Public Transportation Policies in United States: Drawing Upon Lessons from Germany and United Kingdom

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Background and Objectives

Public transportation also known as community or public transit, plays a significant role in addressing the numerous challenges facing many countries including: concerns for the environment, high automobile dependency along with high gas prices, lack of linkage between city planning and transit planning, transit funding, and others. Public transit remains an important aspect of every nation's development agenda in providing more capacity and creating more transportation choices in a more sustainable way.[1] Thus transit is critically important in economic and social life of many countries due to its propensity to create jobs and lessen travel cost, while providing for a more sustainable transportation system that helps to reduce dependence on oil and lessen the transportation sector's impact on the environment. The American Public Transportation Association (APTA) indicates that riding public transportation can save an individual an average of $9,068 a year based on the June 17, 2009 national average gas price and the unreserved monthly parking rate[2]. This makes transit an essential in helping to address the needs of a growing transportation-dependent population, the shifting demographics, fuel price hikes and environmental concerns.[3] In the USA many people without personal transportation for employment purposes and other daily activities rely on transit to maintain a quality or healthy lifestyles.

In recent times, trends in the emission of Green House Gases (GHG), concerns for the environment, and fuel price hikes have initiated debates over the utilization of public transit as an alternative means of dealing with associated economic crises.

[1] American Public Transportation Association (APTA) 2008 Annual Report, accessed June 16, 2009) http://www.apta.com/resources/hottopics/sustainability/Pages/default.aspx
[2] ibid
[3] Hudson Institute, 2010 and Beyond: *A Vision for America's Transportation Future*, Hudson Institute Publications, Washington DC, 2004.(accessed July 6, 2009) http://www.hudson.org

Research shows that countries in Europe have utilized public transportation more profitably and sustainably than the USA[4]. In the USA, factors such as, land-use policies, suburbanization, and driving culture among other factors, has encouraged increased automobile dependency to meet the rising challenges of mobility in the USA[5]. However, with the growing concerns for the environment amidst fuel price hikes and the need for transportation sector to cut GHG emission, public transportation has been considered to be cost effective , efficient, equitable, and environment-friendly for dealing with such issues, if managed effectively.

While many countries have risen to the challenge of using sustainable public transit systems to meet the rising socio-economic demands, in the United States, such transit policies in dealing with environmental and economic issues have been less emphasized. Two European countries, Germany and United Kingdom, have experimented with ways and means of improving transit system effectiveness, efficiency and sustainability, as an economic development tool while ensuring functional automobile usage and environmental sustainability. The experiences of these two countries could be explored profitably to draw lessons useful for improving public transportation in the some states in the United States of America.

This study draws upon transit policy experiences from transit - dependent nations like Germany and United Kingdom (UK) and suggests the possible utilization of such policies in those states in the USA that lag behind in the public transit reform and evolution. This paper assesses the developments, trends and experiences of transportation policies in United States as it compares and contracts with those of Germany and United Kingdom. It further examines how applicable policies could be adapted to make transit services more effective, efficient, and sustainable along with the policy implications of any suggested changes or reforms.

Given the above background, this paper addresses the following research questions:

[4] Ralph Buehler Transport Policies, Travel Behavior, and Sustainability: A Comparison of Germany And The U.S, 2008

