BRINGING IN THE PERI-URBAN POOR:
Options for Expanding Mexico City’s Transportation Network
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Abstract
As urbanization patterns shift and population growth rates soar in the developing world, peri-urban areas—where the cities’ poorest residents live removed from the city center—are expanding rapidly. Demographers predict this fringe growth will be the main form of urban change in Latin America in this next century. Latin American cities have implemented many new, successful urban transport models, but these improvements have not reached the peri-urban areas, where most of the population lives. Using Mexico City as a case study, this paper advocates for an expansion of Mexico City’s urban transportation system to provide greater economic opportunities to the poor and reduce the city’s pollution levels and greenhouse gas emissions. It examines existing public transportation models, outlines potential barriers, and concludes with a justification for why now is the appropriate time to expand public transportation options to the peri-urban poor in Mexico City.

Introduction
The past fifty years have brought unprecedented changes to the world’s urban landscape, with rapidly growing megacities of ten million or more residents becoming commonplace, and a shifting of population density from rural to urban areas. These patterns are likely to accelerate. The Population Reference Bureau projects that by 2050, urban residents will make up 70 percent of the world’s population compared to 50 percent today.¹ In the world’s poorest countries, the bulk of this growth will occur in fringe developments outside the megacity center. In these areas, poverty rates are higher than in the

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city center and the provision of basic public services is more limited.\textsuperscript{23} These growth patterns will be especially problematic in Latin America, where income equality, despite recent improvements, is still unacceptably high.\textsuperscript{4}

Despite a growing need, many megacities have failed to provide affordable and efficient ways for peri-urban residents to access the city’s core.\textsuperscript{1} Policymakers often ignore peri-urban areas, resulting in inadequate access to education, sanitation, and health infrastructure as well as poorly enforced zoning and building standards. Furthermore, people tend to amass in peri-urban areas due to a desire to be close to the city’s economic opportunities coupled with an inability to relocate to the center itself because of prohibitively high prices and predatory zoning policies. The combination of these two factors makes the peri-urban poor reliant upon the city center for their daily needs. In large megacities, accessing the city center is often expensive and time-intensive, which can be especially problematic for poor residents with constrained budgets. This restricted access to the center, therefore, is problematic in two main respects. First, it reinforces the cycle of poverty by trapping peri-urban residents in their low-income neighborhoods. Second, it encourages the use of inefficient pollutant-emitting automobiles and microbuses in already congested megacities. Affordable, efficient public transportation can, therefore, address both social development and climate goals.

As peri-urban areas become even more pronounced in Latin American cities, local governments should prioritize sustainable transportation systems from the city center to peri-urban areas. Urban transportation systems have a unique ability to mitigate increases in income inequality and uneven growth if properly implemented. While several Latin American cities have recently built innovative sustainable transportation infrastructure in their city centers, the literature remains largely silent on how to extend these transportation models to the growing peri-urban areas outside the megacity.

This paper attempts to fill that gap, using Mexico City as a case study, by analyzing sustainable transportation alternatives that would provide both access to the city center for the poor, and, in the long-term, support growth that limits increases in pollution and greenhouse gas (GHG) emissions.

As Latin America’s largest city with a sizable peri-urban area, Mexico City can offer broader lessons to the region’s growing capital cities. Mexico

\footnote{In this paper, \textit{peri-urban} is used to describe the typically low-income communities growing on the outskirts of major cities. The \textit{city center} generally corresponds to the original city limits. Together, these areas comprise the \textit{metropolitan area}, which includes the city center and surrounding peri-urban hinterland, and is a useful unit in megacity analyses.}
City exemplifies the problems many Latin American capital cities face: high levels of income inequality, persistent political corruption, high local pollution levels, and, until recently, a haphazard public transportation infrastructure. In spite of these challenges, Mexico City has created an award-winning urban public transportation system.

