GENDER AND TRANSPORT: TOWARDS A PRACTICAL ANALYSIS FRAMEWORK FOR IMPROVED PLANNING

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ABSTRACT

In recent years a convergence of more socially progressive transport policy, and an intentional focus on the gender aspects of development, has lead to an increasing awareness of the ways in which transport systems and interventions fail to adequately address the needs of travelling women. Yet addressing women's specific travel needs appears to be crucial in achieving poverty reduction and social development goals. Research on gender and transport in developing countries has to date mostly focused on rural areas, at least partly because there is a paucity of analytical tools and methods for studying gender aspects of urban travel. The paper explores ways in which existing gender analysis frameworks – and the Moser framework in particular – can be adapted by transport and urban analysts in starting to examine the gender aspects of their work. The framework's application is illustrated briefly with examples from recent research undertaken in South Africa.

1. INTRODUCTION

Recent years have seen a shift in transport policy from a traditional emphasis on promoting access to employment – with its focus on addressing the travel needs of regular commuters through the provision of improved transport infrastructure and services – towards understanding and meeting a wider range of travel needs, such as those of non-work travellers and of particular user groups such as low-income persons. These travel needs often include those relating to servicing social and reproductive work, as well as informal productive work – the types of activities that tend to be performed by women, yet are seldom sufficiently recognised or valued for the function they perform in sustaining households and communities.[1] A result of the more narrow focus of traditional transport planning, as Mahapa (2003:4) points out, is that transport systems have tended to "function in ways which prioritise men's needs and viewpoints over those of women". Transport needs arising from women's multiple roles are often not adequately addressed in transport research and implementation initiatives. Furthermore, evaluations of the success of development initiatives often neglect to reflect the gendered distribution of benefits or consider the influence of social-reproductive work on these interventions.

Research on gender and transport in developing countries has to date mostly focused on rural areas[2]. In review two main findings stand out. Firstly, most of the literature indicates

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[1] Concepts of productive, reproductive and community work are explained later in the paper.
[2] For a more detailed overview of previous research findings on gender and transport, see Mashiri et al, 2005; and Turner and Fouracre, 1995.

significant differences in the transport needs of men and women, reflecting to a large extent differences in the constructed roles of men and women in society. Notwithstanding differences observed across women depending on their social and financial status, by and large, women tend to engage more in non-work, off-peak travel, visiting a more diverse set of locations using more complex trip patterns. It has been argued that public transport often fails to provide for women's transport needs, as it tends to be structured around times and routes associated with peak period commuting patterns, poorly matching the more diverse, suburb-to-suburb travel patterns of many women (World Bank, 2002).

Secondly, studies across the developing world have highlighted the transport burden women face on a daily basis – perhaps best illustrated by the dominance of head-loading and the transport of firewood and water by rural women (e.g. Bryceson and Howe, 1993). This leads to what has been termed "time poverty" for women, especially in rural and peri-urban areas where the excessive amounts of time spent walking to fields or collecting firewood and water reduces the time available for undertaking other personal or household tasks. Time poverty is considered a key constraint to low-income women's ability to accumulate assets and reduce their vulnerability (Fernando and Porter, 2002). For women living on the peripheries of cities facing long travel distances to work – as is often the case with newly urbanised or resettled people – the limiting effect on their ability to pursue livelihood activities can be particularly damaging.

There is however a paucity of information relating to urban and peri-urban women's transport needs, and their effects on the socio-economic and physical welfare of women and their communities. In addition, a tendency to equate "gender" with "women" has led to insufficient attention being paid to the relationship between men and women as an important determinant of mobility outcomes. The result has been, at times, that interventions aimed at reducing women's transport burden, for instance by increasing access to appropriate technologies such as bicycles, have failed because of cultural prohibitions or because men enjoy privileged access to vehicles in a household (Mashiri, 1997).

For development to be sustainable and equitable, gender needs to be mainstreamed into transport research and implementation initiatives (Mashiri et al, 2005). This is important for the design and implementation of transport systems that are responsive to the practical needs of women, households, and indeed communities. Mainstreaming gender is also necessary for the empowerment of women, particularly the poor, by addressing their strategic needs such as access to socio-economic opportunities. Although a few systematic gender inclusion procedures exist to promote gender-sensitivity and responsiveness in transport sector policies in developing countries, the institutional framework as well as the official and political will to operationalise them is weak.