[5] ibid

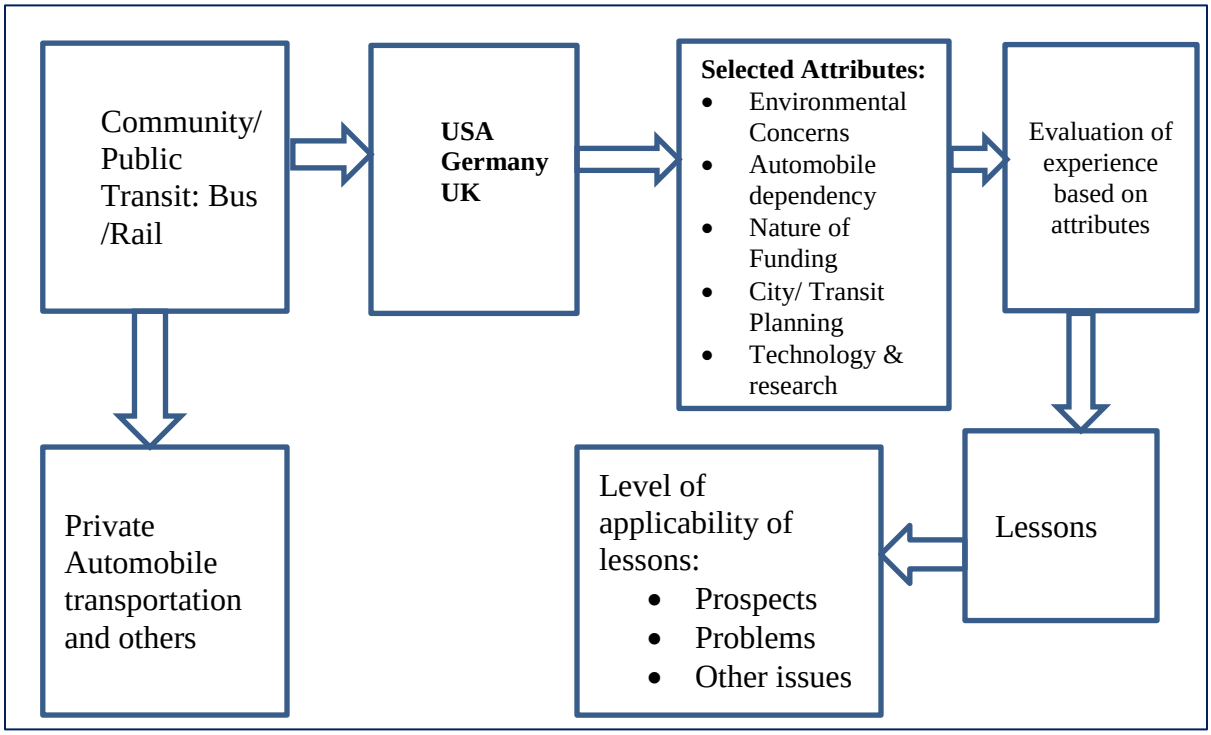
- How does the transit developments, trends, and experiences of the United States, compare and contrast with those of Germany and the United Kingdom?
- What important lessons from the experiences of these two countries can be applied to the United States public transit system in order to make it more effective, efficient, equitable, and sustainable?
- What will be the policy implications of any suggested changes or reforms?

Methodology

This study is an exploratory comparative study of selected countries based on selected desirable attributes. It utilizes case studies and review of past studies, reports books, and monographs. This study relied on context and document analysis, mainly a cross-case analysis of the transportation reports from the US, UK and Germany. Case studies based on international comparative studies on public transportation systems vary in methods, data, units of analysis, and dependent variables employed. The research questions are examined in a conceptual framework developed for this study.

The conceptual framework (figure 1) represents a simplified two dimension transportation system consisting of two most common choices available to the general public for urban and intercity commuting: Private automobile and community transit or public transportation system as seen in most countries. This framework is specifically limited to examining public bus and rail transit with respect to the following selected policy attributes: environmental concerns; automobile dependency /travel behavior; city planning vs transit planning, nature of funding (fiscal and economic measures), and technology/research. In essence I analyze how these attributes differ internationally (UK Germany and USA), how lessons learned and best practices may be applied in the USA, in relation to policy prospects and problems.

Figure 1: Conceptual Framework: Country Experiences based on Selected Transit Policy Attributes



Transit Experiences in Selected Countries

Public transportation in the UK, Germany and USA suffers from many of the same economic problems. Prices for all modes fall short of efficient prices; bus and rail transit require large subsidies; road congestion is severe especially during peak periods; and transit and highway infrastructure is in poor condition but funds are limited for financing required investments. However these countries differ in policies needed to address such problems. The following sections focus on assessing differences in policies in addressing, environmental concerns, high automobile dependency /travel behavior, and balancing funding sources through efficient and sustainable fiscal and economic measures. Table 1 shows a summary findings based on selected attributes. For the purpose this proceeding, only the first three attributes are discussed in details.

