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Public transportation objectives and rider demographics: are transit's priorities poor public policy?

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Abstract Strong public and political support for mass transit in the U.S. is based on lofty goals, including congestion reduction, economic development, aesthetics, sustainability, and much more. Yet, as is the case in many areas of public policy, the pursuit of multiple and broad objectives, however worthy, can diffuse efforts and fail to achieve desired results. Moreover, these goals suggest a lack of focus on the needs of transit riders themselves, particularly the poor and transit dependent. We examine this by combining data from the National Household Travel Survey, the National Transit Database, the American Public Transportation Association, and a survey we conducted of 50 U.S. transit operators. First, we find that while rail transit riders in the aggregate are approximately as wealthy as private vehicle travelers, bus patrons have far lower incomes, and this disparity is growing over time. Second, few transit agencies publicly identify serving the poor or minorities as a goal, instead focusing on objectives that appeal to more affluent riders and voters as a whole. Finally, in recent decades transit spending priorities have been slanted away from bus service and towards commuter-oriented rail services favored by the wealthier general voting public, although most members of this group rarely if ever ride transit. We contend that efforts to secure popular support for transit subsidies stifle agencies' ability to acknowledge transit's critical social service function and serve the needs of its core demographic. While such strategies make sense politically, underserving the poor may be poor public policy.

Keywords Goal ambiguity · Transit goals · Transit subsidies · Transit patronage · Transit rider demographics

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Overview

Seventy-five years ago, U.S. transit systems were almost exclusively operated by private, for-profit firms. But during the middle third of the last century, financial problems pushed most of these systems into public ownership (Jones 1985). This meant a dramatic about-face for both transit's management and its customers: while in the 19th century transit was a private enterprise patronized disproportionately by the better off, in the 21st it is a public enterprise patronized disproportionately by the poor (Pucher and Renne 2003; Santos et al. 2011).

When it was a private concern, transit had relatively narrow goals: foremost among these were maximizing fares and riders, and minimizing costs (Jones 1985). However, the shift to public ownership broadened transit's mandate and expanded its agenda. Today transit is called upon to address such often-intractable problems as traffic congestion, auto dependence, air and water quality, energy insecurity, climate change, and suburban sprawl, while promoting community economic development, access to jobs, the revitalization of distressed neighborhoods, urban aesthetics, livability, and mobility for those unable or unwilling to drive. For example, the American Public Transportation Association (2012a) asserts that transit creates jobs, raises tax revenues through the multiplier effect, saves individuals money on travel, gets cars off the road, reduces our reliance on foreign oil, increases business sales, reduces greenhouse gas emissions, promotes green building, saves large amounts of travel time, aids the disabled, and improves public health by promoting walking.

All of these goals are desirable, and given their expansive sweep there is something for everyone in transit's expanding mandate. Thus this strategy of goal proliferation has proven successful in building political support. In recent decades citizens and their elected representatives in the U.S. have repeatedly voted to substantially increase public investment in transit. Controlling for inflation, the total U.S. subsidy to transit in 2010 (i.e., taxpayer funding exclusive of directly generated revenue like fares and advertising) was nearly twice what it was in 1988 (American Public Transportation Association 2012b).

However, this something-for-everyone political strategy raises questions. Foremost is whether transit's sweeping mandate can actually be operationalized, and whether such a multifaceted set of objectives inevitably leads to diffuse efforts that achieve less than promised. Another issue is whether progress toward many of transit's numerous goals can be measured and evaluated. Finally, it is open to question whether a strategy based on a multiplicity of objectives detracts from what would otherwise be transit's core mission if it were a private sector concern: serving customers. This is a crucial issue since transit's customers in the U.S. tend to be drawn from the most vulnerable sectors of society, in particular the poor and racial/ethnic minorities. In short, transit's goals, individually worthy though each may be, might in concert result in public policy that is neither effective nor equitable.

Research questions

This paper addresses several interrelated questions about American public transit. First, who are today's consumers of transit service, and how do their demographics vary by type of service consumed? Second, what are the goals that transit providers explicitly state they pursue, why have these goals been chosen, how does pursuit of these goals affect the kind of service provided, and how do these goals prioritize the needs of different groups (e.g.,

wealthy vs. poor and riders vs. non-riders)? Finally, how do transit's actual spending priorities align with both stated goals and user needs?

Previous research

Our research is situated in three avenues of inquiry: (1) goal-setting in the public sector generally and the public transit industry specifically, its relationship to political support, and its effects on performance; (2) trends in transit rider demographics; and (3) transit service provision as it relates to those demographics. We review prior literature on each.

Transit governance

Transit in the United States is overwhelmingly publically owned and operated. It is difficult to generalize about transit governance arrangements, but there are some broad patterns (Vuchic 2005). Typically, transit agencies are either municipal departments, or semi- or fully-autonomous agencies with mandates covering cities, counties, regions, or states. When part of a municipal government, operations are overseen by the mayor and city council; when independent, ultimate decision-making authority usually resides with a board of directors. In either case, the council or board appoints a general manager, who, in conjunction with his/her staff, typically has broad latitude over day-to-day administration and operations. But the board sets policy and makes strategic decisions, including on fares; major investments; finance, budgeting and the allocation of resources; and service locations and priorities. Though in some cases they are elected, transit board members are usually appointed by the cities, counties, or states that the agency serves. For example, the Los Angeles Metro board is chaired by the mayor of the small city of Lakewood, and includes the mayor, two council members and one additional appointed member from the city of Los Angeles; five Los Angeles County supervisors; representatives from the cities of Santa Monica, Duarte, and Glendale; and one non-voting member appointed by the state of California.

Two important implications flow from this sort of governance structure. First, directors are either elected officials themselves or appointees beholden to elected officials. Thus their primary constituency is their voting public, and not transit riders *per se*. Second, directors are typically drawn from throughout a transit agency's service area, not based on the locations of transit riders, so areas with high and low ridership tend to be represented equally. In Los Angeles County, four small suburbs have the same collective voting weight as Los Angeles, which has roughly ten times the population and more than ten times the riders.