In South Africa, the need to put in place transport sector gender analysis frameworks and methodologies, predicated upon a rights-based approach to, as Grieco and Turner (1997:2) put it, "move from the activities of marginal policy activists to mainstream professional practice", is of critical importance. Moser's 1993 statement that analysts often "lack the necessary planning principles and methodological tools" to do so (1993:5) is still true. This paper attempts to respond to this challenge by exploring the use of a practical framework and tools that can be used by transport and urban analysts in starting to examine the gender aspects of their work. Application of the framework is illustrated with brief examples from recent research undertaken by the authors.

2. SELECTING A GENDER ANALYSIS FRAMEWORK FOR THE TRANSPORT SECTOR

A number of gender analysis frameworks have been developed for and applied in programmes, policies and initiatives involving low-income communities. Some of the most well known ones are the Harvard Framework, the Gender Analysis Matrix, the Capacities and Vulnerabilities Analysis Framework, and Longwe's Women's Empowerment Framework (March et al, 1999). The frameworks vary in their philosophical approach, scope of analysis, and the specific tools they employ for data collection and representation.

This paper does not provide an exhaustive description or comparison of the available frameworks.[3] Rather it focuses on a single framework that seems best suited to analyse the problems and needs surrounding mobility and access, and in which the language is accessible to the many planners, policy makers and development programme implementers for whom gender analysis approaches and discourses are somewhat unfamiliar. A further requirement is that the framework should be broadly applicable across both urban and rural contexts; and that it should be flexible enough to be applied at multiple levels of analysis, from regional or metropolitan planning and policy formulation, through to designing and monitoring transport interventions at the community level.

The Moser framework, developed by Caroline Moser in the early 1980's, exemplifies the Gender and Development (GAD) approach. One of the key elements of GAD is to argue for a closer look at gender *relations*, as opposed to concentrating research and analysis on "women's issues", recognising that gendered living involves a series of relationships and, as such, cannot be viewed in isolation.

Apart from the reasons stated above, the Moser framework was selected for the way in which it covers many of the most salient aspects of gender analysis, from gender roles to gendered power relations. It makes the quantitative empirical enquiries associated with the Harvard Framework, but also moves beyond that by investigating the reasons and processes behind patterns of ownership, control and responsibility (a relational approach, as espoused by GAD). Despite the appeal of the Moser framework on these grounds, it is not necessarily the best under all circumstances. Other approaches such as the Social Relations Approach (Kabeer, 1994) may, for instance, be better for performing gender analysis of transport institutions, while aspects of the Gender Analysis Matrix approach may be more powerful in supporting transformative community-based development work. The reader is encouraged to test and adapt or replace the proposed framework as needed.

3. APPLYING THE MOSER FRAMEWORK TO TRANSPORT

The Moser framework is operationalised in terms of six "tools" which systematically direct the analyst's attention to key aspects of gender analysis. The six tools are listed in Table 1 and described below.

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[3] For a practical summary of the main gender analysis frameworks in use, see March et al (1999).

Table 1: Key tools of the Moser framework

Tool 1: Gender roles identification (triple role)
Tool 2: Gender needs assessment (practical and strategic gender needs)
Tool 3: Disaggregating control of resources and decision-making within the household
Tool 4: Planning for balancing the triple role
Tool 5: Distinguishing between different aims in interventions – the WID/GAD policy matrix
Tool 6: Involving women and gender aware organisations and planners in planning

3.1   Moser framework tool one: gender roles identification

One of the cornerstones of gender analysis for development relates to unpacking differences in gender roles. Furthermore, gender analysis frameworks make a strong point of recognising different tasks as "work" – for example unpaid, domestic or informal work – types of work that tend to be undertaken by women but are often not recognised or appreciated for the roles they play in society. As such, many gender analysis frameworks include looking at gendered roles, tasks and responsibilities, as well as their status in society and development projects. This tool draws strongly on these gender analysis principles.

The Moser framework provides a tool for assessing gender roles, by mapping gendered divisions of labour. In essence, applying this tool involves asking "who does what?" and identifying the multiple roles of women as producers (workers, either paid or not), reproducers (undertaking household maintenance tasks) and community organisers (such as volunteering). The framework aims to ensure that traditionally "invisible" forms of work are made "visible" and that all tasks and activities are valued equally. For example, it has often been noted that poor women undertake all three types of work as listed above, while men largely focus on productive and community work, especially of a political nature.

