URBAN TRANSPORTATION IN CANADA

Joseph Monteiro, Gerald Robertson and Meghan Joy*

I. Introduction

The nucleus of Canadian activity is now in urban centres. Not surprisingly, it has had a major impact on urban transportation and is receiving a great deal of attention today. The former Minister of Transport writing on urban and public transit in his publication *Transportation Blueprint* indicated "Our urban road and network cannot keep up to the growing demand, and our public transit systems are struggling to provide an alternative to move people."[1]. This finding was voiced earlier in the Report of the Canadian Transportation Act Review Panel when it stated that it "... sees urban areas as a source of major transportation problems and urban transit as a key component of a comprehensive multi-modal transport policy."[2] Urban transport with visions of green mobility is therefore the focus of this paper.

Section II briefly describes the beginning of urbanization in Canada and the growth of urban transportation. Section III describes the urban transportation industry in Canada - its sectors, its services, its operation, its revenue and cost. Section IV notes empirical estimates of demand for urban transportation. Section V describes the initiatives to encourage greener urban transportation. Section VI reviews the case for commercializing urban transportation in Canada. Finally, a few concluding remarks are made.

II. Urbanization in Canada and the Development of Urban Transport

The 21st century will likely be known as the 'Urban Millennium' to urban planners. The age when the majority of the world's population began living in urban areas. Urbanization means the removal of the rural characteristics of a town or area, a process associated with the development of civilization and technology. It is a complex process in which organized communities become larger, more specialized and more interdependent. A result of many considerations - economical, technological, demographical, political and environmental. Demographically, the term urbanization denotes redistribution from rural to urban settlements. Urbanization can be planned or organic (unplanned).[3]

** The views expressed here are those of the authors and are not purported to be those of the Commissioner or the Competition Bureau, Industry Canada.*

Urbanization has been traced back in Canada to the fifteenth century and is considered to have passed through four phases and is in the fifth.[4] The phases are: 1. The founding of Quebec in 1608 - where development was colonial and the primary connection was the overseas imperial crown; 2. The early 1800s - where commercial control was more internal and there was more regional and inter-regional commerce; 3. The industrial era of the 1870s to the 1920s - where concentration of power and development was in key Canadian cities of Montreal and Toronto; 4. The automobile era of the 1940s to the 1970s - where technology of the automobile and truck dominated other developments; and 5. The 'post-urbanization' era - where crises in energy, interest rates, and growth of 'exurbia' began to have an effect on the urban cores.

The first phase was characterized by development of administrative or military places. "Economically, they were entrepots, collection agencies for colonial staples and distribution centres of manufactured goods from the mother country." These centres lacked connection with other centres in the country and reflected imperial needs and designs.

The second phase was characterized by development of several cities and internal commercial control. Economically, there was a move away from exclusive reliance on staple exports to new regional and interregional commerce. There was also the application of new technologies to transportation and production. In 1851, only 13% of the population was urban.

The third phase was characterized as an industrial era with concentration in the major Canadian cities of Montreal and Toronto. These cities now contained a few high rise buildings, predominantly commercial in nature. Economically, this phase was marked by the emergence of a new industrial capitalism and a new working class employed in the factories. In 1871 and 1921, 19% and 49% of the population were urban.

The fourth phase was characterized by five main features: "corporate suburbs developed by the private sector; high-rise apartments; suburban industrial parks; downtown office towers; and regional shopping centres." Economically, there was an increase in corporate concentration and automobile technology had a major impact on urban development. In 1941 and 1971, 54% and 76% of the population were urban.

The fifth phase was characterized with de-concentration of population from the cities to the urban fringes. Of Canada's twelve provinces only four witnessed

greater urban growth. Cities began growing 'out' and 'up' and with it commercial activity spread away from the city centres. This phase witnessed the construction of high-rise buildings for residential uses besides commercial uses. In 2001, 80% of the population was urban.

This transformation of Canada into urban centres was accompanied by the need for better urban transportation. Associated with each of the urban phases distinct forms of transport were predominant.