The paper begins with an exploration of Mexico City’s population growth and current urban transportation infrastructure. It discusses ways to expand that network to connect Mexico City’s city center to its peri-urban area and why now is the right time to push for these reforms. It then discusses potential obstacles to public transportation expansion. It concludes by noting that the lower comparative cost and recent successes of Mexico City’s Bus Rapid Transport (BRT) system, the Metrobús, make it the best model to extend to the peri-urban poor in the short term.

**Mexico City Background**

Mexico City exemplifies the peri-urban shift. The greater Mexico City Metropolitan Area (MCMA) encompasses the traditional city center, el Distrito Federal (DF), and the surrounding peri-urban and suburbs in the surrounding state, el Estado de México (EM, or State of Mexico). The population of the city center decreased by two percent from 1970 to 1990. In the same time period, the population located in the metropolitan periphery grew by 6.1 percent. These patterns continued from 1990 to 2000, during which the city center lost 1.3 percent of its population and the metropolitan periphery increased by 3.3 percent.

The metropolitan area has also grown geographically during this time period, as shown in Figure 1. Natural barriers in the south and southeast have forced urban growth primarily north and east. In the last two decades, small urban municipalities in the surrounding suburbs have increased significantly, indicating a dispersed pattern of urban growth. Around 40 of these smaller urban centers have developed more rapidly, due to productive and labor ties to the city center.
For the most part, Mexico City’s poor residents are the segment of the population that is relocating to the outer fringe of metropolitan area. The World Bank estimates that 4.8 percent of Mexico City’s population lives in extreme poverty and 25.8 percent in moderate poverty. This urban poor population has become increasingly marginalized and segmented from Mexico City’s middle and upper class neighborhoods. The Mexico National Population Council’s (CONABO) Urban Marginalization 2005 Index of the Valley of Mexico, in which the DF and EM sit, illustrates ii The Mexican National Population Council (CONAPO) creates an Urban Marginalization Index every five years. It is created from eight variables: (1) access to potable water, (2) percentage of the population 15 years and older illiterate, (3) percentage of population 15 years and older who did not finish primary school, (4) percentage of dwellings without bathroom, (5) percentage of dwellings without electricity, (6) natural log of average dwellers per room in a dwelling, (7) percentage of dwellings with dirt floor, and (8) percentage of occupied population who receive a salary equivalent to up to two minimum wages. The estimation is disaggregated at the Basic Geostatistical Area (AGEB), a unit equivalent to 20 to 40 blocks of the city.
that these poor, “marginalized” households are mostly located in the urban fringe surrounding the DF city center to the north and west. The richer, less marginalized communities are located within the city center and the east of DF. This is consistent with a World Bank report and statistical study on urban poverty in Mexico showing that in Mexican urban settings, average income levels in poor neighborhoods is negatively correlated to distance from centers of employment, the settlement age, lower access to public services and propensity to natural disasters.\(^9\)

Unfortunately, this outward movement of the population has not been coupled with a corresponding extension of the urban transportation system. Thus, the poorest citizens in the urban fringe remain dependent on an inefficient and expensive private bus system (colectivos) or on automobiles, for those with the financial resources to purchase cars.\(^12\) While large metro and public bus systems exist in the city center, neither has expanded beyond the city limits.

Several agencies within the Mexico City government, most importantly the Secretary of Transportation and Roads, are responsible for transportation policy for the DF. These agencies fall under the purview of the mayor of DF. Historically, the federal government, headquartered in DF, has played a significant role in local politics and heavily influenced city policies. The mayor of DF only became a publically elected office in 1997. Prior to 1997, the position was reserved for a presidential appointee. In the surrounding EM, the state government’s Secretary of Transportation is the regulatory agency in charge of transportation. While the MCMA region is certainly not exempt from the corruption problems and implementation challenges that other Mexican state governments face, the past several administrations in the DF and the EM have committed themselves to reforming the MCMA’s transportation infrastructure.