Table 2: Example of analysis of triple gender roles

| Who	Activity	Productive	Reproductive	Community
Rural woman	What?	Brews beer	Collects water	Funeral
	Frequency?	Twice weekly	3 times a day	Occasional
	Where?	At home	At the river	Neighbouring village
	How long?	Most of the day	3 hours daily	Two full days
	How fixed?	Flexible	Fairly flexible	Occasional
Urban woman	What?	Cooks and sells food	Household shopping	Local women's group meeting
	Frequency?	Daily	Every second day	Occasional
	Where?	Taxi rank	Local spaza	Neighbour's house
	How long?	7:00 to 18:00	15 minutes	2-3 hours
	How fixed?	Little flexibility – linked to commute times	Any time before 19:00	Flexible timing
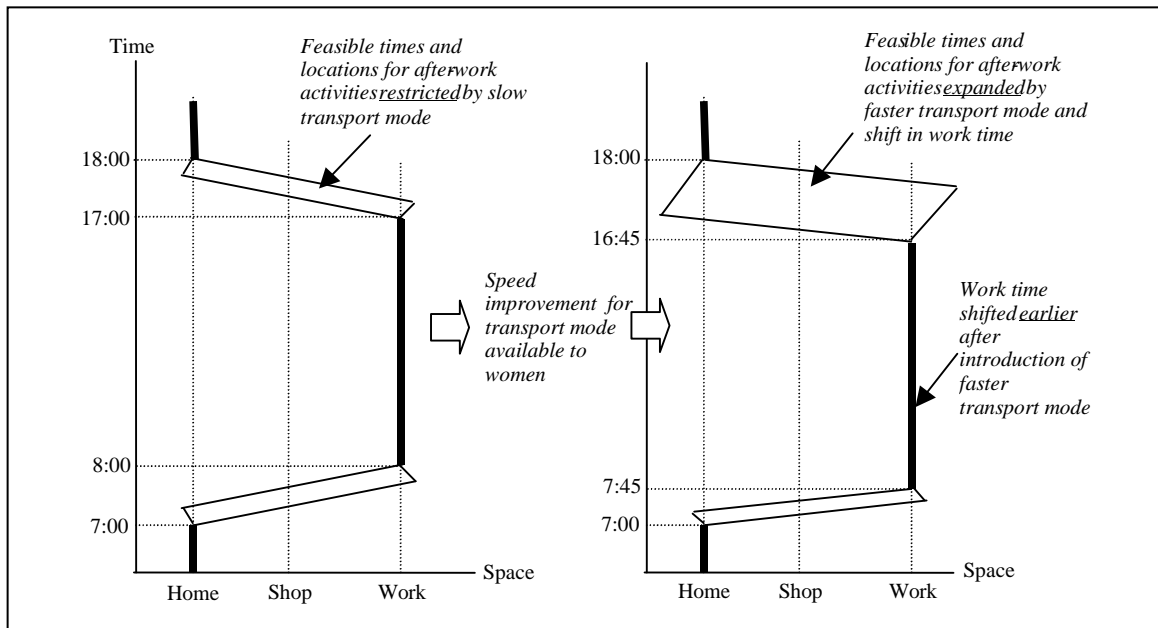
Figure 1: Illustration of use of time-space prisms to map benefits or constraints to mobility interventions

Table 2 provides examples of these categories, and offers some guidelines for the ways in which the details of these activities can be listed and further explored.

By taking activities, rather than travel, as its starting point, the tool is in keeping with the activity-based approach to travel analysis that has in recent years increasingly been recognised as a useful way to explore mobility and access needs of individuals (e.g. TRL, 2003). By looking at all activities, transport and mobility concerns are raised that may otherwise be overlooked. For example, beer brewing has transport and mobility dimensions if we explore it further. Firstly, that the brewing process requires plenty of water necessitates the need for transport to collect water. Secondly, that it occurs at home and takes a number of days restricts mobility for the female brewers on certain days and at certain times. Thirdly, sourcing of ingredients and sometimes even the selling of this beer could also involve transport and mobility issues. Further enquiry could reveal that the brewer uses this as an income-generating enterprise to enable her to afford the trip to town to find gainful employment.

One research tool that is well suited to collecting the information required for identifying women's activities and their attributes, is activity and time-use diaries. Best practice in the design and application of such techniques is advancing fast, including their use in gender studies (e.g. Apps, 2004). Analysis of time use and activity data of individuals can be facilitated through graphical representation using time-space prisms, showing the complete activity path across a period of time. Figure 1 shows an illustrative example of a simple home-work-home activity path. The important role of transport in linking activities, and circumscribing the feasible times and places that can be accessed for activities, becomes clear. Analysis of the potential responses open to women in reaction to transport changes – for instance by shifting existing tasks around, or using time saved travelling for undertaking additional activities – can be undertaken using such graphical methods. Where possible, participatory techniques should be the primary source of information on such responses.