Goal ambiguity

Given that transit agencies are public entities, their decision-making and goal-setting processes are subject to many of the same forces that are common to public sector decision making. This poses certain problems. First, the assertion that public organizations tend to have more numerous, broad, and ambiguous goals than private sector organizations do has a long history. As early as the mid-1970s, Rainey et al. (1976) were able to cite a dozen studies finding that the goals of public organizations are often highly multitudinous, inconsistent, vague, and sometimes internally contradictory. Wilson (1989) theorizes that while private sector organizations may not in all cases have simple-to-define roles,

competition and the need to secure voluntary payments from the public lead to a process of trial and error in their goal setting. This causes a process of natural selection among firms, which, over time, sharpens the objectives that they pursue. Public organizations, largely being monopolies with captive stakeholders, lack these competitive pressures, and thus are less likely to have their mandates honed in the crucible of the marketplace. Moreover, public agencies may lack feedback from the market. As Pandey and Rainey (2006) put it:

> In a virtual tradition in economic analysis of government bureaucracy, political economists have emphasized the absence of economic markets for the outputs of most government agencies. They contend that this deprives the agencies of the information and incentives provided by markets in the form of such indicators as profits, prices, and sales, and makes it harder for the public agencies to clarify their goals. (p. 87)

Dewatripont et al. (1999) argue that because government must internalize many non-monetized externalities, public agency goals are harder to define, measure, and reward.

Another suggested factor behind public sector goal ambiguity is that agencies must secure political support. Lowi (1969) finds that broad goals emanate from the need for compromise among interest groups; this finding is echoed by a number of other scholars (e.g., Lynn 1981; Pitt and Smith 1981; Warwick 1975). The goal-ambiguity literature suggests that weak political support can be associated with a multiplicity of objectives (Stazyk and Goerdel 2011); this can take place both because ambiguous goals cause poor performance, leading to public antipathy, and because causation can flow in the opposite direction as low popularity leads to broad goals as agencies attempt to become all things to all people. Thus a single organization can emphasize different goals from among a diverse menu depending on the interests of the support group in question (Boyne 2003). In sum, Wilson (1989) finds that "the need to acquire and maintain external support for an agency is so great as to divert all but the ablest and most energetic executives from careful task definition" (p. 49). Other sources of goal ambiguity include the need for public agencies to comply with regulations in areas such as privacy, environmental impacts, or procurement rules (Pandey and Rainey 2006; Pitt and Smith 1981; Warwick 1975; Wilson 1989).

A recurring theme in the literature is that public agencies' ambiguous goals can impair performance (Baldwin 1987; Pandey and Rainey 2006; Rainey 1983; Wilson 1989). For example, Drucker (1980) finds it problematic that public agencies' goals, though well-intentioned, are excessively ambitious:

> The first thing to do to make sure that a program will not have results is to have a lofty objective—"health care," for instance, or "to aid the disadvantaged." Such sentiments belong in the preamble. They explain why a specific program or agency is being initiated rather than what the program or agency is meant to accomplish. To use such statements as "objectives" thus makes sure that no effective work will be done. (p. 103)

Another problem is the dispersion of efforts when multiple goals are simultaneously pursued:

> The second strategy guaranteed to produce non-performance is to try to do several things at once. It is to refuse to establish priorities and to stick to them. Splintering of efforts guarantees non-results. Yet without concentration on a priority, efforts will be splintered, and the more massive the program, the more the splintering effects will

> produce non-performance. By contrast, even poorly conceived programs might have results if priorities are set and efforts concentrated (p. 103)

Chun and Rainey (2005) find that public sector goal clarity is related to enhanced managerial effectiveness, work quality, productivity, and customer service. Overly ambiguous goals may weaken commitment on the part of the organization; make accountability difficult to measure, evaluate, and enforce; lead to excessive bureaucracy (Barton 1980; Dahl and Lindbloom 1953; Lynn 1981; Meyer 1979; Warwick 1975); and complicate decision making and planning (Hickson et al. 1986; March and Olsen 1976).

Focusing specifically on transit, Fielding (1982) notes that a surfeit of goals at the local level (see also Lago and Mayworm 1982) is compounded by a lack of federal and state guidance; thus transit has "spread itself too thin," eroding its operational effectiveness and its ability to achieve social and political objectives. From their survey of local transit operators and state agencies, Cervero and Brunk (1983) find:

> tensions existing between service and social objectives on the one hand, and the desire to operate transit in a cost-efficient manner on the other. The lack of a unified set of well-articulated, priority-ranked goals at each level of government has hampered efforts to develop a rational nationwide policy of support for public transit (p. 27)

Cervero (1990) finds goal ambiguity manifests itself consequentially in fare policy. Transit agencies may set fares to maximize revenue, reflect the cost of service provision, mirror the level of benefits conveyed to the rider, eliminate the most auto trips possible, and/or maximize social equity by benefitting those with limited access to autos. These goals, while all individually justifiable, can conflict: for example, a focus on maximizing revenue would dictate higher fares than if the focus were on providing lifeline service to the poor. Because of this, plus reluctance to admit to failing to achieve goals, agencies are often not explicit in formulating and articulating fare policy objectives (Cervero 1990; 1985 as cited by Cervero 1990).

Passenger demographics and transit subsidies

Despite many years and many billions of dollars invested in attracting discretionary riders, low-income people and minorities continue to constitute the majority of transit's patrons in the U.S. In their analysis of the 2001 National Household Travel Survey (NHTS) data, Pucher and Renne (2003) find that 38 % of all transit riders came from households with incomes below $20,000 (about $26,335 in 2013 dollars), compared to just 12 % for automobile travelers. They also find significant differences in income and race/ethnicity by mode, with poor and minority riders traveling on buses in much greater proportions than whites.[1] We update these data below with results from the 2009 NHTS survey.

Scholars have taken note of these demographic realities and found that transit's objectives and practices are not fully in concordance with the characteristics of its customer base (Garrett and Taylor 1999; Giuliano 2005; Pucher 1982). They note that since transit is most successful at serving two distinct market segments—those with constrained

[1] The Census Bureau categorizes Asians, blacks, and whites as either Hispanic or non-Hispanic. So a Census-consistent term for a white person of European ancestry is "Non-Hispanic white." To avoid such cumbersome terminology, we refer to both Hispanic and non-Hispanic Asians as "Asian," Hispanic and non-Hispanic blacks as "African-American" or "black," non-Hispanic whites as "white," and Hispanic whites as "Hispanic" or "Latino."

auto access and those traveling to areas where parking is difficult and expensive—transit's fundamental goals are thus torn between providing lifeline service for the poor and commute service to wealthier, often downtown, workers. The former group is largely served by local buses, and the latter more often by express bus and rail transit. These observers conclude that the latter market has received disproportionate attention of late, with transit's recent spending priorities favoring rail.