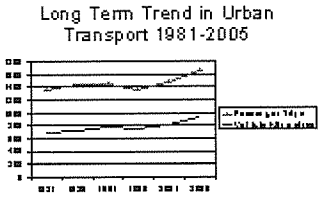
In the first phase, the centres were dependant on water transport powered by wind and sail for overseas transport. It was an era of sailing vessels. The limited amount of internal transport was done on foot, canoe, horseback and wheels.

In the second phase, the era of the sails was displaced by the era of steam. Steamship services offered by the *Molson Lines* along Lake Ontario and service between Montreal and Quebec City were established. Steam powered locomotives also began to make its appearance. However, most intra-urban transportation was by wagons or carriages drawn by horse and occasionally moose on dirt roads or roads occasionally made of wooden planks.

In the third phase, rail transportation became prominent. In June 1886, the *Pacific Express* made its transcontinental trip from Montreal to Port Moody, in British Columbia. The first urban transits were built in Toronto and Montreal in 1861. The Toronto Transit Commission obtained a franchise to operate public transportation (the Toronto Street Railway Company) and Montreal Tramways Company was formed from the merger of three companies (one of which was Montreal City Passenger Railway (1861). In 1910, Montreal's public transit system received recognition for its 5-cent fare per ride. This period also witnessed the gradual introduction of the automobile, accompanied by a shift away from steam powered automobiles.
In the fourth phase, motorized transport dominated. The automobile began to revolutionize city development and almost 70% of Canadian households owned at least one car. The number of passenger automobiles increased from 1.2 million in 1946 to 6.97million in 1971. The foundation of modern public transit was also laid when Canada's first subway system was opened between Union Station and Eglinton Station in Toronto on March 30, 1954 and when construction on Montreal's Metro began in 1962.

In the fifth phase, public transit began to attract more attention. The Toronto subway was extended fourteen times between 1954-2002 and customer trips

peaked at 463m in 1988. On October 14, 1966, Montreal's Metro, with 26 stations, on three lines was inaugurated and Montreal became the 8th City in North America and the 26th in the world to have an underground transportation system. Today, the ten largest transits in Canada account for 80% of all urban transportation. Two indicators of the trends in urban transport are passengers carried and urban transit vehicle kilometres. This is shown in the chart.



It shows that passengers carried increased 6%, 2% and 12% between 1981-1991, 1991-2001 and 2001-2005 and vehicle kilometres increased 12%, 4% and 16% for the same periods. These statistics, however, conceal the fact that urban passenger trips on a per capita basis actually declined. This is because population growth over the entire period increased at a faster rate than passengers. However, this differential has been declining due to the sharp increase in passenger trips in the new millennium. This suggests that municipal and provincial policies are becoming more successful in attempting to win passengers to transit from private cars, partly by extending service to residents of new suburbs.

III. Urban Transportation Industry in Canada

a) Definition

Urban transportation services are defined by Transport Canada as services using buses, coaches, trolleys, street cars, light rail and heavy rail. According to Statistics Canada "This industry comprises companies primarily engaged in operating local and suburban mass passenger transit systems. Such transportation may involve the use of one or more modes of transport including light rail, subways, and streetcars, as well as buses. These companies operate over fixed routes and schedules, and allow passengers to pay on a per-trip basis, including monthly passes."[5] The industry for purposes of classification falls under no. 485110 of the North American Industry Classification System or no. 4571 of the Standard Industry Classification 1980.

b) Urban Transportation Services by Region of Operation

Urban transportation services (including school bus charter) by region of operation are shown in Table 1. Not unexpectedly, the provinces of Ontario

Table 1 - Urban Transportation Services by Region of Operation (Total Operating Rev. (000) 2005

Urban Transportation Industry	Ont	Que	B.C.	Atlantic	Prairies	Canada
	1352.6	620.3	326	40	264.3	2, 620.5

Source: Surface and Marine Transport, Service Bulletin, Statistics Canada, Cat. No. 50-001XIE, June 2007.
*Yukon, N.W.T, & Nunavut are combined with the Prairies.

and Québec account for a significant proportion (51.6% and 23.7%) of the above noted operating revenues. The total revenue by service differs marginally when compared to the total revenue by industry (i.e., $2.6205m vs. $2.548m). Total non-operating revenue (i.e. capital subsidies and other non-operating revenues) of $1,268,843 and operating subsidies ($1,976,122) are not included in total revenue by industry. By region, Ontario appears to be better served by transit/urban systems as a much larger proportion of the population has access to public transit compared to the rest of the country.

c) Urban Transportation Industry and Services

i) Revenues: The sources of revenue of Canadian urban transportation can be examined according to the statistics that are published: by *industries* and by *services*.