A major strength of the activity approach is that it encourages the analyst to consider the complexity of impacts, in terms of the activities that meet the livelihood aspirations of

women, of any transport interventions proposed. This is in contrast to the much more narrow focus of traditional project evaluation which attempts to quantify user cost and time savings associated with a transport project, in order to calculate a benefit-cost ratio as the major measure of its impacts.

What the tool omits, however, is to explicitly account for the relationships between men and women's activities. Without addressing gender *relations*, delicate bargaining and cooperation systems can be overlooked. For instance, a woman could use extra time freed up by a transport intervention for performing an additional task on behalf of a male family member, in exchange for another favour done by this person. By completing and analysing activity patterns along the lines of the table above, for female *and* male members of a community, such linkages are more likely to be picked up.

An example of the way in which a focus on women's triple roles can enrich transport analysis is shown in Box 1.

3.2   Moser framework tool two: gender needs assessment

The idea behind this concept is that women have specific interests, not only because of their triple work role (as described above) but because of their subordinate position in relation to men. Moser distinguishes between practical and strategic gender needs. Practical needs refer to those needs that, if they were met, would improve some immediately perceived situation such as housing or water provision, without challenging women's subordinate position in society. Strategic needs, on the other hand, relate to equalising the existing relationships of power between men and women, and would involve changing gender divisions of labour, power or control. Some examples of each are tabulated below.

Table 3: Examples of practical and strategic gender needs

Practical gender needs	Strategic gender needs
Water & fuel wood provision	Challenges to the gendered division of labour
Provision of contraceptives & antenatal care	Empowerment of women to have a choice over child bearing & sexual behaviour
Access to inputs for cultivation	Collective organisation
Opportunities for earning an income to provide for households	Challenges to women's subordinate position within the household

As is indicated Table 3, this tool encourages planners to move beyond the provision of services and infrastructure that meet women's immediate needs, towards the strengthening of women's position in society. In other words, the approach takes into account the reasons, and not just the symptoms, of women's subordinate positions and associated levels of poverty.

In terms of transport and mobility issues, three key elements of this tool can be emphasised. Firstly, the need to look at travel needs or interests, and not just travel patterns, is highlighted when considering strategic gender needs. For example, access to fuel wood and water for rural woman could be supplemented with initiatives that aim to facilitate access to socio-economic opportunities. Provision of improved non-motorised

transport options could help alleviate a woman's domestic burden – thus meeting a practical need – as well as improve access to markets to sell produce for additional income –and thereby improving her strategic position.

Secondly, transport and mobility initiatives need to be undertaken in cooperation with other sectors. For example, providing access for women to health care services needs to be undertaken in cooperation with the health sector to ensure adequate, well-trained and gender responsive health care services are available when women get there. In addition, this could ensure that non-transport interventions such as siting a school in the middle of the catchment area or introducing a mobile clinic reducing the need for transport are considered as constituent parts of a suite of interventions.

Thirdly, the active and meaningful participation of women in transport planning and research needs to occur for strategic gender needs to emerge. This would also involve substantial qualitative research to get beyond immediate needs and identify opportunities to address strategic needs. Several of the participatory techniques developed for rural development work can be adapted to work in urban areas. An example is the "participatory urban analysis" technique used by TRL in poor urban communities in Zimbabwe, Sri Lanka and Ghana to study the role of transport in meeting the communities' livelihood aspirations (TRL, 2003). It is an adaptation of the well-known suite of techniques known as participatory rural appraisal, and includes semi-structured household interviews, mobility mapping, institutional diagramming, transport focused discussion starters, priority ranking of major concerns, and livelihoods analysis.

However, as March et al (1999) point out, some have argued that the division between strategic and practical gender needs should not be rigidly or artificially maintained. For example, if immediate or practical needs are not met (such as food security, water provision and sanitation), women (and men) will be unlikely to challenge and engage issues around gender relations as they will be too busy eking out a living. Moser's framework encourages planners to begin thinking beyond this, and to look towards setting up longer-term, sustainable solutions that not only address these immediate needs, but also build towards improving the position of women in society.