Numerous reasons have been put forward for transit's recent focus on costly rail projects. Garrett and Taylor (1999) attribute the bias to (1) pressure to reduce traffic congestion; (2) air quality mandates; (3) competition for external (federal) funding, which favors capital-intensive projects such as rail; (4) a political tide against redistributive public policies; and (5) political weakness on the part of the low-income, bus-riding constituency. Richmond (1998, 2001) attributes it to (1) a desire to attract choice riders thanks to rail's perceived superior comfort, speed, and image; (2) hoped-for positive impacts on congestion, energy use, and air quality; (3) perceived cost savings since rail vehicles are generally larger and can potentially amortize operators' wages over more customers; and (4) a belief that rail is more effective in spurring center city revitalization because of its superior image and permanence. Hensher and Waters (1994) and Hensher (1999) echo many of Taylor's, Garrett's and Richmond's findings, adding that (1) rail investments are generally based on overoptimistic forecasts of ridership and costs; (2) they are perceived to enhance a city's image; (3) they appeal to policymakers who wish to be associated with historic monuments; (4) they benefit strategically situated property owners; and (5) they are wrongly assumed to be effective because they benefit from complimentary policies (such as land use regulations and dedicated right-of-way) that are generally denied to buses.

Research has shown that the focus on expensive rail projects is consequential for equity. In an important early study, Pucher (1981) finds that although transit subsidies flow disproportionately to low-income groups, these subsidies are not effective in improving service for the poor and therefore overall the program is regressive. Fearnley (2006) finds that bus riders in the UK are far more likely to be poor, while the wealthy are more likely to ride rail. As a result, he concludes that bus subsidies are strongly progressive while rail subsidies are highly regressive. He also finds that, over time, bus riders have become more likely to be poor and rail riders wealthy, suggesting that bus subsidy is growing increasingly progressive and rail subsidy more regressive. Giuliano (2005) and Pucher (1982) argue that fare policies are regressive, with the poor cross-subsidizing wealthier riders. This is because flat fares that do not vary by distance or time of day are the norm—according to APTA (2012c) just 23 % of operators nationwide employ some form of distance-based fare pricing and only 6 % time-of-day pricing—which does not reflect the fact that transit dependents (disproportionately bus travelers) are more likely than choice riders to take less-expensive-to-serve shorter-distance and off-peak trips. Hence, on average, lower-income riders pay more per mile of travel than wealthier (more often rail) riders (Cervero 1990; Giuliano 2005; Pucher 1982; Taylor et al. 2000).

The purported focus on choice riders may have important social implications. Grengs (2005) maintains it will contribute to spatial fragmentation that will exacerbate social divisions; forestall regional cooperation by promoting geographic selfishness; lead to misunderstandings that will hinder the solution of urban problems; exacerbate fear (particularly interracial fear); and be biased in favor of suburban jurisdictions, thus undermining democracy. Finally, these observers note that the focus on suburb-to-CBD rail service results in low cost-effectiveness, particularly when rail projects serve low-density, suburban areas.

In sum, the literature has examined transit's numerous and sometimes conflicting goals, its disproportionate use by the poor and non-white populations, and the operational and equity implications of the focus on costly rail projects. However, these streams of research have recently run dry. Further, no one to our knowledge has looked at system goals, rider demographics, and service investments in concert. This article aims to fill these gaps.

Data, methods

We have conducted three data collection and analysis efforts. First, we amassed data on traveler demographics (in particular, in terms of income and race/ethnicity), including a breakdown of these by mode. To explore how patterns have evolved over time, we collected data from the 1977, 1983, and 1990 National Personal Transportation Surveys (NPTS) and the 1995, 2001, and 2009 National Household Travel Surveys (NHTS). These are travel diary-based studies conducted by the Bureau of Transportation Statistics and the Federal Highway Administration. We use individual trips (excluding overnight trips) as our unit of analysis.

Second, our novel empirical contribution is a survey of a random sample of 50 fixed-route transit operators in the U.S., drawn from the universe of approximately 428 agencies reporting to the National Transit Database in 2005. For each operator, we checked websites and followed up with email and telephone calls to examine all formal or explicit statements of missions, goals, or objectives in agency plans, reports, or other documents. Forty-two of the 50 agencies did have such statements. After reviewing these goals and objectives, we then classified them into one or more of 20 categories designed to be inclusive of all statements of goals, whether implicit or explicit. Included in this classification is the goal of serving the transit-dependent.

Third, we compiled data from the American Public Transportation Association and the Department of Transportation's National Transit Database on transit patronage and expenditure trends, focusing in particular on mode and market segmentation in the years that the NPTS and NHTS were conducted.

Findings

Demographic trends in transit use

Our analysis of recent data confirms Pucher and Renne's (2003) findings on the modest incomes of transit riders in the aggregate. Disaggregating by mode, however, paints a highly varied picture. Simply put, the bus is the mode of the poor. According to 2009 NHTS data, the median household income of bus riders was a strikingly low $22,500, $40,000 less than that of private vehicle travelers. Moreover, bus riders are rapidly growing poorer over time, both in absolute and relative terms. The median inflation-adjusted incomes of bus patrons declined 53 % between 1977 and 2009, from $47,791 to $22,500 (2009 dollars). While bus riders' incomes were nearly 80 % of auto travelers' in 1977, they were under 40 % in 2009.

In contrast, as a group rail riders are as affluent as drivers, reflecting the fact that recent rail investments have largely been focused on attracting commuters out of cars (Garcia and Rubin 2004; Garrett and Taylor 1999; Giuliano 2005). Rail riders' high incomes likely reflect the fact that rail is relatively competitive with driving to major concentrations of

well-paid employment, such as CBDs. The most upscale mode is suburb-CBD commuter rail.[2]

Despite high average incomes for rail riders, transit riders as a group have been growing poorer relative to travelers in general over time. This is due to the fact that there are more bus riders than rail riders, and to the fact that the absolute and relative drop in bus riders' incomes is so much more pronounced than the increases for the smaller number of rail riders.

When analyzing American transit, it is often instructive to exclude the New York metropolitan area. New York is an extreme outlier, with a very large transit share (and nearly 2/5 of all U.S. transit trips) and perhaps the most even distribution of transit riders across the socioeconomic spectrum. Thus we tested whether the exclusion of New York materially affected our findings. It did not, though the widening wealth gap between rail and bus riders is even greater in the rest of the country than in New York.