Urban transit revenues from *different industries* in 2005 (excluding subsidies or non-operating revenues), amounted to $2,620.5 million. The most important components of the revenue were from: urban transit, other bus industries and school bus, accounting for 93%, 2.3% and 1.6%. The other components: scheduled intercity bus and charter bus accounted for 1% and 0.2%. In terms of employment, the industry accounted for 45,335 employees consisting of drivers, mechanics and other employees. The corresponding employment was: 54%, 7% and 39%. In terms of fleet, the industry accounted for 16,217 vehicles consisting of motor coaches, school buses, urban transit buses and other rolling stock. The corresponding fleet was: 0.1%, 0.3%, 81% and 18.6%.

Urban transit revenues from *different services* in 2005 (excluding subsidies or non-operating revenues) amounted to $2,541.5 million. The most important sources of these revenues were from: urban transit services, commuter services and other operating revenues, accounting for 86%, 9% and 4%. The other components of urban transit services such as disabled, charter and other: accounted for 0.6%, 0.1% and 0.4%. Other non-operating revenue accounted for $0.06 million.

ii) Subsidies: Subsidies form a very important source of urban transportation revenues. In 2005, operating subsidies ($1.98 million) and capital subsidies ($1.21 million) accounted for 54.98% of total revenue (i.e. $5,792.9 million).

iii) Costs: Costs and net income of urban transportation industries for 2005 are shown in table 2. A major component (65%) is human resources.

Table 2- Urban Transportation Industry Expenses and Net Income 2005 (000)

	Human Expense	Total Expenses	Total Revenue	Net Income
Urban Transportation Industry	3074.2	4737.8	5792.9	1055.1

Source: Surface and Marine Transport, Service Bulletin, Cat. 50-002 XIE, June 2007.

Other expenses are operating expenses and depreciation, vehicle energy expenses and vehicle maintenance. They accounted for 16.5%, 7.9% and 5.9%. Net income as a percent of total revenue was 18.2%.

d) Long-term Trends in the Urban Transportation Industry
Financial - Long-term trends in revenue, subsidies and costs are shown in the Table below for the period 1986-2005.

Table 3 - Urban Transportation Industry (Long-term Trends 1986-2005)

	1986	1995	2000	2005
No. of Est.		80	67	73
Operating Revenue	2,279	3,129	3,512	4,524
Total Revenue (m)	2,283/2,923.2*	3,579/3,435.4*	4,265/3,758.3*	5,792.9/
Oper. Subsidies (m)	1,238	1,584	1,512	1,976,1
Cap. Subsidies (m)	371	450	753	1,208.8
Total Costs (m)	2,433	3,224	3,687	4,737.8
Cost Recovery Ratio**	46.3	47.9	54.2	53.8

Source: Passenger and Urban Transit Statistics, SC, Cat. No. 53-215 XIB. S and M Transport, Service Bulletin, Cat. 50-002 XIE, June 2007. * Converted to 1992 dollars. ** Revenue before subsidies divided by total cost.

i) Revenue: Operating revenue and total revenue increased 98% and 154% over the period. Operating revenue as a percent of total revenue was 99% and 78% for the two years (1986 and 2005), respectively. Operating revenue per passenger increased by 81% over the period.
ii) Subsidies: Total subsidies increased from $1,609 m. in 1986 to $3,184.9 m. in 2005 nearly doubling, however the composition of the subsidies have changed, shifting in favour of capital subsidies. In 1986, capital subsidies as a proportion of total subsidies were 23%, whereas in 2005 it was 40%. Total subsidy per passenger in nominal terms was $1.06 in 1986 and $1.92 in 2005.

