency conditions does not say anything about the families behaviour given different options involving gender, income etc, in order to further capture the implications of the family aspect we also need to frame the decision making processes within the family where we are primarily interested in the cases of income and time distribution. In our attempt to do so, we choose to use an economic model for time usage in a family with two adult members, a man (M) and a woman (W) who are assumed to behave as if they are maximising a well behaving common utility function, $U = u(C, X, T_s^M, T_s^W)$. Consisting of the four different goods, consumption (C), household production (X), spare time Man (T_s^M) and spare time Woman (T_s^W). The amount of available consumption depends on a price index p and the total income. Where income is given by their work hours (T_L^W, T_L^M) and wages (w^W, w^M), of which they pay a positive and increasing marginal tax.⁵ The household good (X) is produced through the use of labour where the man's workload is given by T_H^M and that of the woman T_H^W . Where they are assumed to have constant marginal productivities given by a^M and a^W .

Given their wages, household marginal productivities and limited time available (T) the household faces both a budget restriction and a household production restriction. And the question at hand is how the members will distribute the total available time T over the three options: spare time, work time and household work time.⁶ This is based on the following assumptions:

- The marginal utility of each of the four goods should be equal to their optimum price, where the price of spare time and household work time is equal to the marginal net salary after tax.
- The price of household production remains same regardless of taking a man or a woman as the basis unit. And that this is to be interpreted as a necessary requirement for the work to be distributed in the most efficient way.
- The utility function is symmetric in spare time. In other words, the utility is the same if the length of spare time is exchanged between the woman and the man.

The maximizing of the utility function with regard to the income constraint, household production constraint and the time constraint then gives two results of specific interest.

- Whoever has a comparative advantage in creating income (highest wage) also will be the one who has the highest total income.
- Whoever has the highest marginal productivity in household production both will be the one with the longest total work hours and the one with the least spare time available.

This will be the case both when the woman and the man overall face the same wages and if girls are overall more trained in household work than boys. Now if we combine the results from the Pareto efficient family and that from the household work distribution model we get some interesting results.

⁵ $0 < t' < 1, t'' > 0$

$$T_L^M + T_H^M + T_S^M = T$$

$$T_L^W + T_H^W + T_S^W = T$$

First we note that the more the price of the DL exceeds the income of a potential buyer, the more important becomes the total net income of his/her family. This indicates that families with single person income, large family size and/or traditional gender roles are more likely to be affected.

This leads us to the question if some groups are more likely to be affected than others. Both on the basis that they are on average more likely to have a traditional family structure implying more members to distribute the income on and less total income available. Indications for this can be found in a recent Norwegian study of the immigrant community in Norway from 2002.⁷

- Non-western immigrant population is characterised by large family size. In 1997/1998, the total fertility rate was 2.4 for first generation immigrants, versus 1.8 for women without immigrant background.
- In 2000, the employment level among non-western men stopped 12.6 percentage points short of that for men in the whole population. Among women, these differences are even bigger. The non-western women had an employment level 17.2 percentage points below that of the Norwegian female working population. Non-western men are more often employed in female-dominated industries. Collectively the branches 'Hotels and restaurants', 'Health and social work' and 'Industrial cleaning' comprise over 25 per cent of the male employees among immigrants, and for the most part they are the non-westerners.
- In 1999 women with immigrant background had an average total income of NOK 151 000, approximately 22 per cent lower than the average income for women without immigrant background.

We can clearly see from these findings that high priced DL may specifically affect the non western immigrant group.

Secondly, pertaining to the role of substitution elasticity, as the current framework predicts that the higher both the price of the DL and the substitution elasticity are, the higher the family income must be for it to be willing to finance an additional DL in the household. Here as well we should ask if this is more likely to affect some groups more than others. If we keep looking on the non-western immigrant group, the study from 2002 found that

- Over 90 per cent of all immigrant women live in urban settlements. For the non-western immigrant population, the portion is even higher amounting to 96 per cent. About one third of Norway's immigrant women live in Oslo, whereas the portion for women without immigrant background is one to ten.

As Oslo can be claimed to have a high substitution elasticity between public transport and private vehicle, and also that these women are part of a group that overall has low mean income and large family size, the current framework then indicates that non-western women are especially likely to be affected.