The median incomes of passengers also vary substantially across rail modes.[3] Figure 2 displays the median income for four types of public transit travelers, with three rail modes disaggregated, relative to private vehicle travelers. None of the rail modes shows consistently lower median incomes than bus. Commuter rail travelers have generally had the highest median incomes, followed by subway/elevated riders; then LRT, streetcar and trolley riders; then bus riders. This roughly mirrors the service quality of the modes, since the average speed of commuter rail is 32.9 mph, followed by heavy rail (20.2 mph), LRT/streetcars (15.0 mph), then bus (12.9 mph) (American Public Transportation Association 2012c). Thus even within the rail mode, more upscale riders have tended to ride more premium service.

In addition to differing by income, patterns of transit use differ among racial/ethnic groups. This is important because Title VI of the Civil Rights Act of 1964 forbids recipients of federal funds from discriminating on the bases of race, color, or national origin. All modes are becoming increasingly non-white, consistent with trends in overall U.S. demographics over time (Schmidt 2004). However, on a percentage basis, the increase in non-white transit riders has been much steeper than among auto travelers. Today, transit is dominated by ethnic minorities, who in 2009 made up about two-thirds of all passengers. However, again this masks key differences by mode. In 2009 whites comprised 45 % of rail riders, but only 29 % of bus riders. African–Americans have comprised the plurality of bus riders since 1995, despite the fact that they make up just 13 % of the U.S. population (Figs. 3, 4).

Much of the heavy use of transit, particularly bus transit, by minorities can be explained by low incomes and constrained auto access; according to the Census' Current Population Survey (2012), white per-capita income was $31,198 in 2010 versus $17,919 for blacks and $14,831 for Hispanics. Moreover, non-whites, particularly African–Americans, are more

[2] Premium bus service, such as express buses and bus rapid transit, can be expected to be more similar to rail in terms of service level and ridership. We are unable to disaggregate these services from local bus, as data are not available. However, American Public Transportation Association's 2012 Fact Book (2012c) reports there are only 4,300 directional route miles of bus service on exclusive or controlled rights-of-way, versus 232,000 miles of buses traveling in mixed traffic, a share of 1.8 %; moreover, only 6.7 % of buses in 2012 were equipped with traffic signal preemption. Since these are (along with wider stop spacing) the primary components of premium bus service, we can safely disregard premium bus for making broad generalizations about bus service and ridership. In any event, the low incomes of bus riders attest to the fact that bus is luring few choice riders in the aggregate based on its service quality.

[3] Because these data display categorical median income data instead of mean income data, the data can show significant year-to-year changes when the median moves from one income category to another.

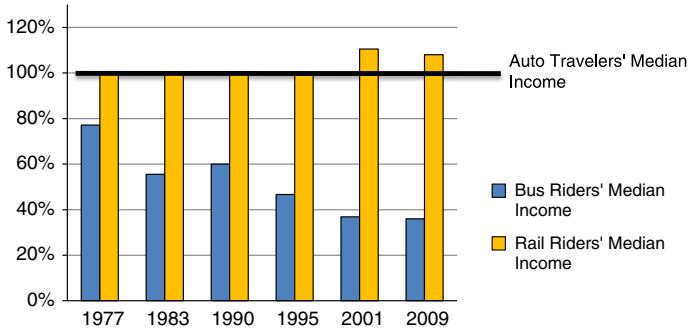

Fig. 1 Trends in transit riders' median income as a share of auto travelers' median income—1977 to 2009 (all trips). *Source* National Personal Transportation Surveys, National Household Travel Surveys

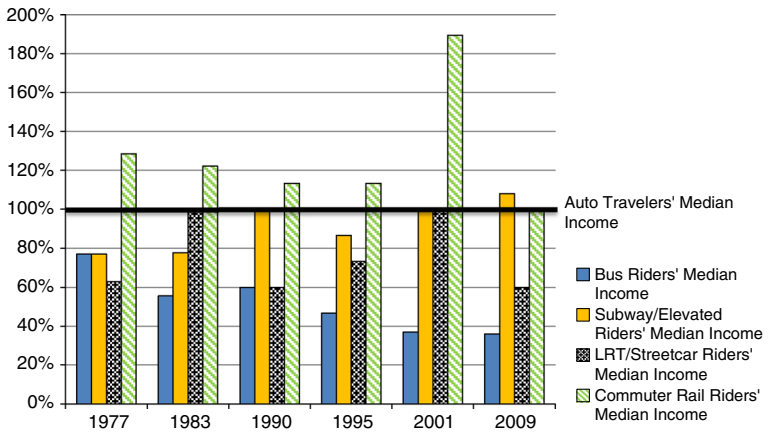

Fig. 2 Transit riders' income as a share of auto travelers' income (all trips). *Source* National Personal Transportation Surveys, National Household Transportation Surveys

likely to reside in inner-city areas, which are, in turn, more likely to have intensive transit service; in 2010, in 15 of the 20 largest metropolitan areas, the proportion of African–Americans living in the principal city (as opposed to the suburbs) was higher than the proportion for any other racial group, despite the fact that African–Americans have been suburbanizing over time (Rastogi et al. 2011).

In sum, transit ridership in the U.S. is two-tier. On the one hand, bus riders as a group are quite poor and nonwhite. In contrast, rail riders' incomes roughly mirror those who travel in autos, and they are much more likely to be white. Moreover, this dichotomy is deepening over time. These socio-economic trends with respect to mode have important implications for the priorities of transit decision makers, and it is to these that we now turn.

Agency goals

Do transit agencies tend to focus on their most reliable customers, the poor and minorities? To begin, it is instructive to consider the long list of transit benefits touted by the American

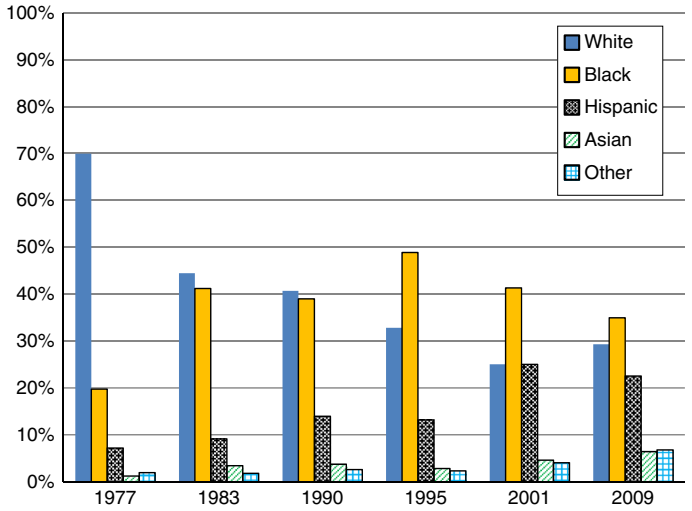

Fig. 3 Race/ethnicity of bus riders—1977 to 2009 (all trips). *Source* National Personal Transportation Surveys, National Household Travel Surveys