Table1: Summary of Findings: Transit Development, Trends, and Experiences of Selected Countries: United States vs. Germany and the United Kingdom

Country	Environmental Concerns	Automobile Dependency	Nature of Funding/ Economic Measures	Planning: City/ Land Use/ Transit Planning	Research, Education & Technology
USA	Initiative mainly focus on fuel efficient automobile usage Lags behind in Greener Transit initiatives	High level of automobile dependency Less restrictions on driving	Limited cross- financing Highly subsidized subsidies Less commercialized systems due to lack of profitability of transit– especially in southern states - Local funds matching federal funds restricts services	City spatial structure characterized by low levels of centrality and density Gab: city planning and Transit planning- in most southern states Geographic restrictions	Efficient research and education but less discharge of policy suggestions Limited safety/security technologies on buses & trains
UK	Strategies for Emission reduction -23% of all car trips are less than 2 miles but only account for 4% of CO_2 emissions	Highly restricted through license issuance, road regulations, taxes and fees Insurance policies Mileage travelled	Cross- financing Moderately subsidized (32%-2002) Commercial revenues -68%	High levels of centrality and density Regulated parking, Separate Paths for buses/trams/bicycle Limited Geographic Restrictions allows for connectivity and networking	Safety and security technologies. Education/ research Public transit forms part of economic development agenda
Germany	CO_2 emissions reduction Strategies -vehicle fuel economy, bio-fuels, tax, quota system, HDV road pricing, etc	Dissuasion policies: Driver's license issuance and road regulations, fees and taxes	Cross-financing-Subsidies-38% vs 62% Com. revenues-larger user taxes & fees	Well regulated Transit systems. High levels of centrality and density Separate lanes for buses/trams/helps reduce congestion No Geographic Restrictions	Efficient Safety/ security technologies Efficient research -Public Transit integrated in socioeconomic life of the people

Environmental Issues

Reducing congestion, ensuring environmental friendliness, efficiency and effectiveness are tied together when dealing with transportation management. Research shows that of all the carbon dioxide (CO_2) emissions from fossil fuel combustion, energy contributes about 45%, transportation contributes 24 %, while road transportation emits 16.7 % of CO_2.[6] Thus, the transportation sector which depends mostly on the combustion of fossil fuels is the second largest emitter of carbon dioxide and therefore has a significant role to play towards reducing CO_2 emission. The Organization for Economic Cooperation and Development (OECD) and member countries have taken steps to reduce greenhouse gases.[7]

A preliminary findings of the international transport forum on transport GHG emissions reduction strategies indicated that in Germany, transport CO_2 emissions have been declining since the late 1990s due to several measures that include vehicle fuel economy improvements, bio-fuels tax exemption and quota system, increased fuel taxes on conventional fuels, heavy duty vehicle road pricing, differentiated vehicle excise taxes linked to engine displacement and new vehicle labeling.[8] In 2005 for instance, urban transport energy use and CO_2 emissions per capita were reported to be three times higher in the U.S. than in Germany. In the UK, 23% of all car trips between 2002 and 2006 accounted for only 4% of CO_2 emissions.[9] In the USA however, when it comes to debates over energy and fuel efficiency towards a greener environment, very little is said about improving public transit systems as viable tool to be explored for better environmental sustainability.