**Mexico City’s Current Transportation Network**

As the city grew in size and population, a wide variety of transportation mechanisms cropped up to serve the transportation needs of the rapidly growing MCMA population. In this section I describe the current state of the Mexico City public transportation system as well as its recent innovations. I then argue that the most efficient way to integrate the peri-urban poor into the city center’s wider economic opportunities is to extend the public transportation network north and west into the peri-urban fringe.
Colectivos: the Dominant Transportation Method Connecting the Inner City to the Outer Rings

While the DF government has developed clean, efficient public transportation alternatives for its city residents, the peri-urban population continues to be dependent on colectivos as the only mass transportation option. Colectivos are small, privately owned mini-buses with unregulated routes and frequent stops, which make them much more flexible than the government bus system. They are the only bus system that operates in both the DF and the EM.

The colectivos began to appear in the 1980s, after the city government privatized the public transport sector. Catering to a segment of the market with no other public transportation option, the colectivos expanded and began to compete directly with the Mexico City metro system. Slowly, they captured the majority of the city’s public transportation trips.

Despite their prevalence, the colectivos are troublesome to municipal authorities. Since the 1990s, colectivos have contributed significantly to the MCMA’s traffic congestion problems and the city’s dangerous air quality issues. Large enough to seat 20 to 25 passengers, the GHG and contaminant emissions of colectivos are comparable to a similarly loaded local freight truck, creating much more pollution than cleaner-fueled Metrobus vehicles.

Colectivos also engage in illegal operational practices, often charging higher rates than advertised and exceeding capacity limits on their minibuses. Given the lack of other public options, the peri-urban poor are the victims of the colectivos’ predatory pricing.

Since the city government implemented the BRT model in DF, the government has permanently removed 839 colectivos operating in the MCMA area. However, as the Metrobús still does not operate outside the city center, colectivos remain the only available transport option in peri-urban areas.

Metrobús: DF’s Innovative, New Bus Rapid Transit System

As mentioned previously, the Metrobús is Mexico City’s city center Bus Rapid Transit (BRT) system, which the DF Mayor Marcelo Ebrard put into place in 2005 as part of a larger climate action plan for the city. An innovative take on traditional bus systems, BRT systems have become increasingly common in Latin American capital cities such as Santiago, Chile and Bogotá, Colombia. In most instances, they have resulted in high ridership rates, decreased motorization, and environmental co-benefits. Relative to traditional bus systems, BRT systems are:
1. Cleaner: most of the buses in this system operate on clean-burning ultra low sulfur diesel fuel;
2. Faster: the new buses typically utilize dedicated traffic lanes in the urban center so the buses are not mired in car traffic; and
3. More efficient: predetermined routes and strict oversight prevents the buses from collecting people at non-official roadside points.

Mexico City’s Metrobús system has grown rapidly since its inception. The BRT began with one bus line running south to north and recently inaugurated its third line in February 2011. Today, the Metrobus system transports 620,000 passengers per day and results in a reduction of an estimated 100,000 tons of carbon dioxide emissions every year. Its efficiency and penetration have begun to change transportation patterns in the city. Recent surveys show that 15 percent of Metrobus passengers are also car owners, and have elected to use the Metrobus system rather than drive. Furthermore, the Metrobús cost approximately US$30 million to build, a fraction of the cost of a subway or other light rail system along the corridor.

Mayor Ebrard’s and the city government’s work on the Metrobus system has been lauded by various urban policy think tanks and academic institutions as an impressive and successful urban planning effort. As the Metrobús has begun to grow, however, it has remained confined to the DF city limits.