iii) Costs: The cost structure has changed over the period, reflecting an increase in the shares of labour and energy. Labour's share of total expenses was 55% in 1986 compared to 65% in 2005 and fuel's share was 4.7% and 7.9%, respectively. User's payment of total cost increased from 46% to 54% over the period, largely due to a rapid increase in fares. However, their contribution to operating costs remained about the same (56%). Operating revenue in nominal terms per passenger increased by 125% over the period.
Real - *i) Output:* Output as measured by urban transit vehicle-kilometres and

passengers over the period 1986-2005 has increased by 24.8% (187,433) and 9.2% (139,592).

ii) Productivity: Labour productivity as measured by the number of transit employees to vehicle-kilometres and passengers over the period declined by 1.5% and 13.8%, respectively or 0.075% and 0.69% per annum. The difference between the two measures indicates that vehicle-kilometres increased more rapidly than passengers carried. The reason for the decline in productivity has been the extension of transit service to thinner markets over longer distances and the reduced differential compared to the costs of using an automobile.

In sum, Ontario, Quebec and B.C. account for 87.7% of total operating urban transport revenue in Canada. The most recent revenues (2006) for urban transportation have shown double digit increases. Subsidies account for a sizeable portion of total revenue. Real output has increased over the period 1986-2005 in contrast to productivity, but the data for the most recent year suggests that output is increasing faster and productivity is improving.

IV. The Demand For Urban Transportation

The demand for urban transportation has been estimated by a number of studies. A brief summary of a few of these studies will be indicated.

a) Early Studies: Two studies by R. M. Litt and M. W. Frankena that were done in the 1970s are noteworthy. Both provide empirical estimates of demand functions. The study by Litt on bus and subway covered 39 Canadian cities. It used cross sectional data for 1971 and used ordinary least squares to estimate the relation between bus rides per capita, fares, bus miles per capita, subway miles per capita, real income, automobiles per capita, percent of population born outside Canada, labour force participation rate and population in an area. The signs of the coefficients for fares, income and automobiles per capita are negative as one would expect. The fare, income and substitution elasticities are -.15, -.31 and -.75. The signs of the coefficients for service (bus miles and subway miles) are positive and its elasticities are 1.03 and .75.

The study by Frankena is on bus transit covering 28 Canadian urban areas. It used pooled cross sectional and time series data for 1962-74 and used ordinary least squares and two stage least squares to test the hypothesis that the quantity of bus service demanded per capita in an urban area depends on money and time costs of travel by bus and private automobile, average income, other socioeconomic characteristics of the population and geographical characteristics of the urban area. Two forms of the hypothesis were tested one with dummy variables for different cities and the other without. The signs of

the coefficients for fares, income, and automobile price are negative as one would expect and their elasticities range from -.38 to -.09, -.63 to -.16 and -.15 to .0046.[6] The sign of the coefficient for service (bus miles) is positive and its elasticity is 1.12 and .61. The author states that "the empirical results are consistent with hypotheses concerning determinants of the demand for bus services, except that there is no evidence that the costs of owning an automobile affect this demand."[7]

b) Statistics Canada Study: In 1999, Statistics Canada published a paper *Factors Affecting Urban Transit Ridership*. Its objective was to measure fare elasticity as well as to examine quantitatively the factors that may contribute to the increase or decline of urban transit ridership. The period covered 1992-1997 and multiple regressions were used to estimate the relationships.