Automobile Dependency /Travel Behavior

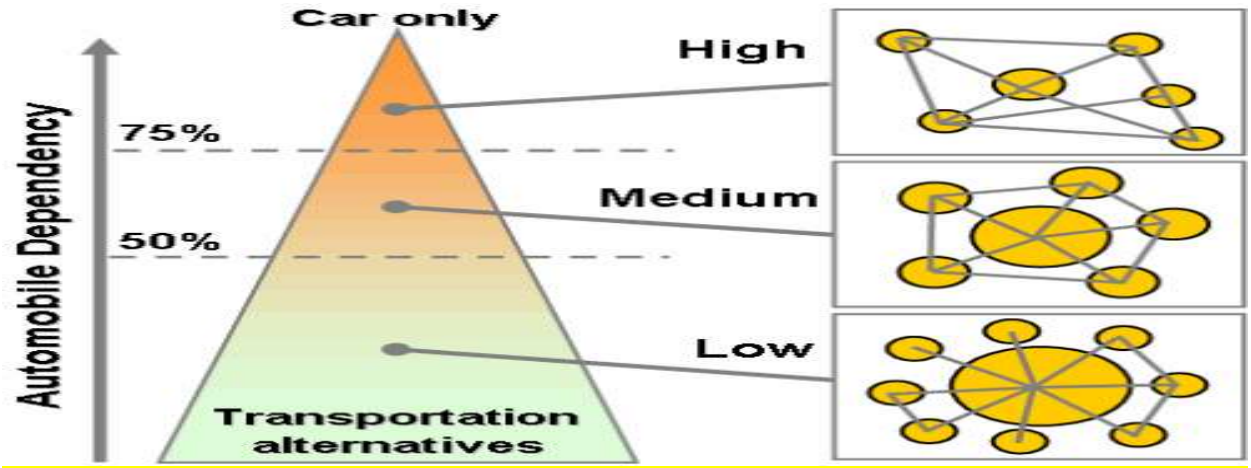
A study conducted to compare automobile dependency and travel behavior of Germany and USA concluded that policies and institutions in the USA contribute to making private car use cheaper, easier, and more common than in Germany. In 2005, for example, revenues from roadway user taxes and fees in Germany were 2.6 times

[6] Yoram Shiftan, & John Suhrbier. "The Analysis of Travel and Emission Impacts of Travel Demand Management Strategies Using Activity-Based Models." Transportation 29, no. 2 (May 1, 2002): 145-168.
[7] ibid
[8] APTA in New York Times, Feb 2, 2009
[9] Ralph Buehler, 2008

larger than roadway expenditures by all levels of government, compared to net subsidies for roadways in the USA. Unlike the majority of American cities, most German municipalities promote non-automobile travel and impose restrictions on single occupancy long distance driving. These policies that make long distance car travel less attractive are regarded as dissuasion policies. Other strategies embedded in these dissuasion policies include high cost of insurance and difficulties in acquiring driver's license.

The USA has been classified as a high automobile dependent nation due to travel behavior and lack of alternate mobility options (see figure 2). Low automobile dependent areas have a set of transportation alternatives are available while high dependency areas exhibit little or no alternatives outside automobile use. In such areas, trips exceed 75% of all personal trips (such as commuting and shopping).[10]

Figure 2: Automobile Dependency Rating



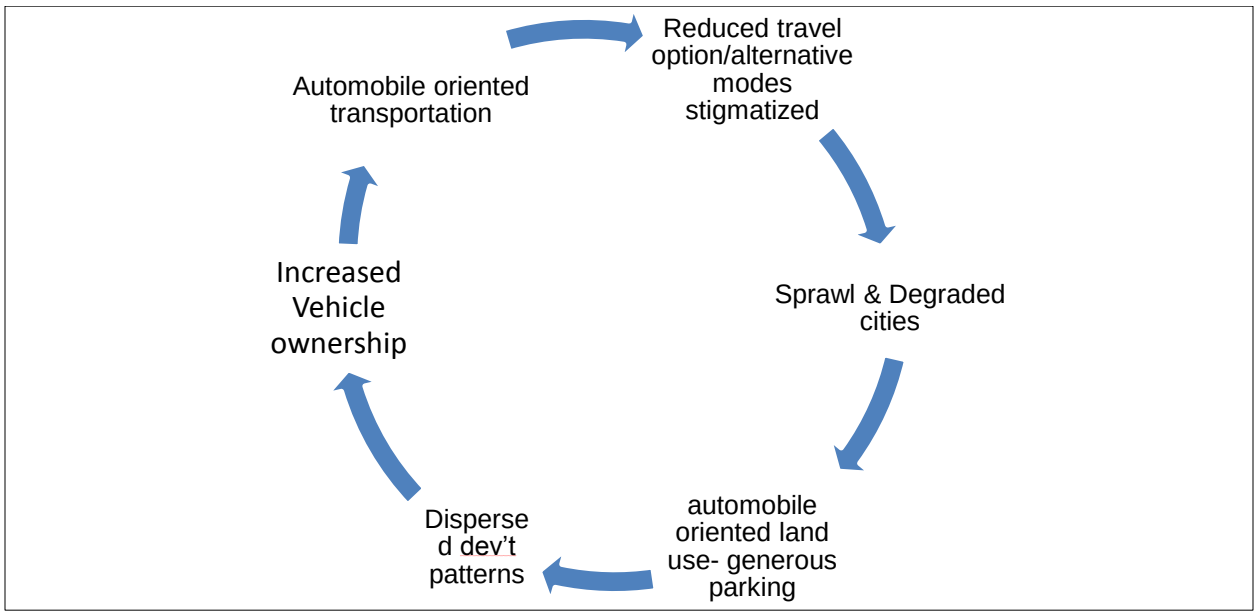
Source:Jean-Paul Rodrigue, Geography of Transport Systems, Hofstra University, 2009.