The Metro: DF’s Established, Reliable Train System

Mexico City also has one of the largest metro systems in the world, transporting 4.5 million people daily. The metro consists of a vast network of eleven different train lines stretching across the city center. However, the metro does not extend into the surrounding state, which contains half of the metropolitan area’s population as well as the peri-urban area. All eleven lines of the city metro, apart from the one new “suburban line,” terminate at the DF-EM border, along which the system’s busiest stations are located. This line, while a tremendous first step, caters to a wealthier municipality and is not nearly enough to service all the demand in the EM. Various studies show that downtown is the primary destination of metro travelers from the outskirts of the city, and the busiest metro lines all connect to the downtown stops. Given this, an expansion of the metro system into the EM would reduce transportation costs and travel time for lower income peri-urban residents, who currently must use private transportation to access the city center.
Recommendations for Extension of Public Transportation to the Peri-Urban Ring

Due to the lack of public alternatives to the expensive, privately owned transportation, the poor in the greater MCMA region spend a disproportionately large amount of their household income—approximately 25 percent—to commute into and out of the city center. This suggests a relatively inelastic demand for access to the city center.

Extending public transportation lines can reduce prohibitively high transaction costs for the urban poor in accessing economic opportunities. World Bank economist Marianne Fay notes that the spatial distribution of employment makes it difficult for those with restricted mobility in the peri-urban areas to be aware of and connected to employment opportunities. According to Fay, “[a]ccess to good jobs is also likely to be hindered by lack of appropriate transportation to and from areas where urban poverty is concentrated.” Her analysis of Latin America’s urban poverty notes that poverty alleviation programs focused on improving access to better economic opportunities might lead to higher employment levels, as compared to programs that attempt to attract businesses and economic opportunities to relocate to disadvantaged areas. However, such poverty alleviation programs usually exist in the city center. The study cites improved public transportation options as an important way to improve access for disadvantaged, peri-urban populations. The high rates of ridership on the colectivos that access the city center and the volume of traffic that feeds into the DF, despite commute times of up to three or four hours round trip, provides evidence that public transportation routes are in demand.

The current political environment for climate change legislation in Mexico City provides an opportunity to push for peri-urban transportation reforms. The country’s transportation sector contributes about 18 percent of Mexico’s GHG emissions, making it second only to energy generation as an emissions source. Moreover, the World Bank reports that, “Mexico’s transport emissions have increased by 27 percent between 1990 and 2005 and now account for about two percent of the global transport sector’s GHG emissions.” Mexico’s transport emissions also continue to rise at an annual rate of about two percent. Recently, Mexico has taken steps to position itself as a climate leader amongst other emerging economies. Mexico hosted the 2010 United Nations Framework Convention on Climate Change (UNFCCC) international climate negotiations, and has developed a new national strategy to combat climate change that was passed into law in late 2008.
At the city level, the DF government announced in December 2010 the passage of a city-level climate bill. The bill aims to reduce the city’s total GHG emissions through various mechanisms, including the creation of a climate change fund and commission; the establishment of a domestic carbon market in the city; and the authorization of the city government to impose “green taxes” to incentivize environmental benefits. Each of these mechanisms would be an ideal avenue to promote policies that would expand the transportation system to peri-urban areas. Given the publicity surrounding the creation and expansion of the BRT system and the addition of the suburban metro line, the EM government and the DF mayor are clearly excited about growing the city’s public transportation network. The poverty alleviation and pro-climate aspects of expanding public transportation options makes supporting expansions of the BRT and metro lines a politically advantageous move even at the federal level with the Calderón administration. Given the traditional involvement of the federal government in DF policies, it would be feasible for Calderón to support the local initiatives.

Expanding the DF Metrobús to Strategic, High Resident Density, Peri-Urban Areas

The expansion of the Metrobús system requires strategic planning for the dedicated road space and location of loading stations because these public transportation routes impact future development in peri-urban areas and can create opportunities for sustainable growth. The stations should be located in the centers of strategic peri-urban neighborhoods, while remaining close to the city’s main thoroughfares.