3.3   Moser framework tool three: disaggregating control of resources and decision-making within the household

This tool is aimed at unpacking the processes and relationships inherent in the use of resources. It moves beyond traditional transport planning approaches that largely look at travel and transport use patterns alone, towards the unravelling of power relationships that inform who has access to and control over resources and mobility patterns. This tool can also be used to unravel the bargaining processes involved in the allocation of resources, and in so doing inform transport planners of existing systems that may not be visible on an activity or time-use profile.

Looking at control over resources and decision-making powers can help to predict the benefits (or burdens) resulting from transport and mobility initiatives for development, as well as illuminate failures in past initiatives. Some case studies have revealed that transport interventions meant to alleviate women's transport burdens have either entrenched the status quo or worsened the situation by bypassing the crucial question of power over resources. For example, during one project it was assumed that the introduction of carts in a village would reduce the burden of fetching firewood for women, as men would assume responsibility for this task (Mashiri et al, 1998). However, men used the technology to collect firewood for commercial use and quickly exhausted the resources close to homesteads. In the end, women had to travel even further to collect firewood for

domestic use. Thus, critical analyses of case studies highlight the need to carefully examine the gendered control over resources and decision-making powers, and to use this knowledge to plan, implement and evaluate transport initiatives.

An example of the type of questions that could be asked around access and control of transport resources is shown in Box 2.

3.4   Moser framework tool four: planning for balancing the triple role

This tool asks users to assess whether a planned initiative will increase a woman's workload in one role to the detriment of another. The argument is that due to the multiple roles they tend to play, women need to balance competing roles, and that the level of balance between these roles will determine women's involvement in new initiatives.

A related issue is that of the overburdening of women through added roles and labour, or the shift in the locus of exploitation. For example, in the transport sector, women's employment in road construction and maintenance has been identified as a source of income for poor women, and has thus been encouraged in labour-intensive construction and maintenance projects. However, it is important to bear in mind women's reproductive and community activities as well, and to avoid merely adding to their labour burden. Furthermore, these types of work tend to be short-term, unstable (or unsustainable) and lowly paid. This relates again to strategic gender needs, of which sustainable employment could form an integral part, and in which employment of women should not be restricted to lowly paid work.

The issue of women's triple roles is highly relevant to transport and mobility issues as it relates to time constraints. Rural women in developing countries, for example, often spend a great deal of time collecting fuel wood and water for domestic use. This often constrains their participation in income-generating activities, as well as their participation in development projects and initiatives. Time use assessments and the relationship between time and women's various roles thus need to be considered in transport planning, and are raised in this tool.

In practical terms, application of this tool involves identifying possible transport and non-transport interventions, policies or projects. It then considers the potential of each set of interventions to address the practical and strategic gender needs identified previously, against the present realities of women's (and men's) activities and their access to/control over transport resources. Each of these tasks are probably best executed in a participatory setting that involves affected women and men in the process, thereby promoting understanding of the problems and creating ownership of the solutions.

In the urban context, studies have shown that women's multiple roles impact on their transport patterns and the availability of appropriate transport services. An example of the issues arising, and potential intervention strategies, is given in Box 3.

3.5   Moser framework tool five: distinguishing between different aims in interventions – the WID/GAD policy matrix

This tool offers some broad categories through which users of the framework are encouraged to examine, question and make transparent their approach to development (and in particular to gender-sensitive development). The assumption that planning is a gender-neutral endeavour is challenged here, as it has been by gender analysts over the years. Thus, the ways in which different approaches transform or subordinate women's position are highlighted, and the ways in which these approaches address certain practical and strategic needs are unpacked. The tool is primarily applied for evaluation purposes,

but may also be used to determine an approach to a project or initiative during the planning phase.

Moser identified five policy approaches that have dominated development planning over the last few decades:

- **Welfare approach**: Acknowledges women in their reproductive role only, and aims to meet their practical needs in their role as mothers and as passive recipients. Typical projects include providing food aid.
- **Equity approach**: In line with the "Women in Development" (WID) approach, its purpose is to promote equality for women, for instance by promoting political and economic autonomy for women. It is considered by some to be threatening to men, and is unpopular with most governments.
- **Anti-poverty approach**: The purpose is to move poor women out of poverty by increasing their productivity, for instance through promotion of small-scale, income-generating projects. It thus sees women's poverty as a problem of underdevelopment rather than subordination. It is most popular with NGOs.
- **Efficiency approach**: Its purpose is to ensure that development is more efficient and effective through harnessing women's economic contribution. It seeks to meet women's practical gender needs, recognising all three roles. It has however been criticised for assuming that women's time is elastic, and that women can compensate for reduced state assistance by just extending their working day.
- **Empowerment approach**: The most recent approach, its purpose is to empower women to support their own initiatives, thus fostering self-reliance. Instead of taking a top-down approach to development, this approach advocates that strategic needs be met so that women themselves can make demands with respect to their practical needs.