Automobile dependency is linked with the urban spatial structure. Cities with a low level of car dependency tend to be centralized with high levels of density while cities with a high level of automobile dependency have low levels of centrality and density (see figure 3). Excessive reliance on the car has been linked to unsustainable trends in

[10] Jean-Paul Rodrigue, Geography of Transport Systems, Hofstra University, 2009

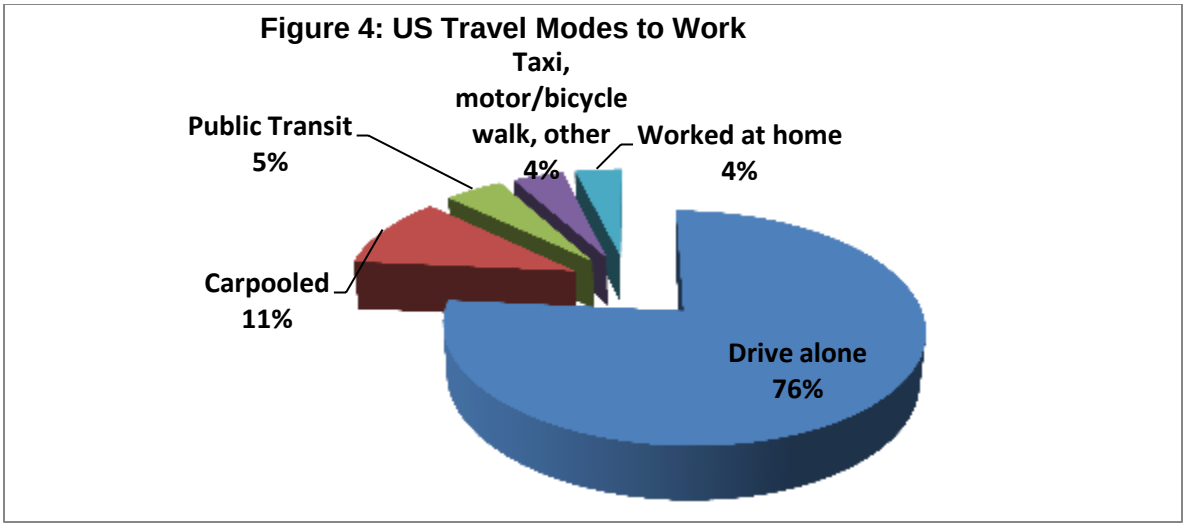
environmental pollution, oil dependence, obesity, traffic congestion, and road fatalities. The American Community Survey (2005-2007) indicated that high level of automobile dependency in the USA. Seventy-six percent (76%) of USA population surveyed drove alone to work regardless of the distance (see figure 4).

Figure 3: Cycle of Automobile Dependency



Travel behavior including: walking, cycling, carpooling, and public transport accounted for only 24 percent of all trips in the USA,(see Figure 4) compared to 40 percent in Germany.[11] It appears that the combination of car-restrictive policies with measures that increase the attractiveness of non-automobile modes has been essential in limiting single occupancy long distance car use in Germany.