Thirdly, we look at the case within the context of expected utility and adaptive expectations, meaning that we assume that the current generation expects that the present family structure to be continued in the next generation as well. As long as possessing a DL is view upon as

⁷ These findings are obtained from the following report: Byberg I. H. (Ed.) (2002) Immigrant Women in Norway, A Summary of Findings on Demography, Education, Labour and Income (Central Bureau of Statistics, Oslo)

increasing the chances of both getting a job and getting higher wages, and girls are more trained in household work, the reservation price of the family will always be higher for a son than a daughter. Additionally, if it can be claimed that some sort of utility related to maintaining the gender roles and family structure exists, then the higher the DL price and/or the substitution elasticity, the less probable a female household member is of getting a DL.

Grounds for such claims are not difficult to find. Utility related to maintaining gender roles and family structure does not have to mean anything beyond that the parents raise their children according to their own values and though women being overall more productive in household work may not be a politically correct statement, but this in it self does not make it untrue. It seems quite plausible that women has an biological advantage in raising children, and just as plausible that girls contribute more in the household work than boys, where this training alone is enough to create a comparative advantage later in life.

What remains is to explore the link between possessing the DL and job opportunity, and an indication for the existence of such a link was found in a study we did in the autumn of 2006. Here a total of 340 respondents (174 women and 166 men) were asked ‘to what extent does your job prospects depend on your mobility’, where the available answers to them were: 1 – it does not affect my job prospects, 2 – maybe it affects and 3 – it definitely affects my job prospects. They were further asked to define what they meant by better mobility. They were given three options: better public transport systems (BPT), access to a driver license (ADL) and better car access (BCA).

On the basis on the answers given, we ran a linear regression to estimate to what extent their answer to the job prospects question depended on their definition on better mobility. We ran the following regression equation:

$$Jobbopportunity = \beta_0 + \beta_1 BPT + \beta_2 BCA + \beta_3 ADL + \varepsilon$$

The model summary is given below.

Modell	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,579(a)	,336	,329	,81672

a Predictors: (Constant), Access to driving license, Better public transport, Better car access

As we can see from above the predictors explains just 33% of the total variation in the job opportunity answers. We find this to be a reasonable result since there are many other factors that are relevant and more important than the mobility aspect.⁸ If we then move on to the predicted relations, we find these given below.

⁸ Age, gender, income, education and the number of years living in Norway were also tested, but none could be proved significant in the regression and is there for not included in the analysis. Most probably reason to this is the limited sample size.

Table 1: Coefficients(a)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	B	Std. Error
1 (Constant)	1,057	,078		13,495	,000
Better PT (BPT)	,425	,094	,213	4,518	,000
Better Car access (BCA)	,366	,103	,177	3,541	,000
Access to DL (ADL)	,977	,105	,465	9,291	,000

Dependent Variable: Job opportunity

And after inserting the estimates into the regression equation (1) we get the following predicted linear relationship:

$$Jobbopportunity = 1,057 + 0,425 BPT + 0,366 BCA + 0,977 ADL$$

(0,078) (0,094) (0,103) (0,105)

As we can see from equation 2, it is predicted that for all those who did not put any of the available options within their definition of better mobility, the predicted average result is 1,057. Meaning this group on average answered no to the question of job opportunity. For the group who put all three options within their definition of better mobility, the model predicts an average answer of 2.825, indication a clear relation between mobility and job opportunity.

If we then look upon the individual options we see that better public transport is viewed as being more important than better car access, where both are predicted significant and with predicted values close to 1.5, In other words between no and maybe.

The most striking result however is that given for the importance of the DL. With everything else being equal, the result predicts that those who defined access to DL as better mobility have an average answer 0,977 higher than those who put none of the available options. In other words, this group on average answered ‘maybe’ where the other group answered ‘no’. This gives a clear indication of the importance of the DL in the immigrant community, giving support to the above analysis.

When putting all these results together, it starts to become clear that the family aspect may have implications for the outcome of transport policies. This as our analysis indicates that there may be a mutual relation between the PT system and the DL pricing regime. Where ignoring this might in turn have implications for the demographics and social structure within the society as a whole.

Now if we assume that the relationship between the DL price and substitution elasticity holds, this leads to the quite surprising possibility that for high values on both factors, an additional increase to the substitution elasticity (improved PT) may, due to the social structure, lead to social exclusion which is not just skewed between the different groups of society, but also within those who are the most effected by it.