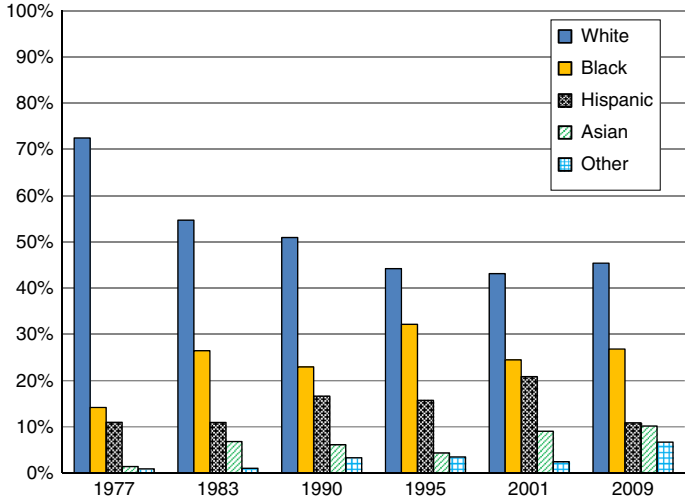

Fig. 4 Race/ethnicity of rail riders—1977 to 2009 (all trips). *Source* National Personal Transportation Surveys, National Household Travel Surveys

Public Transportation Association (2012a) outlined above. The words "poor," "low-income," or "minorities" do not appear. To move to a more disaggregate inquiry, we analyze the statements of mission, goals, and/or objectives for a random sample of 50 U.S. transit systems, ranging from the Bettendorf Transit System in Iowa to the Metropolitan Transportation Authority in New York. The results are summarized in Table 1.

We draw several conclusions from this survey. First, there is no clear and coherent set of goals that stretches across transit agencies. Even the proposition that transit exists to

Table 1 Goals and objectives for a random sample of 50 U.S. transit systems

Goal	Total frequency	Explicitly stated goal/objective	Goal/objective alluded to in a general way	Total percentage	Percent explicit	Percent alluded to
Forty-two agencies have goals, objectives, and/or mission statements						
Provide service to and mobility for all residents	20	8	12	40	16	24
Improve quality/reliability of service	14	9	5	28	18	10
Provide cost-efficient/effective services	13	7	6	26	14	12
Facilitate economic development	11	8	3	22	16	6
Improve/maintain safety & security	11	5	6	22	10	12
Build regional perspective/connectivity	9	6	3	18	12	6
Improve the environment (air quality)	8	6	2	16	12	4
Enhance the area's quality of life	8	5	3	16	10	6
Provide service for the poor/transit dependent residents (lifeline services)	7	4	3	14	8	6
Fiscal strength, stability	6	6	0	12	12	0
Improve the land use/transportation link/transit-oriented design	6	5	1	12	10	2
Address congestion & traffic circulation	5	4	1	10	8	2
Increase ridership	5	4	1	10	8	2
Provide multi-modal transportation options	5	2	3	10	4	6
Improve mobility for seniors & disabled	4	2	2	8	4	4
Expand services	3	3	0	6	6	0
Provide service to key destinations	3	2	1	6	4	2
Decrease the need for parking	2	1	1	4	2	2
Develop commuter services	1	1	0	2	2	0
Eight agencies have no goals, objectives, or mission statement						
Agency has no formal or explicit goals	3	n/a	n/a	6	n/a	n/a
Contacted agency; no one aware of any goals	5	n/a	n/a	10	n/a	n/a
Three agencies had no goals or mission statement on web and did not respond to repeated inquiries						
No goals on web, contacted agency, unable to reach recommended contacts	3	n/a	n/a	6	n/a	n/a

provide mobility to all citizens was mentioned by only 40 % of the agencies, and this was the most frequently mentioned goal. In addition, we identify no fewer than 20 distinct goals among a sample of 42 agencies. This is a remarkable number of priorities, and this does not even include many other goals commonly cited by transit advocates, such as reducing oil dependence, cutting road fatalities, improving urban aesthetics, increasing civic pride, etc. We interpret both the dearth of frequently mentioned goals and the multiplicity of infrequently mentioned ones as evidence of a diffuse focus.

It is true that some of these objectives might be grouped based on the fact that similar strategies could fulfill them simultaneously. For example, "Provide service to and mobility for all residents," "Improve quality/reliability of service," "Increase ridership," "Provide multi-modal transportation options," "Improve mobility for seniors & disabled," "Expand services," "Provide service to key destinations," and "Provide service for the poor/transit dependent residents (lifeline services for poor)" might all be promoted by increasing service. However, these goals are not internally consistent. Even a goal as seemingly self-evident as providing mobility for "all residents," the most frequently cited goal, does not unambiguously relate to other goals. For example, "Provide service for the poor/transit dependent residents (lifeline services)," "Provide cost efficient/effective services," "Fiscal strength, stability," and even "Increase ridership" can all conflict with the goal of serving "all." This is because serving all residents often means serving those in low-density, high-income and/or outlying areas where ridership is sparse and transit routes must be long in distance and therefore costly to provide; doing so likely entails short-shrifting service in lower-income, inner-city areas where transit dependents tend to reside.

Another example is the conflict between the goal of "Improve mobility for seniors & disabled" and the goals of "Provide service to and mobility for all residents," "Improve quality/reliability of service," "Increase ridership," and "Provide multi-modal transportation options." This is because seniors and the disabled are a market segment with very specific needs that can in many cases only be served with paratransit. Since each paratransit trip requires on average about $27 in subsidy (American Public Transportation Association 2012c), clearly a focus on seniors and the disabled necessitates a diluted focus on strategies to increase mobility more generally. To offer a final example, given limited budgets, "Improve/maintain safety & security" is difficult to pursue at the same time as the widespread service expansions mandated by other goals. In short, many of these objectives—though individually worthy—conflict with other, equally worthy goals.

Another problem is vagueness. "Provide service to key destinations" requires determining which destinations are "key," which may vary greatly depending on the observer. "Enhance the area's quality of life" is a goal with which few would argue, but determining what is meant by "quality of life" is a question that has bedeviled philosophers since the ancient Greeks. Few could object to "Facilitating economic development," but even if "economic development" can be satisfactorily defined (Development where? For whom? In what sectors?), there is no consensus about how a transit agency would go about this. In fact, transit skeptics would argue that the best way to foster economic development is to cut transit subsidies (O'Toole 2006; Winston and Maheshri 2007).