Identifying the different approaches to development has relevance for planners in the transport and mobility fields, as it can help give an early indication of who are likely to be supporters and opponents to any proposed policies or projects. Furthermore, it is useful in unpacking and critiquing various assumptions and development paradigms. Most transport projects tend to fall within the ambit of the anti-poverty and efficiency approaches; where they aim to address practical gender needs, it is typically in pursuit of a general poverty reduction or development goal. Greater awareness of the welfare, empowerment and equity dimensions of a project may be desirable in itself.

3.6   Moser framework tool six: involving women and gender aware organisations and planners in planning

The importance of the involvement of women in planning has increasingly gained acknowledgement in the development arena, to the point that, in many projects and organisations, failure to do so is regarded severely. Moser argues that this involvement, as well as that of gender aware planners and organisations, is critical for the identification and incorporation of women's practical and strategic needs into planning processes, not only with respect to analysis, but also with respect to decision making around the prioritization and defining of planning goals.

This point has not yet been taken up sufficiently within the ambit of most transport policies and interventions. The discussion so far has intermittently suggested ways in which women's participation in gender-sensitive transport planning can be sought. The sixth Moser tool gives the analyst or planner a final check on whether the extent of involvement, and the way in which it is executed, is adequate.

4. CONCLUSIONS

The paper attempts to promote greater gender sensitivity in policies and projects that impact on the mobility and access of men and women, be they transport or non-transport interventions. Specific frameworks and tools were explored for use by planners and engineers to conceptualise, analyse and incorporate gender issues in their development work. The focus was intentionally shifted from rural towards more urban contexts, recognising the need for improved gender analysis in urban transport planning. In the South African context, as elsewhere in developing countries, women bear much of the burden of transport, and are particularly vulnerable to sexual harassment and various forms of assault, particularly in the case of poor women. These issues need to be addressed rigorously if women's empowerment is to occur and if women are to participate meaningfully in development processes that benefit households, communities and nations.

The Moser framework is considered appealing in this regard as it incorporates a language recognizable to planners – a point for which it has, on the one hand, been criticized as leading to the depoliticisation of its empowerment agenda (March, 1999), but on the other hand, can make it more accessible to planners for whom gender analysis discourses are alienating.

Furthermore, the Moser framework raises the importance of gender equitable empowerment in development initiatives, while maintaining the importance of looking at efficiency. The framework thus raises both aspects, and can be used to address both, or one, depending on the planner's interpretation. In other words, this framework does not compel its user to adopt a radical or transformative gender mainstreaming approach, but allows on the other hand for empowerment issues to be developed and strengthened within the existing framework by parties with the political will to do so.

A useful extension to the Moser framework would be to focus on *both* men and women in their gendered context. Men, too, are gendered beings, invested with gendered roles, beliefs, identities and powers. It is thus important to consider these in gender analyses, in order to better understand women's position within gendered *systems.* Furthermore, looking at men's strategic gender interests and gendered identities can highlight their strong vested interests in processes of change, and in so doing enhance our understanding of their resistance to women's empowerment and the ways in which to better work with men towards transformation.

Furthermore, the Moser framework could benefit from increased attention to variables intersecting gender and mobility outcomes. The examples shown for Durban households (Boxes 1 to 3) highlight, for instance, how both spatial (such as residential location) and non-spatial variables (such as employment type) can help create different transport options and mobility patterns for men and women. The differences between subgroups of women, and subgroups of men, need to be considered, and a homogeneous perspective of the genders avoided, for a fuller picture to emerge.
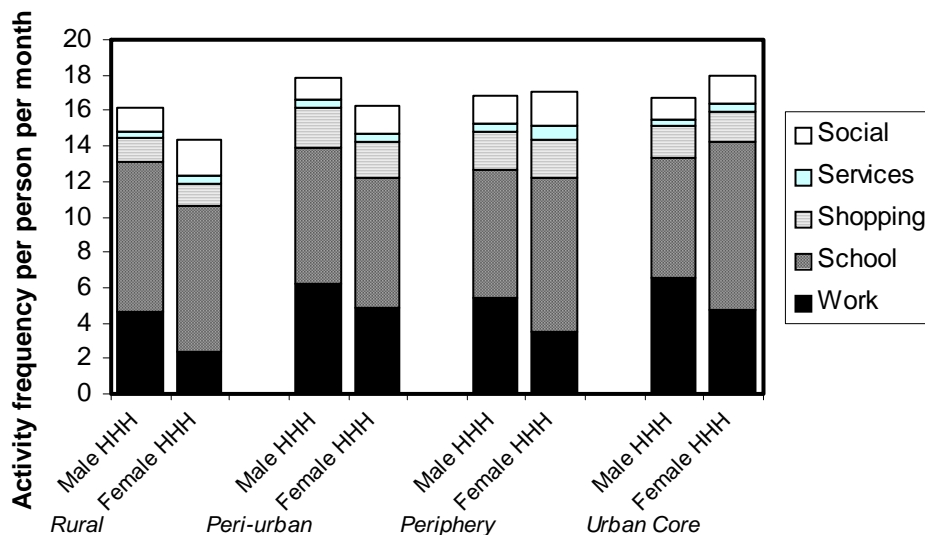
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BOX 1   EXAMPLE: ACTIVITY PARTICIPATION