SUMMARY AND DISCUSSION

The understanding of the linkage between employment opportunities and access to better mobility options, and a car in particular, is not a new one. First propounded by John F. Kain in 1968, the Spatial Mismatch Hypothesis (SMH) does exactly the same. In nutshell the SMH puts forth the [sociological](#), [economic](#) and [political phenomenon](#) in which [employment opportunities](#) for low-income people are located far away from the areas this group is concentrated. In [United States](#), this took the form of high concentrations of [poverty](#) in central [cities](#), with low-wage, low-skill employment opportunities concentrated in the [suburbs](#). This was undoubtedly the dawn of understanding of how transport disadvantage perpetuates and exacerbates social exclusion. There have been numerous studies validating the SMH. One of the recent studies (Raphael and Stoll 2001) using a large sample base and robust econometric methods once again confirmed that the huge differences in car-ownership rates between white and black population in US (translated as lack of access to transportation) plays a large role in explaining black-white differences in employment rates. 'By extension these results also suggest that increasing car access may be an effective policy tool for narrowing these employment gaps' (ibid, 132). As a counter argument, Clifford Winston (ibid, 140) posits that:

'Assuming that improved transportation is found to be the appropriate instrument for increasing employment, several policies besides subsidizing automobile ownership are worth considering: providing additional subsidies to public transit; allowing private transit operators the opportunity to serve low-income and suburban areas; subsidizing employers who offer transport for their employees; subsidizing housing near suburban job centers; strengthening antidiscrimination policy in housing and credit markets, and so on. The authors only provide a basis for estimating the benefits from subsidizing auto ownership; the costs of this policy are not estimated, and the potential costs and benefits of other policies are not even acknowledged. Thus it is premature to conclude that subsidizing automobile ownership merits serious consideration.'

In this paper, we explored the facet of how access to 'driving license' which is a skill can make differences in procuring employment. This provides a new way of framing the issue of transport and social exclusion.

Till now, the theme of transport and social exclusion has primarily been explored from a sociological standpoint with only preliminary interests (primarily in UK) from transport planners to test the depths of the problem. This is for sure the case in Norway. Out of the three dimensions of social exclusion (process orientation, participation in decision making and the role of space and location), the transport studies have focused primarily on the role of space and location. The total costs to society of travel have been framed primarily around costs of accidents, travel time, vehicle operation and environmental impacts. Societal concerns like exclusion due to constrained mobility and related causes are still not included in policy making analyses. Factors like income, culture, age, gender, education etc. will invariably give rise to different preferences concerning mobility patterns. Yet, the present trend is dictated by car related mobility. This is inevitably leading to social exclusion of people with no access to car/car-driving license. Additionally, research studies have acknowledged that the differences between the groups are growing. In light of social sustainability, the differences between the groups over time should be either reduced or remain as a minimum stable. But since the differences are growing, the present mobility trends are clearly unsustainable.

Further, in light of the results of Pareto efficient family and the general results from the work distribution in the family, the effects of a high priced drivers license can be argued to affect some groups more than the others and given the difference in incomes between immigrants and native population, the low income group will be affected most. Besides, given the documented gender differences, there are indications that there might be skewed effects within the group in the sense that women maybe more effected than men. The question this poses is if the sum of effects is of a sufficient size to have implications on the integration aspect. As long as the combination of effects ends up strengthening the initial patterns of gender roles etc. and increasing the differences, the impact on the rate of integration may turn out to be negative. If it holds that driving license has a positive effect on the opportunities of getting a job, then people who are expected to work that will get the drivers license within the gender context. But as the driving license represents a skill, this deprives one group i.e. the non-western immigrant women from acquiring it. And within the given context, an improvement of the public transport system, meaning higher substitution elasticity might reduce their chances even further. If further studies confirm this, then we need to ask the question if the current driving license system is capable of capturing the various effects of a deficient public transport system and an increased demographic diversity in terms of family structure, immigrants, aging population etc. because if the combination of a high priced driving license regime and focus on an expanding public transport system may lead to social exclusion which is concentrated both on certain groups and within the groups.

Past studies have also highlighted that access to car and driving license has direct implications on entering the labour market. Referring to our analysis of high priced driving license, we can put forth the following questions:

- Would this policy further reduce the excluded people's probability for getting access to labour market?
- Would the policy hit some groups more than others?
- If so, could these increased differences between the groups have a negative impact on integration and therefore the income distribution in the future?
- If some ethnic/low-income groups are affected more than other and becomes even more depended on PT, could this cause more ghettos around the PT system/stations?

Clearly the questions put forward a string of issues having direct bearing on vital issues like integration between natives and immigrants, freedom of participation etc. Clearly there are a number of complexities involved in discussion social exclusion. However the point to be driven home is that it needs to be made part of main stream transport planning and analysis. Traditional analysis with their focus of maximizing efficiency can often lead to contradicting social principles of integration and social inclusion.

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