Even if goals are unambiguously defined, there remain difficult questions about how to measure progress. What are the metrics, data, and evaluative tools for constructs such as "economic development," "improved mobility," "improving the transportation/land use link," or "livability," a goal touted by the Obama administration (Pisarski 2010)?

The case of "livability" sharply illustrates the goal ambiguity issue. Clearly, the term "livable" is as amorphous as it is impossible to oppose; it might mean different things to

different people. It is true that the Obama administration seeks to clarify by enumerating six principles that comprise "livability" (U.S. Department of Transportation 2012):

> *Provide more transportation choices* to decrease household transportation costs, reduce our dependence on oil, improve air quality and promote public health.
> *Expand location- and energy-efficient housing choices* for people of all ages, incomes, races and ethnicities to increase mobility and lower the combined cost of housing and transportation.
> *Improve economic competitiveness of neighborhoods* by giving people reliable access to employment centers, educational opportunities, services, and other basic needs.
> *Target federal funding toward existing communities*—through transit-oriented and land recycling—to revitalize communities, reduce public works costs, and safeguard rural landscapes.
> *Align federal policies and funding* to remove barriers to collaboration, leverage funding, and increase the effectiveness of programs to plan for future growth.
> *Enhance the unique characteristics of all communities* by investing in healthy, safe and walkable neighborhoods, whether rural, urban or suburban.

There are perhaps 19 distinct and diverse goals packed into this six-sentence statement, many of which are clearly difficult to define and measure, and many of which are extremely ambitious. Efforts to clarify one ambiguous goal have involved recourse to 19 equally ambiguous ones.

Collectively, the long list of diverse and ambitious goals listed in Table 1 and espoused by the USDOT pose a managerial dilemma. If the goal ambiguity literature is accurate, such numerous, broad, and vague objectives will hinder agency performance. It might be argued that this problem is impossible to avoid, or, alternatively, that is not a problem at all, since higher-order goals by their nature must tend toward inclusiveness and abstraction, which in turn leads to breadth and dispersed focus. To a degree this may be true, but given the findings of the literature, this is a problem particularly stemming from the political imperatives that shape the framing of public policy. The private sector certainly has issues and problems with goal setting, but publically held companies generally place "maximizing shareholder value" over all other concerns. This clear, overarching goal leads in turn to more specific and focused lower-level objectives including "increasing sales" and "cutting costs." In addition to creating a leaner and more sharply focused hierarchy of imperatives, success at increasing the bottom line is far more measurable than a goal of improving "livability."

It is true that transit agencies employ techniques like benefit-cost analysis and economic impact analysis to attempt to quantify projects' projected value, but these techniques suffer from numerous problems. Costs are the "easy" part to project, but Flyvbjerg et al. (2003) surveyed 58 rail transit projects worldwide and found they ultimately cost, on average, almost 45 % more than predicted. They attribute this not to error but to misrepresentation aimed at attracting funding. In terms of benefits, these ultimately depend largely on ridership, but Pickrell's (1992) study of seven U.S. rail transit projects found that the best performing one (Washington's Metro) had ridership 28 % below forecasts, while the other six (Buffalo, Miami, Baltimore, Pittsburgh, Portland, and Sacramento) did not attract even half the riders predicted. Moreover, benefit-cost analysis involves numerous other difficult-to-predict variables such as the discount rate, economic and demographic growth and composition, future travel demand, the future development of the real estate market, the economic multiplier, the share of riders who will shift from the auto, the value of time, the value of damage caused by carbon emissions, etc. Small errors in any of these variables

may not fundamentally skew results, but the uncertainty is multiplicative so that small errors in the individual variables can, in concert, turn into very large errors in the bottom line. This exercise is further called into question by the fact that that it is supervised by, and its assumptions are generated by, the very agency that champions the project. Perhaps most importantly, there is comparatively little sanction for having predicted a project's costs and benefits incorrectly. Private firms whose projects fail to meet projected returns face direct financial sanctions, whereas ex post analyses of whether transit projects succeeded at meeting targets are generally confined to academic journals. Moreover, for failed projects, the financial deficits are ultimately made good through public subsidy, often granted by the very decision makers who initiated and approved the projects.

Finally, serving the needs of the poor and transit-dependent are not identified as a goal, even in the most general of terms, by the vast majority (86 %) of transit systems. Just four of the 50 agencies (8 %) explicitly identified this social service function, while just three others (6 %) vaguely alluded to it. Given the stark figures on transit riders'—particularly bus riders'—low incomes, this omission is striking. In any event, even in cases where this goal is important to an agency, a final shortcoming of benefit-cost analysis hinders progress toward achieving it. It is very difficult to explicitly quantify the costs and benefits flowing from projects for different income or racial/ethnic groups. Hence, benefit-cost analyses fail to capture impacts on distributive equity.

While formal statements of mission, goals, and objectives are but one measure of a transit agency's intentions, transit agencies' actions—as reflected by their investment priorities—indicate that a relative neglect of poor riders is an omission in deed and not only in word.

Transit investment, service, and patronage trends

Since the public takeover of transit was largely completed in the 1970s, transit has grown by many metrics: service, riders, and funding. However, there are important differences by mode. Figures 5, 6, 7 and 8 present data on these. We present subsidy data only for the years 1995, 2001, and 2009, because data on capital subsidies were not available for the earlier time periods. For numerous reasons, capital expenditures are often neglected in standard cost-effectiveness measures. However, from most taxpayers' perspectives, distinctions between capital and operating costs are likely arcane, and secondary to the question of how taxes paid result in transit services operated.

Figure 5 shows the trend in nationwide transit service by mode since 1977. Overall, service has been growing. Also, there is substantially more bus than rail service nationwide. However, all modes of rail transit have expanded service faster than bus service over the past quarter century—and in the 2000s overall bus service actually declined. Since 1977 bus service increased 43 % while rail service increased 101 %. In addition to an overall shift in the relative distribution of resources, Richmond (2001) notes that there is often a direct relationship between increases in rail provision and decreases in bus service, as new rail services often occasion cuts in bus routes and/or their reconfiguration in favor of low-efficiency feeder bus services designed to serve the rail investment.