In its first model, transit ridership was considered dependent on average fare, passenger dummy variable, population dummy variable, city passenger dummy variables and the ridership rate dummy variable. All the signs of the coefficients were as hypothesized and the R^2 was .88. The average fare revenue coefficient was negative indicating that as fare increases ridership decreases. Similarly, the coefficient on the dummy variable for cities with less than 100,000 passengers was negative indicating that people in smaller communities rely on modes of transport other than urban transit. In its final model, service variables (revenue vehicle hours and revenue vehicle kilometres) and others were used. In this model, it was finally decided that two variables would be considered as independent: average fare and revenue vehicle hours. The coefficient on the first was negative and on the second was positive. It indicates that ridership decreases as fares increase and ridership increases as service improves. The R^2 (.97) and F ratio values were strong. "The empirical analysis shows that, in general, fare increases coupled with decreases in service levels can combine to impact negatively on ridership. ...there are many factors that can impact on the number of passengers using urban transit. These include the level of service provided, the degree to which communities use public transit, demographic and economic impacts, the extent to which tourists use public transit and a variety of other factors."[8]

c) Other Studies: In 1990, T. Oum, W. Waters II and J.S. Yong conducted a survey of price elasticities of demand for transport. Transit (22) and Bus (20) studies were surveyed. The results are shown in the Table 4.[9] The majority of these elasticities are from developed countries.

In 1999, M. Hanly and J. Dargay reviewed public transport elasticities (urban and interurban) for mainly European countries (Finland (3), Netherlands (6), Norway (2) and UK(1)). The authors state "...it appears that a 'likely' value

Table 4-Elasticities (negative signs) of Demand for Passenger Transport - Transit/Bus

	Market Demand	Most Likely Range	No. of Studies
Peak	0.0 - 0.29 / 0.0	0.10 - 0.30 / 0.10 - 0.70	4 / 6
Off Peak	0.32 - 1.00 / 1.08 - 1.54	0.30 - 0.50 / 0.10 - 1.10	3 / 3
All Day	0.01 - 0.96 / 0.10 - 1.62	0.10 - 0.70 / 0.10 - 1.30	10 / 11
All Day (Rapid Transit)	0.05 - 0.86 / -	0.20 - 0.90 / -	5 / 0

for the short-run (one year) average fare elasticity is around -0.3. There is far more uncertainty concerning the long-run elasticity, however, with a range from 0-.5 to -1.0."[10] Some of their observations were: peak travel is less price-sensitive than off-peak travel, higher income groups are more sensitive to changes in bus fares, individual fare types are more price sensitive than total trip, service quality has a positive impact on ridership and bus fares have a negative impact on car travel.

In sum, the elasticity of demand for public transit is generally inelastic lying around -.3 and the elasticity of demand with respect to service is positive lying between 1 and .5, with an upward bias. This suggests that the transit companies could reduce their deficit by raising fares or increase ridership by raising fares and using the additional revenue to increase service. The negative income elasticity suggests that transit is not a superior good.[11]

V. Urban Transportation and Green Mobility

Urbanization has resulted in a number of negative effects[12] and transportation is cited as one of the major causes of smog, congestion and respiratory problems. To correct for its negative effect, use of urban transport has been advocated as one measure to promote green mobility. Visions how this can be achieved and measures to achieve this will be briefly mentioned.

a) Visions of Urban Transportation

i) Transportation Association of Canada (TAC): In 1993, TAC published its vision for urban transportation. It was concerned that current trends were leading to urban transportation systems that do not meet present needs and were not sustainable. It therefore proposed the following direction to future change: 1) plan for increased densities and more mixed land use; 2) promote walking as the preferred mode for person trips; 3) increase opportunities for cycling as an optional mode of travel; 4) provide higher transit service to increase its attractiveness relative to the private auto; 5) create an environment in which automobile can play a more balanced role; 6) plan parking supply and price to be in balance with walking, cycling, transit and auto priorities; 7) improve the efficiency of the urban goods distribution system; 8) promote

inter-modal and inter-line connections; 9) promote new technologies which improve urban mobility and help protect the environment; 10) optimize the use of existing transportation systems to move people and goods; 11) design and operate transportation systems which can be used by the physically challenged; 12) ensure that urban transportation decisions protect and enhance the environment; and 13) create better ways to pay for future urban transportation systems.[13]

With regard to transit (i.e., 4 above), TAC advocated the following methods: develop a hierarchy of transit services; give transit funding and operating priority; improve comfort, security, frequency, on time reliability, geographic coverage, access for the physically challenged, and public information services; encourage park-and-ride, kiss-and-ride and bike-and-ride by providing appropriate facilities; integrate transit stations, schedules and fares in areas with more than one transit system; and introduce preferential income tax treatment for transit use. These methods in conjunction to others (described in 1 above) would encourage a move toward greener urban mobility.