Recent household interview data from the eThekwini Metropolitan Area was used to examine gender differences in the activities attended and trips made across 600 households in different areas of the city of Durban (see Venter and Vokolkova, forthcoming).   All households had low incomes, and lived in subsidised housing.

The graph below shows differences in the activity rates for male and female-headed households in four localities spread across the city, from rural (i.e. most distant) through peri-urban and peripheral (on the edge of the urbanised area), to urban core localities (located next to the Durban CBD).


The graph not only confirms that, overall, significant differences exist between households headed by women as compared to men; but also that these differences correlate to a large degree with where the household is located within the city.   In the most rural localities, female-headed households appear to be less mobile overall (on a per person basis) than male-headed households, while the opposite trend is observed in the more urban localities. This could be an indication of the relatively higher access and employment available closer to the inner city, which allows all households – and women in particular – to satisfy more of their out-of-home activity needs.

It is also evident that female-headed households tend to undertake a slightly different mix of activities: work activities are undertaken less frequently; shopping activities about as frequently; and school, services (including access to health care and pension pay-outs) and social/recreational activities more frequently than in male-headed households.   This is so regardless of their location, indicating perhaps the strong effect of gender divisions of labour across a range of urban communities.   Households headed by women also tended to have more children and elderly members (explaining the higher number of school and social service trips).   Additional qualitative investigations could help to explore the reasons for these differences better.

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BOX 2   EXAMPLE: ACCESS TO AND USE OF CARS

Data on household car ownership and mode use in eThekwini show interesting differences between male and female-headed households regarding who controls and who benefits from ownership of private vehicles.

The graph below firstly shows car ownership trends on a household level across the four locality types (see Box 1 for an explanation). Female-headed households own fewer cars in all localities except the urban core, where car ownership is higher in households headed by women. As can be expected, *use* of motor vehicles (for all trip purposes) also tends to be lower in female-headed households outside the urban core, but higher inside the urban core locality. Once again, households in the more distant localities within the metro display gender related disparities in vehicle ownership and use that are similar to those that have been demonstrated by many previous researchers in deep rural areas. However, the pattern is reversed within the more central parts of the city, suggesting that traditional patterns of ownership and control over transport assets are changing across the urban landscape.
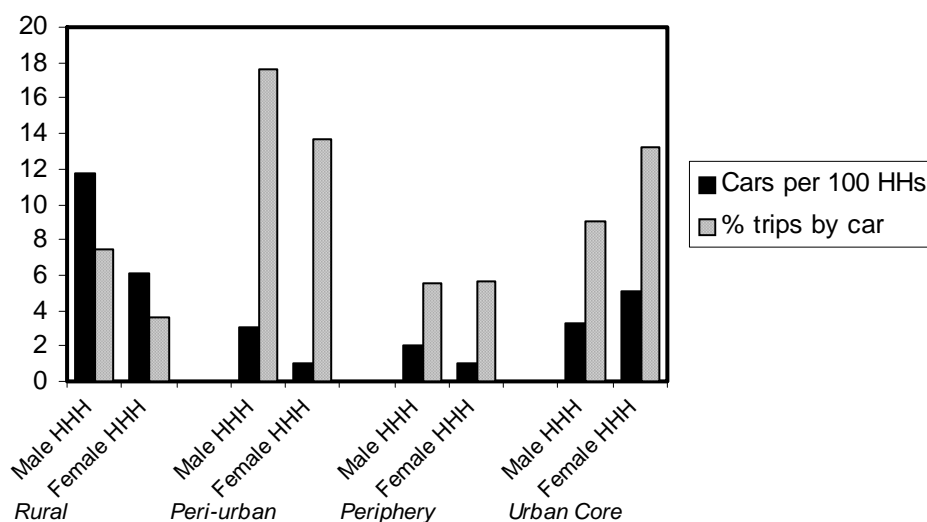
Further probing of patterns of vehicle use *within individual car-owning households* reveals somewhat surprisingly that, once a vehicle is acquired, women and men are about equally likely to use the car to travel to work and school. Additional qualitative inquiry into the processes of (transport) resource allocation between men and women could help explain outcomes such as these, and how they are changing over time. The example also highlights the need to go beyond the household as the unit of analysis, as this often masks underlying intra-household differences among people.