[11] Ralph Buehler, 2008



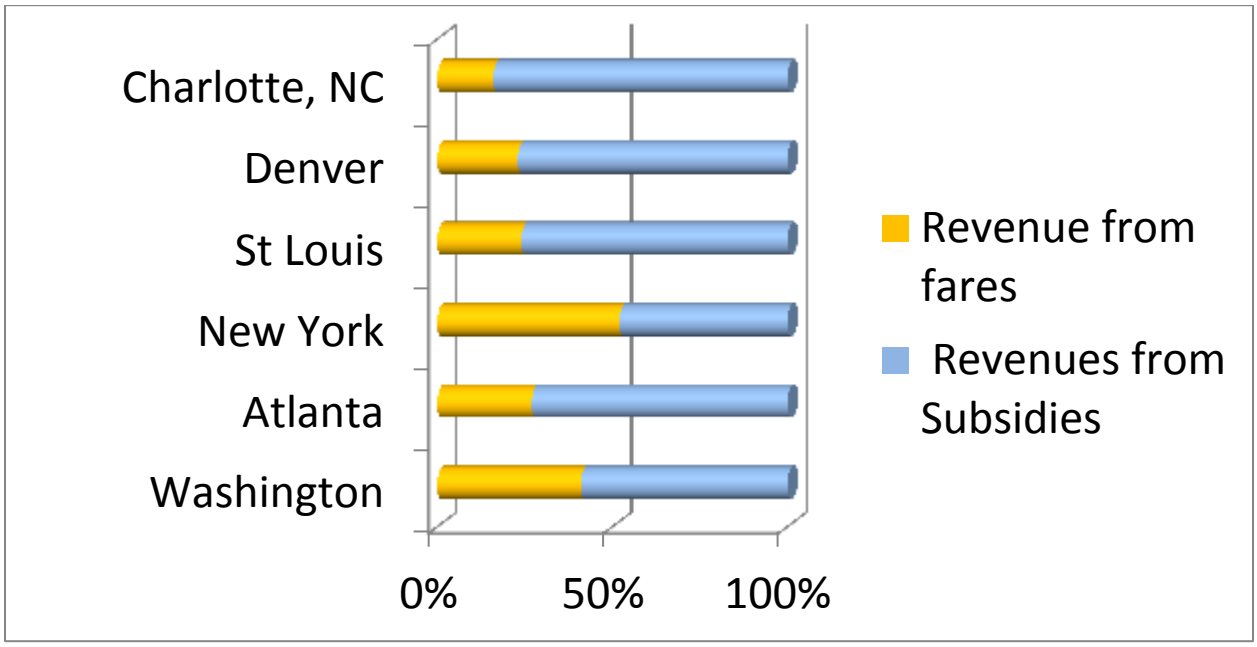
Data Source: US Census Bureau 2005-2007 American Community Survey

Nature of Transit Funding and Economic Issues

Even though UK is geographically a small nation compared to Germany and many single states in the USA, their public transit policies have been considered one of the best in Europe[12]. In the UK public transportation has been enhanced through competition for efficiency and effectiveness. The Transport Acts of 1980 and 1985 provided opportunities for privatization and limited regulations in the transit industry in the UK.[13] This strategic policy prevented transit companies, including public systems, from obtaining direct subsidies from the government and encouraged funding through competitive bidding. Local authorities could supplement commercial routes by subsidizing additional services that they felt were justified by social concerns, but these services had to be secured through competitive bidding.