ii) *Ontario Round Table on Environment and Economy*: In 1995, a strategy for sustainable transportation in Ontario was recommended by the Ontario Round Table. The strategy consisted of twelve components to design, implement or establish: a education and awareness program; a more compact mixed-use development of communities to shorten travel distance; a decision-making body or bodies to evaluate, plan and deliver integrated transport to effect a shift from automobiles to transit; a plan of transit priorities; a plan for maintaining sufficient funding to ensure adequate transit capacity which includes use of funds from user pay sources; a pricing and supply policy to control parking; a fuller cost pricing to encourage better capacity utilization and more fuel efficient technologies; a memorandum of understanding with automobile manufacturers to increase availability of fuel efficient vehicles; a mandatory vehicle inspection and maintenance program; a incentive scheme for use of cleaner alternative fuels and alternative fuelled vehicles; an Ontario capability to participate in the US government's and the big three automobile manufacturers' Partnership for a New Generation of Vehicles; and a intermodal freight transfer facility or facilities together with intermodal technologies.[14]

iii) *Urban Transportation Task Force* (UTTF)*:* In January 2005, the UTTF released its report on *Urban Transportation in Canada: Needs and Opportunities.* It made five recommendations: 1. the federal government should provide sustainable, predictable, long-term funding to support urban transportation investment; 2. the specific needs of transportation, including transit, are significant and merit a proportional share of new investment; 3. the

provincial governments must take action to improve transportation and travel time for freight and passengers in urban areas through increased investment, transportation demand management, improved planning processes and the use of advanced technology; 4. the various levels of government must find ways to work together more effectively to improve transportation and mobility in urban areas and opportunities for collaboration beyond funding partnerships should be explored; and 5. the opportunities to promote awareness of the importance of sustainable urban transportation and transportation choices to the economy, the environment and social lives of Canadians should be pursued by all governments.[15]

iv) *Transport Canada:* Since 1997, Transport Canada has been promoting sustainable transportation through various strategies. The fourth strategy (*Sustainable Development Strategy 2007-2009*) focuses on three themes at the heart of sustainable transportation. One of these is urban transportation. Its plan to promote sustainable urban transportation are: support the uptake of Commuter Options; explore the need for a national active transportation strategy; facilitate the expanded application of transportation demand management; compete a study of the Quebec City-Windsor Corridor; explore the use of market incentives to increase the production and purchase of environment friendly motor vehicles; promote advanced technology vehicles; track fuel consumption of motor vehicles sold in Canada; develop regulation on fuel consumption of road motor vehicles under the Motor Vehicle Fuel Consumption Standards Act; support the research, development and deployment of Intelligent Transportation Systems; support sustainable transportation objectives (e.g. greenhouse gas reduction, economic and social benefits to communities) through selection due diligence criteria and project performance indicators under the department's current and upcoming infrastructure programs; lead a centralized effort to organize and improve the collection, dissemination and analysis of sustainable transportation information in all modes; and amend the *Canada Transportation Act* provisions on data collection.[16]

b) Canadian Government Programs to Achieve Sustainable Urban Transportation

i) Federal: The federal government has implemented two urban programs administered by Transport Canada to encourage the implementation of sustainable transportation options in Canadian cities and communities. The two programs are: The Urban Transportation Showcase Program (UTSP); and Moving On Sustainable Transportation Program (MOST). The policy objectives behind these programs are: reduction of air emission and smog, congestion relief, and improved health.

The UTSP projects demonstrate, evaluate and promote cost-effective strategies for reducing GHG emissions. The MOST program funds innovative, community-based sustainable transportation projects, ranging from supporting non-motorized delivery services to studying the effects on infrastructure on cyclists.