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BOX 3   EXAMPLE: TRAVEL MODES USED FOR TRIPS TO WORK

Data from eThekwini Metropolitan Area illustrate some of the issues involved in untangling the relationships between activities, travel patterns, and socio-economic variables in the urban context. The graph below shows the use of transport modes for the trip to work, by the gender of the traveller (not the household head), and his/her residential location. Overall, women tend to walk more and use taxis more than men, while men make greater use of cars and traditional public transport (bus and train). However, the mode splits vary significantly across individual localities, and between men and women. It is evident that complex spatial and personal factors affect travel patterns in ways that make generalisations around men's and women's needs, and how they would respond to changes in transport provision, dangerous.
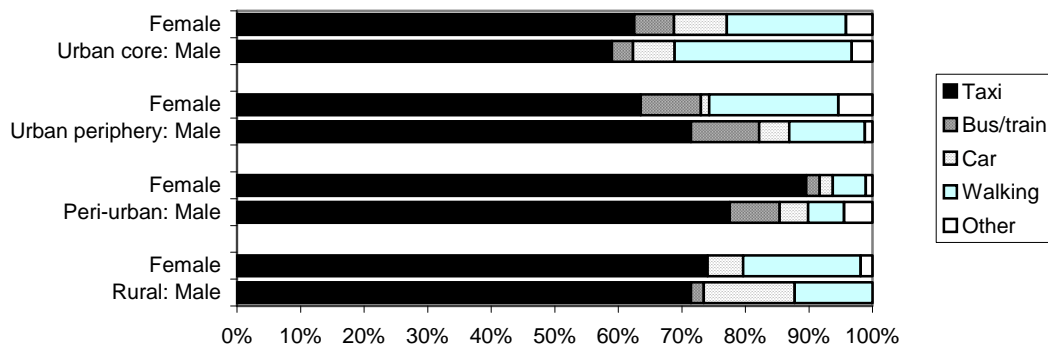
One of the factors that help explain the observed differences is the nature of employment of men and women. Women in the sample are much more likely to work in the informal, unskilled and self-employed sectors than men: overall 80% of female workers fall in this category, compared to only 56% of male workers. This impacts on their work travel – women have more dispersed travel destinations, particularly in the urban core where 70% of women's work trips are to destinations outside the traditional core of the city (the CBD), compared to only 38% of men's trips.

The result is that women's work travel patterns are less well suited to the service offered by traditional forms of public transport, which tend to be radially oriented towards the core employment areas, and run mostly during the peak commute periods. Both the taxi and walking modes provide more suitable travel options, because of their flexibility and better penetration into areas not served by buses and trains. Further probing into the travel costs paid for commute travel reveals that women also tend to pay more for taxi transport to work than men, calculated on a per-kilometer basis. This is particularly so in rural and urban core localities – in the latter case, for instance, female travellers pay on average R1.60 per kilometre, and male taxi users R1.10. This could be partly due to the fact that more women have to change taxis on their way to work, and travel on lower volume routes where charges are likely to be higher to compensate for lower vehicle loads.

It follows that any changes in the taxi industry may have significant impacts on women's ability to access livelihood opportunities, and government interventions in this area have to be scrutinised for such impacts. The discussion above suggests that beneficial interventions may involve coordinating taxi services to provide more direct routings between a variety of origins and destinations; and providing infrastructure and management that would improve the safety and quality of both the walking and waiting components of taxi trips. Investing in better taxi ranks and, as importantly, safer street environments along the route (not just at its ends), are certainly pro-women interventions. Furthermore, any policies that potentially raise the cost of taxi travel – such as the South African government's project to replace and upgrade taxi vehicles is likely to be – could have significant gendered impacts that need to be understood much better by policy makers and implementers.