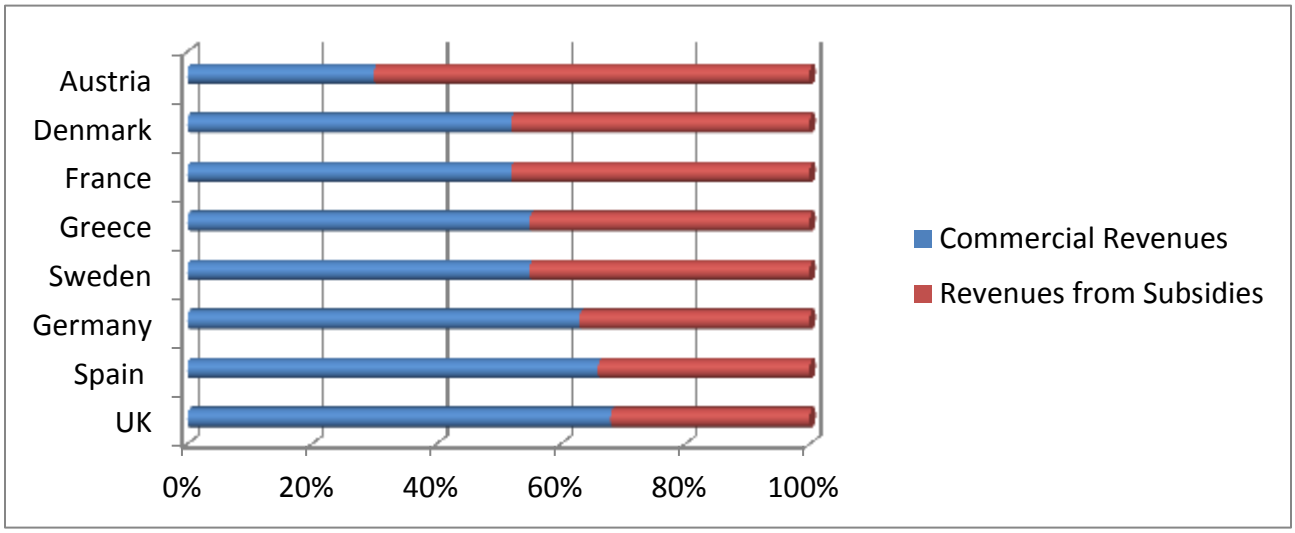
[12] Winston Clifford. "Government failure in urban transportation." Fiscal Studies 21, no. 4 (December 1, 2000): 403-425. http://ecnhts-proxy.jsums.edu:2146/ (accessed June 9, 2009)
[13] ibid

Figure 5: Source of Revenue for Some USA Transit Systems, 2008



Source: American Public transportation Association cited in New York Times, http://www.nytimes.com/imagepages/2009/02/04/us/04transit_map.html

Figure 6: Source of Revenue for Bus Operations for Selected European countries, 2002



Source: Part of data extracted from Geography of Transport Systems: Dr. Jean-Paul Rodrigue, Hofstra University

A few transit systems in Europe rely on government subsidies. Subsidies accounts for only 32% in the UK with commercial revenues accounting for 68%. Similarly, Germany's transit commercial revenues constitute about 63% and receive 37% of revenues form government subsidies. On the other hand, the USA transit companies receive approximately 70% of revenue from government subsidies (see figures 5 & 6). Nonetheless, the economic effects of the Transport Acts have been broadly consistent with the predictions of bus privatization and deregulation in the USA.[14] Research indicates that improvements in labor productivity, lower wages and lower fuel and maintenance costs for minibuses - a major service innovation - reduced real bus operating costs[15]. Another study found that competitive tendering for bus routes in London also lowered operating costs. As costs fell and fares rose, the government reduced bus subsidies from 237 million pounds sterling in 1985 to 117 million pounds in 1998[16]. Competitive systems, allows for re-investment in the system and makes efficient use of funds.

Important Lessons for the USA Public Transportation: Prospects, Problems and Issues

The preceding discussion have shown that transit-dependent Germany and UK appear to implement more efficient transit policies with higher commercial revenues compared to government subsidies, low level automobile dependency (especially for long distance commute), and have policies in place for congestion and GHG emission control. It was observed that the two European countries were able to achieve these due to the implementation of dissuasion policies that discourage high single-occupancy long distance commute and persuasion policies that encourage transit use, especially for long distance work commute.

The USA on the other hand lacks such policies. This may be due to the complexities of the policy making process in USA. In addition, the ever increasing driving culture being an indicator of well-being in American society, the stigma of public transit usage (unsafe, only the poor and needy, etc. especially in the deep southern

[14] Winston and Shirley, 1998.
[15] White (1997) cited in Winston, 2000
[16] Kennedy (1995) cited in Winston, 2000

states), presents a challenge for proposing any dissuasion policies for reducing single-occupancy long distance commute. However, persuasion policies such as incentives for park-and ride, tax credits for bus commute, efficient technology, transit safety and security among others, with extensive education and awareness creation, could attract long distance commuters to public transit usage. Increased usage of the transit systems could spur innovation in the transit industry in the USA.