Were the Metrobús to extend out of the city center, it would have to rely on highways to connect the peri-urban areas with the city center. Thus, these highways should have dedicated Metrobús routes, which would make the bus route faster than other transportation options and therefore more attractive than the colectivos. The EM government recently announced an ambitious plan to build new second-level highways within EM to expand access to the downtown, making this an opportune time to set aside one lane of these multiple lane highways exclusively for public transportation. Dedicated lanes would help mitigate some of the increased motorization resulting from the new highways, as well as significantly reduce travel times for those utilizing public transportation as compared to traditional motorized transportation.

Adding New Peri-Urban and Suburban Lines to the Current Metro System

DF policymakers have begun to realize the need for more public
transportation options and recently inaugurated the first Metro line from Buenavista (in DF) to Cuautitlán (in the northern EM) in June 2008. Called the “suburban” line, it carries 100 million passengers per year and reduced the time for a rush hour trip from Cuautitlán to DF from 2.5 hours to 25 minutes. The Buenavista-Cuautitlán line was built using abandoned freight rail tracks. Since these industrial plants serviced by freight rail are permanent fixtures in the northern and eastern peri-urban areas, there is the potential to replicate the Buenavista-Cuautitlán model with other new peri-urban metro lines.

A metro extension should take into consideration the demographic issues facing its new line. Robert Cervero, a Latin American transportation scholar, warns that metro expansions in Latin America have actually exacerbated income inequality in Latin American megacities, arguing, “metros have been criticized for failing to alleviate poverty and specifically for being regressive, using scarce government financial resources for purposes that benefit the rich far more the poor.” Future expansions of this transit system must not cater exclusively to the wealthier suburbs. Rather, expansions should connect to the lower-income peri-urban areas. Given the cultural stigma associated with using the Metro and the lack of demand for this mode of transportation from the richer segment of society, expanding the Metro to the peri-urban poor neighborhoods should be an easier task in the MCMA.

Ensuring the Recommended Solutions Benefit the Peri-Urban Poor

Fair Transportation Costs Reinforce Success of Transportation Improvements in Reaching the Poor

Transportation policy must account for political and economic realities. To ensure transportation legislative change actually results in the intended outcomes, policymakers need to think carefully about accompanying fare pricing. As mentioned previously, research shows that those workers living on the city fringes spend a significant portion of their total earnings on transportation. Therefore, to serve the peri-urban poor, the new urban transportation mechanisms need to be more cost effective for the targeted population than using colectivos or purchasing a car.

To achieve this goal, the DF and EM governments should institute a price ceiling on the fare for the bus and metro systems and subsidize the bureaus that operate the transportation systems directly for any cost disparities. Politically, this makes sense given the public good nature of the externalities that result from promoting this more efficient form of transport as well as
the increased access to public services for the poor. Providing government subsidies for public service delivery is common practice in most municipal transportation arrangements, especially in developing countries, and feasibly could be implemented in Mexico City. Either way, the system design needs to incorporate the user cost associated with the new transportation option because it lies at the heart of the transportation equity issue that faces the peri-urban poor today. The pricing and government subsidies issues at hand are, however, complicated in both political and economic terms, and should be the subject of further research.

Potential Obstacles to Expansion

Interest Group Coordination

Transportation projects and infrastructure change have traditionally been difficult to implement in developing countries due to the number and heterogeneity of involved stakeholders. Brazilian urban planning expert Haroldo da Gama Torres discusses this problem in a 2008 report to the United Nations: “[Transportation reform] mobilizes a complex set of individual and business interests, including developers, the construction industry, the auto industry, retailers, and landowners, as well as the middle and upper classes that demand more urban space and environmental quality.”

The city government should develop incentives for these different interest groups to work together toward a mutually beneficial partnership. It is important that a neutral third party monitors these partnerships so that they do not become opportunities for corruption or government handouts. To this end, involving non-government organizations, local community groups, and civil society could help keep projects focused on those people that the projects are designed to benefit and build in mechanisms to ward off corruption.