Figure 6 displays the trends in ridership over the same period. It shows that overall transit patronage has increased more slowly and haltingly than the expansion of service. While both bus and rail ridership declined between 1990 and 1995, bus patronage declined between 2001 and 2009, while rail ridership grew. Since 1977 rail patronage has risen 96 % while bus use has risen only 11 %. Collectively, Figs. 5 and 6 show that, while there is still much more bus service and many more bus riders than rail service and rail riders,

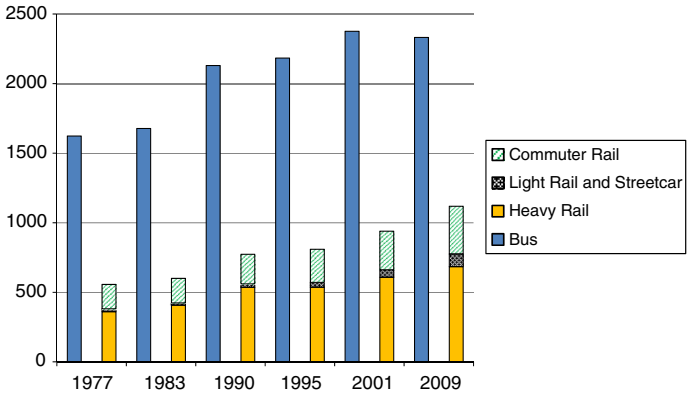

Fig. 5 Transit vehicle miles of service by mode: 1977 to 2009. *Source* APTA (2012) historical tables

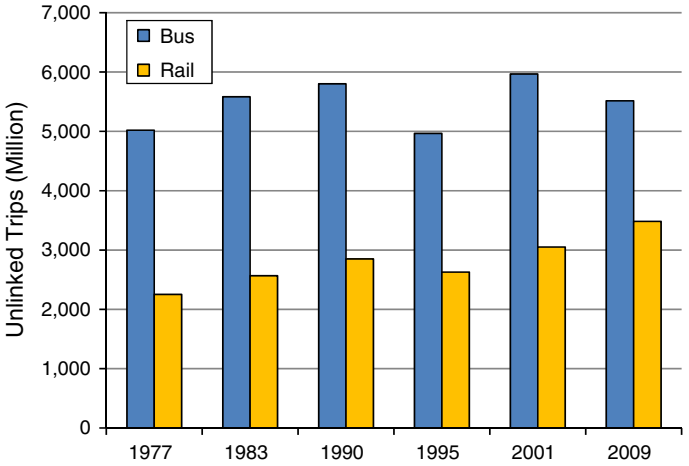

Fig. 6 Unlinked transit trips by mode: 1977 to 2009. *Source* APTA (2012) historical tables

both the provision and consumption of bus and rail service are converging over time, due mostly to faster growth in rail service and patronage.

Figure 7 displays the trend in total inflation-adjusted transit subsidies by mode between 1995 and 2009. Overall, subsidy of both bus and rail transit has grown dramatically since 1995, even after controlling for the effects of inflation. Not surprisingly, given the trends in service, the growth in total subsidy of rail transit (69 %) has considerably outpaced the growth in total bus subsidies (43 %), so that, by 2009, total rail subsidies exceeded total bus subsidies. We have, in other words, shifted policy and budgetary priorities over the past two decades from bus to rail.

On a per rider basis, Fig. 8 indicates that the public supplies 31 % more funding for each rail rider than for each bus rider. It is true that Fig. 8 shows the gap between bus and rail subsidy per passenger trip has been narrowing over time, not because rail is becoming more efficient but because bus service has been growing less so. If extrapolated, this trend might mean that someday rail might become competitive with bus in terms of cost-

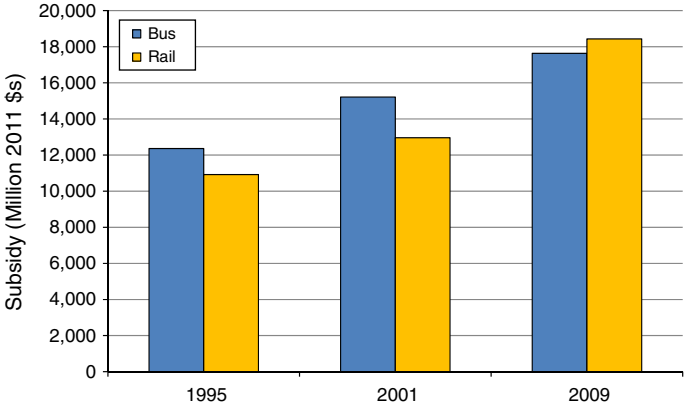

Fig. 7 Total inflation-adjusted transit subsidy by mode: 1995 to 2009. *Source* APTA (2012) historical tables

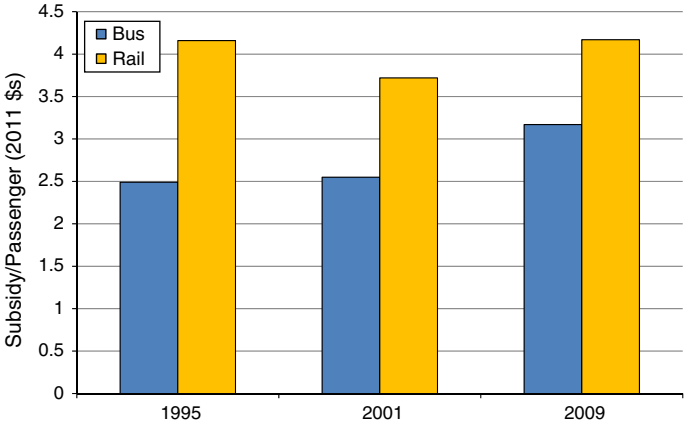

Fig. 8 Total inflation-adjusted transit subsidy per unlinked trip by mode: 1995 to 2009. *Source* APTA 2012 historical tables

effectiveness, but there is little reason to be sure this trend warrants extrapolation. Thus, for today and for the foreseeable future, bus spending is more cost-effective than rail spending (Pucher 1982; Rubin et al. 1999; Taylor et al. 2000).

Discussion and conclusion

Why this focus on choice riders instead of transit's core customers, minorities and the urban poor? We emphatically do not argue this is due to perfidy or insensitivity to the needs of the disadvantaged on the part of transit decision makers. We suggest instead that this neglect of low-income riders is the logical outcome of the political calculus in which transit operates as a publically provided good. Transit decision makers respond rationally to incentives, and these incentives align to underserve transit's natural constituency (Pucher 1982; Garrett and Taylor 1999).