It was observed that privatization with minimum government regulations have shaped the public transportation systems of many countries pursuing policies towards achieving sustainable economic, environment, and social goals[17]. Experiences of UK and Germany are encouraging because it demonstrates that transit privatization can reduce costs and spur innovative and sustainable services. The real uncertainty is whether such major venture could flourish in the USA and what could spur many policymakers, especially in the southern states to consider encouraging privatization of the transit system.

Privatization could transform the USA public transportation system, especially in the south in the same way that that deregulation has transformed US intercity transport. Starting in the mid-1970s, deregulation of the railroad, trucking and airline industries gave each the incentive and ability to become more efficient, innovative and responsive to customers, generating more than $50 billion in annual net benefits to consumers[18].

It is true that the federal government got involved in urban transit during the 1960s because private transit failed.[19] However, the probability of privatizing transit in the USA will increase if the prospect of major political gain becomes clear. Unfortunately, recent experience in Wall Street has led to a lack of trust in the private sector and therefore deregulation of the public transit may not be welcomed in the USA. On the other hand, the mounting pressure on government at all levels to reduce budget deficit and national debt in the near future should encourage governments to cut excessive spending on transit. There is therefore the need for policy makers to begin educating the highly subsidized transit systems on ways of surviving and achieving sustainability with limited government subsidies.

[17] Winston,2005
[18] Winston,1998
[19] Meyer and Gomez-Ibanez in Winston 2000

Privatization and limited regulation allows for competition, re-investment into the system, generates profit, and efficient use of funds in public transit. However, major questions remains as to whether the European experience would be applicable in the USA, given the complexity policy process and diverse socioeconomic systems of different states. The efforts of the U.S. Department of Transportation (U.S. DOT) to establish a national transportation policy may be able to draw the conflicting transportation interests together to develop a policy that will receive the needed legislative and administrative attention.

Conclusion and Policy Recommendations

The many efforts made by the European countries to achieve efficiency and sustainability in public transit system stems from their commitment towards fostering economic growth while conserving the environment, promoting the health of individuals, communities and the ecosystem.[20] These countries consider transit a product, a driver and a cost in the economic development spectrum.[21] The American society like the UK and Germany, have many problems and transportation is but one of these. Unfortunately, it is so ubiquitous and so influential that even minor changes in the transit policy strategies have ripple effects in almost all aspects of our lives. These consequences have been largely ignored by policy makers and society at large.

UK and Germany have experimented with reducing CO_2 emission from transportation industry by reducing single occupancy automobile dependency, and making transit industry more competitive through revenue diversification, privatization and other economic measures. Privatization of public transit with minimum government regulations may ensure checks and balances in the system, reduce high government investment in the transit industry, and ensure competition, cost effectiveness, efficiency, sustainability, and prevent the exploitation of transit users. Nonetheless, researcher and policy makers need to continuously explore the effects of privatization and provide guidance on how cities can conduct privatization experiments that provide sustainable economic, social and environmental solutions to the transportation industry in USA.

[20] Richardson cited in Christopher A. Kennedy. "A comparison of the sustainability of public and private transportation systems: Study of the Greater Toronto Area Transportation29, no. 4 (Nov. 1, 2002): 459.
[21] Christopher A. Kennedy, 2002

It is essential for USA governments at all levels (federal, state and local) to adopt policy strategies to strengthen the public transit systems by drawing on the strengths of application policies implemented by the UK and Germany. Policy makers need to consider public transportation as important sector of the overall social and economic development framework. Transit policies should focus on: cost effectiveness of subsidies, transit safety technologies, accessibility, land use, city and transit planning, reducing geographic restrictions tied to local funding, and how to make transit operations more profitable and competitive in USA.

Recommendations for Future Research

This is a paper is an initial exploratory studies, identifying how the important experiences of other countries with successful transit policies, could be applied to the USA's public transportation system. Future research should therefore focus on analyzing the applicability of dissuasion and persuasion strategies in USA. Empirical studies on land use, city and transportation planning are needed to identify measures that could bridge the gap between city planning and transit planning. Research is also needed to establish its feasibility and sustainability of implementing privatization of commuter transit systems with minimum regulations.

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