Opening up the process for public consultations on the BRT and metro expansion process would create a space for civil society to voice concerns and monitor the process. Urban planning experts Andrés Valderrama and Ulrik Jørgensen argue that inclusive negotiations and transferring ownership of the process to the actors involved in the discussion can help surmount traditionally difficult planning obstacles, specifically in terms of the system’s stability in the long term. They offer the following ideas, based on a study of Bogotá’s transportation work, on how to improve citywide transportation planning processes:

1. Ensure no one party possesses autonomy and all are implicated in the complex process;
2. Ensure the identity and reputation of the actors at stake; and
3. Emphasize that the outcome has significant repercussions for
   the whole transport sector within the region, making the stakes
   high for disagreement.

As megacities continue to grow in number of residents, the number
of public authorities, strong local governments, and decentralized agencies
involved in citywide decisions grows in tandem. Valderrama and Jørgesen's
framework provides guidance on how to organize a large number of actors to
make technical transportation decisions.\footnote{41}

Applying this framework to the Mexico City case illustrates that public
support of the new public transportation models in DF may be able to overcome
interest group coordination. First, the city's public transportation projects have
garnered widespread attention. The national and international media have
covered the initial construction of the BRT system and its subsequent new line
openings. Furthermore, in a term of increased violence and drug trafficking,
both President Felipe Calderón and DF Mayor Ebrard have used Metrobús to
highlight their public policy accomplishments. Politicians and the media gave
similar attention to the opening of the Buenavista-Cuautitlán “suburban line.”
When the line first opened, President Calderón and EM Governor Enrique
Nieto inaugurated the new extension by riding in the conductor’s car for the
first trip, holding press conferences, and speaking about its environmental and
traffic benefits.\footnote{42} Public and media attention to public transportation projects
help ensure the identity and reputation of the stakeholders involved in the
process while raising the stakes for cooperation among stakeholders.

A second reason to believe interest group coordination may be
manageable if the government extends the current public transport system
outward is that the infrastructure needed for the extension projects already
exists. The national government is currently building additional highways to
the peri-urban areas along which it could extend the BRT system. Additionally,
there is an existing network of old freight rail lines extending north and west
that the government can convert into subway extensions. With these basic
structures already in place and owned by the government, there is less room
for disagreement among non-governmental interest groups. Given that the
foundations for these projects are already in place or are in the process of
being constructed, the suggested expansion of the public transport system
now has a certain forward momentum, making it more politically difficult
for interest groups to derail the projects. Furthermore, since the new public
transport lines could run off existing infrastructure, policymakers can avoid
potentially contentious land tenure and resettlement issues that have often been major limitations to large scale infrastructure projects.

**Intra-Government Coordination**

Not only do the aforementioned projects require coordination between the private sector interest groups and the government, they also demand intra-government synchronization. One of the most basic obstacles to creating widespread transportation access from the peri-urban area of Mexico City is the fact that the EM government controls the surrounding areas and is fiercely protective of its jurisdiction. It has traditionally passed its own transportation laws independent of the city center.

The growing decentralization of MCMA politics and growth of strong local governments within the larger megacity has made it harder to build and coordinate transportation systems across jurisdictional lines. This presents a serious problem for extending public transport options that originate in the city to the peri-urban areas. Earlier in the decade, these types of cross-jurisdictional projects encountered two main issues. First, a federal government issued a ruling banning bus services from crossing state boundaries, which was designed to prevent intra-state competition. Second, disagreements between the DF and EM governments over financing joint transportation ventures limited expansion of the metro line to solely within DF, even when it was evident that the state needed the development most.

Recent evidence indicates that these jurisdictional issues are surmountable. First, while the state and the city have historically opposed joint funding in transportation projects, they were able to work through traditional barriers and find mutual benefits from creating a joint financing scheme for the Buenavista-Cuautitlán “suburban line.” This sets both a precedent and a framework for collaboration in transportation projects. Second, improving public transportation is a top priority for the Calderón administration as it dovetails with his national climate change legislation. Since the President and his administration are located in DF, the federal government has traditionally been heavily involved in the city’s municipal projects. Therefore, if the national government sees the MCMA public transportation extension as advantageous, it can exert its influence on the laws regulating cross-jurisdictional transportation projects.