In addition to the above, the Government of Canada has initiated new initiatives under the ecoTRANSPORT Strategy. It includes the ecoMOBILITY program which seeks to work with municipalities to help urban-passengers to make the right transportation choices for a clean, healthy environment; the ecoTECHNOLOGY for vehicles and econENERGY for personal vehicles which helps Canadians steer in the direction of an environmentally friendly tomorrow; and the ecoFREIGHT program which feature steps to meet the challenge of sustaining a clean, healthy freight transportation system.

ii) Provincial: In Ontario, the Ministry of Transportation (MTO) delivers its programs for a safe, efficient and sustainable multi-modal transportation system through: Policy and Planning; Provincial Highways Management; and Road User Safety. Some of the important programs are: *ReNew Ontario* (a $30 billion -5 year Infrastructure Plan); *Move Ontario* (a $1.2 billion investment in public transit systems and municipal roads and bridges); *Canada Ontario Municipal Rural Infrastructure Fund* ($900 million); and *Provincial Gas Tax Program*. The MTO will focus on four areas of priority: increasing transit ridership (by expanding services, reducing congestion and increasing ridership); enhancing trade corridor and border infrastructure; promoting road safety; and improving transportation infrastructure.

In sum, the urban green mobility visions through their strategies seeks to provide numerous benefits such as: lower gas emissions, lower smog levels, less traffic congestion, shorter travel times, more cost-effective transportation systems, lower net energy costs, more investment/employment in new technologies and services, more vibrant city streets, more transportation choice and better access for people.[17]

VI. Should Urban Transportation be Liberalized?

Liberalization of urban transportation is being considered in many countries. Proposals for such liberalization range from outright privatization to increasing competition. The primary method of the latter is contracting out public services to private firms. Variations of this exist (in-house government vs private and intergovernmental contracting).[18]

a) Arguments in Favour: The major arguments for liberalization are: 1. Government organizations are inefficient and costly; 2. Governments do not

encourage the personal initiative of individuals and organizations; 3. Private -sector operations outperform the public sector being more sensitive to economic incentives; 4. Government provides service that the market will not provide.[19]
Several reasons have been given for cost savings "1) better management techniques; 2) better and more productive equipment; 3) greater incentives to innovate; 4) incentive pay structures; 5) more efficient deployment of workers; 6) greater use of part-time and temporary employees; 7) utilization of comparative cost-information; and 8) more work scheduled for off-peak hours." [20]

b) Arguments in Opposition: The major arguments against liberalization are: 1. Less authority over services and fares so that social and other wider community needs are more difficult to achieve; 2. Deterioration in the quality of service (i.e., vehicles and provision of service to lower density areas); 3. Increase in fares; and 4. Less investment in infrastructure and concerns over lower subsidies.

c) Canadian Transportation Act Review (CTAR) Panel View
The CTAR Panel drew attention to the need to provide transit services efficiently. It was of the opinion that "In Canadian conditions, it seems possible that deregulation (permitting entrants to compete with what are currently monopoly transit agencies) and commercialization could encourage innovative and less costly services, such as small buses or shared taxis from less-dense suburbs to interconnections with transit trunk routes. But those possibilities are probably quite limited. More extensive commercialization is constrained by labour agreements, cultural factors (peoples' attachments to their cars), and the fact that urban infrastructure tends to favour private automobile use over transit." Not surprisingly it did not recommend any major changes in policy in this area other than the recommendation that "experimentation with innovative forms of service (smaller vehicles, shared taxis) be encouraged."[21]

d) Experience of Other Countries
United Kingdom: The *Transport Act of 1985* in UK paved the way for deregulation of urban and rural public transport. Studies point to three strategic responses to the competition created by deregulation. The first strategy was defending activities where operators concentrated on core activities and limited their investment in new vehicles. The second strategy was marketing where operators concentrated on improving service quality and innovative service together with corporate image. The third strategy was commercialization where operators concentrated on acquisition and

diversification. In brief, the British case presents a radical movement of innovative capabilities (negative and positive) in infrastructure, vehicle and service.[22]

Netherlands: The *Passenger Transport Act* introduced reforms in 2000 whose basic aim was as to enable more attractive public transport service and to improve cost recovery ratios. The act also decentralized power to provincial and regional authorities and introduced competitive tendering of public transport services for concessions. In brief, the impact was less radical on innovation than in the UK and an initial study indicates positive increases in the service level, patronage and cost efficiency.[23]