**Public Transport’s Social Stigma and the Peri-Urban Poor’s Limited Lobbying Capacity**

Society’s perception of the city’s transportation network could be
another obstacle to its expansion. In general, upper and middle class Mexican citizens view the city’s metro system as crowded, low class, and unsafe. The majority of people who use the metro are the city’s poor. Instead, middle and upper class Mexican households tend to buy cars, for convenience and to signal economic status.\textsuperscript{44} As a result, the federal government tends to favor infrastructure projects, like the current highway expansion, that cater to the auto lobby and the richer motorized public.

A World Bank assessment of its Latin American public transportation projects states, “[a]ccording to initial results from focus groups and local observations, psychological barriers are one of the most difficult obstacles to overcome in many areas, including the poverty stigma associated with using public transport.”\textsuperscript{45} Therefore, public transportation expansion in the MCMA is not likely to be driven by the upper and middle classes. If these politically powerful groups do not see the expansion of public transportation as beneficial, it will be politically more difficult to motivate policymakers to fund the extensions of this service to the poor peri-urban areas.

Further exacerbating this problem is the “invisibility” of the peri-urban poor to policymakers.\textsuperscript{46} Peri-urban populations are normally transitory, causing the demographic make-up of peri-urban neighborhoods to fluctuate frequently. The constant turnover in the population makes organizing, measuring, and quantifying this segment of society’s needs particularly difficult.\textsuperscript{47} Their distance from the city makes it easier for media, politicians, and other city residents to overlook its occupants and discount their needs. This confluence of factors makes it hard for peri-urban residents to influence the government and make their needs a priority for policymakers.

The cultural stigma associated with public transportation and the limited capacity of peri-urban groups to lobby policymakers are both deeply embedded social problems. Therefore, to overcome these challenges to extending the public transportation network, policymakers need to engage the upper and middle classes to support the expansion. To do so, policymakers could implement a combination of the following strategies.

First, policymakers should market the public transportation expansion as a win for the MCMA area at large and not just the peri-urban residents that will benefit most from the extension. Ideally, expanding the city’s innovative public transportation would put Mexico City in the headlines for its ingenuity and cutting edge urban design. Furthermore, it would move colectivos off the road due to decreased demand, reducing traffic and pollution for all MCMA residents.
Second, policymakers should roll the public transportation legislation into larger transportation infrastructure legislation that tangibly benefits the upper and middle classes. Creating a “package deal” might dissuade the upper and middle classes from objecting to the public transportation components. The expansion of the highway system from EM to the DF provides a perfect example. Since the motorized public views the highway expansion as a major need, residents are unlikely to oppose a public transportation addition if it was a compulsory part of the larger project.

Finally, policymakers should ensure that the new extensions of the public transportation system be built in a way that assuages upper class doubts about public transport. This could come in the form of increased police visibility along with cleaner stations, buses, and Metro cars. Since these will be new extensions of the BRT and metro lines, it will be logistically easy to include security systems and other built in safety measures. The newest line of the Metrobús system, opened to the public in February 2011, includes some of these safety measures, such as closed circuit cameras, better lighting at the bus stations, and better access for those with limited mobility. These improvements, however, have likely added to the cost of the new bus lines.

**Additional Infrastructure Costs**

A significant expansion of the public transportation system will represent a large cost to the DF and EM city governments. While the country’s economy is recovering from the financial crisis, municipal budgets remain strained. Bus rapid transport systems are highly acclaimed for their cost effectiveness and compressed construction timelines when compared to metro systems. EMBARQ, an international sustainable transport think tank, estimates that “the cost of building a heavy rail system like a subway [can] reach as much as 10 times that of bus rapid transit.” Light rail lines are cheaper than heavy rail, but still run more than four times the cost of bus rapid transit.

The Metrobus is no exception. The first line of the Metrobus required a Mexican government-financed capital investment of approximately US$70 million. As the Metrobus system grows and improves its infrastructure, the capital costs associated with each new line are increasing. The recently inaugurated third line of the Metrobus system cost 2.8 billion Mexican pesos, which in today’s exchange rate is US$233 million, financed by both loans from international finance institutions and the Mexican government itself. The Metrobus fare, which is affordable at US$0.33, covers the system’s operation and maintenance costs, including the financial payments for the new efficient
In comparison, the initial capital cost of financing the “suburban line” was US$670 million. Furthermore, the metro system as a whole currently requires nearly US$400 million in annual operating subsidies from the federal government. The strong political leverage of private operators, builders, and contractors in Mexico exacerbates the financing situation. The political influence of these groups makes it hard for public officials to move from the status quo of currently existing contractual arrangements. High initial capital costs and traditionally difficult political problems might be manageable in this case, however, since a network of freight train tracks already exists in the northern and western region of the MCMA.

The cost of the expansion projects, while substantial, should not be prohibitive. The Metrobús and, to some extent, the metro suburban line addition have garnered enough international publicity that a wide variety of donors have offered financing mechanisms to continue the construction. The World Bank helped finance the first Metrobús line and continues to provide loans to the country for the development of low carbon transportation options. Foundations and non-profit organizations have contributed as well with grants and direction donations to the DF government, in large part specific to the Metrobús system.

Therefore, the comparatively low construction costs and relative speed with which the Metrobús system makes it the best candidate for growth in the short term. An extension of this system out to the peri-urban areas, via the newly constructed highway system, will lay the foundation for a greater public acceptance of future expansion of other public transportation options. To this end, policymakers should analyze where an expansion of the metro system might have the biggest impact on the peri-urban poor, as funding constraints may only allow the construction of one or two more “suburban lines.” What type of evaluation process should be used for this, however, is beyond the scope of this paper and should be the subject of future research.

Conclusions

The simple expansion of Mexico City’s city transportation could greatly benefit the peri-urban poor. While the challenges to expanding the public transportation infrastructure are significant, they are not insurmountable. These challenges—interest group coordination, intra-state competition, cultural
stigmas associated with public transport, and peri-urban disfranchisement—originated from contentious, historical political issues. However, there is currently a unique political opportunity for public transportation legislation in DF and EM. Mexico City’s public transportation system is the recipient of international awards, well regarded by its wide ridership, and viewed as a key component of national and regional climate change legislation. It makes sense for politicians to support its expansion and continued success, especially since these politicians can claim few other domestic political victories with recent increases in drug trafficking and gang violence. This political impetus can move the extensions of the Metrobús and metro forward.

As Mexico City moves to expand its Metrobús and metro systems into the peri-urban areas it will face the new challenge of integrating public transportation into one cohesive system. The tools that policymakers can use to extend the public transportation system outward will likely be the same skills to what they could use to bring the system together, as it will involve navigating similar obstacles with interest group and intra-state coordination.

This is a unique opportunity for Mexico City, one of the largest megacities in the world, to become a leader in poverty reduction, equity and climate change. Furthermore, the demographic and political challenges that the MCMA policymakers face are very similar to those facing other large cities throughout the continent. These parallels with other Latin American cities make Mexico’s public transportation reforms an important issue not only for Mexico’s peri-urban poor, but also for peri-urban neighborhoods all across Latin America.

Endnotes
5 Ibid, 11.
6 Ibid, 13.
7 Ibid, 13.
14 Ibid, 12.
15 Georges Bianco Darido, “Managing Conflicts Between the Environment and Mobility: The Case for Road-Based Transportation and Air Quality in Mexico City,” (Massachusetts Institute of Technology, Department of Civil and Environmental Engineering, 2001): 45.
16 Darido, “Managing Conflicts,” 105, 151.
21 Christine Russell, “Take the Metrobus in Mexico City.”
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