USA: In the USA, reforms have led to competition for the market and management contracting has proved to be successful. One study that reported on seven studies of bus services indicated that contractors supplied services at lower costs and contractors had lower costs. Cost savings were in general due to both less overhead/greater productivity and lower wages. The use of public-private partnerships (PPP) has also been attracting a great deal of attention. A recent report by the US Department of Transport to Congress concludes with the statement "Urban mobility stands to benefit from the advantages that PPPs can bring to the transit community when properly managed and executed." [24]

Overall, liberalization of urban transportation has so far not received much attention in Canada. There are several arguments in favour of increasing competition either **in** the market or **for** the market. In addition, the experience in other countries is varied but introducing some variant of competition has indicated that it is beneficial.

VII. Conclusion

In brief, visions of green urban mobility have called for various urban transportation strategies to lower gas emissions, lower smog levels, reduce traffic congestion, etc. These visions are more likely to be achieved through the promotion of competition of urban transportation. Promotion of competition is likely to lead to increased use of transit services, reduced cost, etc. How this promotion of competition can be achieved in Canada will likely vary from one urban area to another. While the preferred choice of achieving this is an open market in the UK, contracting and PPPs are the preferred choice in the US. The role of PPPs merit closer attention in Canada where there is lack of capital and need for improved productivity and cost savings in government owned and managed enterprises.

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Footnotes

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2. See *Vision and Balance*, Canada Transportation Act Review, June 2001, p. 215.
3. See Wikipedia, the free encyclopaedia, www.en.wikipedia.org
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6. The first estimate refers to the equation without different cities and the second to the equation with different cities. The R^2 are .861 and .966 All these estimates were based on TSLS as the OLS estimates were considered biased due to simultaneity. Also note that the sign of last estimate for the equation with different cities is not as expected.
7. See Reference 4 in Bibliography.
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9. Oum, T., Waters II, W., and Yong J. S., A survey of price elasticities of demand for transport, The World Bank, January 1990, p. 17.
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11. Whether a negative elasticity of demand is an inferior good depends on whether the estimate is a total or partial elasticity. If it is a total elasticity it would be a inferior good, if a partial elasticity one could not indicate whether the total elasticity is an inferior good.
12. The negative effects are: local, regional and global. First, at the local level productivity falls as most productive agricultural land is transformed into less productive uses. Greenhouse gases including carbon dioxide from industrial and transport vehicles have increased smog affecting the quality of human life at these urban and exurbia areas. At the regional level, food production has been reduced due to longer growing seasons and reduced photosynthesis and extreme weather. At the global level, global warming, urban heat islands, rising sea levels, and retreat of glaciers and polar ice caps have been noticed. Nancy Grimm and others have indicated that "worldwide, cities alter the behavioural physiologies, disease patterns, population densities, morphologies and genetic dwelling organisms..." Cities and people in them will ultimately determine the global biodiversity and functioning of the ecosystem.
13. *Transportation Association of Canada, 1993.*
14. *Report of Transportation and Climate Change Collaborative*, A Strategy for sustainable transportation in Ontario, November 1995.
15. *Urban Transportation in Canada: Needs and Opportunities, 2005.*
16. *Sustainable Development Strategy 2007-2009*, Transport Canada
17. *Report of Transportation and Climate Change Collaborative*, November 1995.
18. Fox Halcrow classifies the indirect forms of competition into eight types: management contracting, gross cost service contracting, net cost service contracting, franchising, concessions, quantity licensing, quality licensing and open market.
19. S. Ongkittikul, Regulatory Reform in European Public Transport: What Can We Learn, *TDRI Quarterly Review*, Vol. 22, No. 2, June 2007, pp. 10-15.
20. John Hilke, Cost Savings from Privatization, Federal Trade Commission, March 1993.
21. CTAR
22. See footnote 19.
23. Id.
24. Report to Congress on the Costs, Benefits, and Efficiencies of PPP for Fixed Guideway Capital Projects, December 2007, US, DOT, p. 46.