Two factors are of key importance. First, given transit's low levels of cost-effectiveness—specifically its farebox recovery rate of about 25 % of total (capital and operating) costs (American Public Transportation Association 2012c)–transit requires high levels of subsidy to survive. Given that its riders comprise a small share of the population (fixed-route transit serves roughly 2 % of all person trips (U.S. Department of Transportation 2009)) and that riders are concentrated in niche markets (specifically the poor and downtown commuters), transit cannot hope to survive politically by appealing only to its customers. To secure the necessary subsidies, transit must appeal to the broader voting public, particularly in the current political context where funding for transit is increasingly generated by direct democracy such as via local option taxes passed at the ballot box.

As the voting public is relatively affluent (at least compared to bus riders) and very likely to own autos, it is necessary to secure its support by focusing on a mode—rail—which has broad public appeal. Given rail's superior image and ability to capture the imagination of the voter (both because it features such characteristics as higher vehicle speeds and greater passenger comfort, and because it involves conspicuous infrastructure like stations and track), such a strategy has proven successful at the polls. However, to this point, good intentions dissipate between the ballot box and the rail station, since voters have shown little inclination to actually ride the projects they enthusiastically vote to fund. Hence the ironic situation where transit service priorities are largely designed to appeal to people who rarely or never actually consume the product.

An analogy with the private sector is instructive. Walmart would never deviate far from its concrete and paramount goal of raising its dividend and share price. Revenue being essential, it is unlikely to lose sight of customer desires by shifting from stocking products designed to appeal to the value-conscious customers of modest means who form its core customer base to instead focus on stocking upscale luxury goods that appeal to its wealthy shareholders who rarely shop in its stores. However, though this mistake would be self-evidently counterproductive in the private sector, where customers provide all of the revenue, it is prevalent in the transit sector where shareholders (i.e., voters) actually furnish most of the income though they rarely actually consume the product. Hence serving customer interests, though not absent from the goals of transit decision makers, has become swamped by the myriad concerns of the broader, non-customer public.

This political dynamic also explains transit's "mission creep." To appeal to the voting public as a whole, transit supporters must stress the benefits transit will have for non-riders. Those non-riders have a multiplicity of interests and values, and thus crafting an appeal to them means adopting a range of catch-all arguments that collectively move transit down a slippery slope into the goal ambiguity trap. Serving customers, raising revenue and cutting costs are joined by the grab bag of goals outlined above. All of these goals are of course desirable—which is why voters respond to them—but given their number and diversity it is not surprising that even transit managers have become unsure about what the real goals are or precisely how to go about attaining them.

This raises important operational and effectiveness issues. A focus on suburban rail risks allocating service to areas where transit is only lightly used, diminishing service productivity. Richmond (2001) argues that the rail-centric strategy has resulted in systems that fail to: (1) meet ridership targets; (2) meaningfully reduce congestion and environmental externalities; and/or (3) be cost-effective compared to potential alternate strategies focused on the bus, including BRT and busways and also simpler strategies like fare reductions and reducing headways. Further, the rail-centric strategy may be self-defeating: if agencies continue to divert resources to rail and other high-cost commuter-oriented services at the expense of less-expensive bus service, performance will likely decline

further. Indeed, such a trend is already in evidence: between 1996 and 2010 boardings per transit service mile fell 12.5 % (from 2.41 to 2.11), and during the same period subsidy per passenger trip rose 35 % in inflation-adjusted terms (American Public Transportation Association 2012b). If left unchecked, this deteriorating performance may undermine years of popular support for transit subsidies.

The case of Los Angeles casts this phenomenon in sharp relief. The development of its rail transit system, the controversy it has generated, and the fact that it is the most explicit manifestation of the conflict between the bus and rail modes in the U.S. has been well-documented (Brown 1998; Grengs 2002; Richmond 1998, 2005; Taylor et al. 2009). Briefly, in response to Los Angeles' congestion and air pollution woes, voters approved a one-half cent transit sales tax in 1980 and another in 1990. The ballot measures primarily focused on rail, though the first also called for a temporary reduction in bus fares. Proponents of the rail plan maintained it would restrain sprawl, clean the air, and reduce congestion. Critics argued the investments were based on political calculations, with elected officials seeking dramatic "ribbon cuttings," and that the rail lines were based on overly optimistic projections of costs, ridership, and land use impacts. They also maintained that the rail investments would siphon funds from more cost-effective and socially equitable bus service.

The rail projects would ultimately experience dramatic cost overruns, while bus fares were eventually raised sharply and bus service was cut. The result was infighting within the transit agencies and the formation of a community-based organization called the Bus Riders' Union, which filed a civil rights lawsuit against the MTA on the grounds that its diversion of resources from bus to rail discriminated against minorities. At the time of the lawsuit, 20 % of LA MTA bus riders were white, and 68 % African–American or Latino, while 37 % of all area rail transit riders where white, and 54 % Latino (though just 23 % of passengers were white on the one LRT line operating at the time, which runs through some of the poorest and most minority parts of Los Angeles (Ryan Snyder Associates, Inc. 1994)). The BRU sought to reverse the increases in bus fares and cuts in bus service; the parties eventually agreed on a decade-long consent decree in which the federal courts oversaw a settlement that promised increases in bus service, cuts in monthly permit prices, and BRU input into MTA decision making. Despite this, investment in the politically popular rail program continued, with a total of five lines being constructed or extended and a sixth in the works (Taylor et al. 2009). Despite great publicity for the BRU, the ambitious and politically popular rail transit program in Los Angeles is being built.

Public transit has had many successes over the past few decades: the hemorrhaging of ridership between the end of World War II and the early 1970s has been arrested; service has expanded; new technologies such as smart cards, signal priority, and phone apps for customer information are being introduced; transit's safety record is outstanding; and a conversion of the bus fleet to more environmentally friendly technologies like natural gas and hybrid propulsion is underway. But unfortunately, given that transit riders—particularly bus riders—are drawn primarily from the most vulnerable demographic sectors, troubling moral questions are raised by a strategy focused on the needs of choice riders and relatively upscale voters. This is a group for whom transit is largely an occasional convenience, not a desperately needed lifeline that provides access to work, childcare, shopping, social life, leisure and all the other staples of life that those who are not poor and autoless take for granted. For better or worse, the needs of the poor are being underweighted in the transit funding calculus, a noteworthy trend considering that low-income bus riders are transit's most steady customers. While transit's ambitious and numerous

goals may or may not be poor public policy, we have shown here that they are increasingly not public policy for the poor.

We maintain that a reorientation to a more transit-dependent-focused policy would not only be more equitable toward low-income riders, but would actually help to achieve many of transit's other goals. Though economic theory would suggest that choice riders have a higher elasticity of demand, and thus that high-end, underpriced service tailored to the needs of this group would have the best chance of attracting new riders, the evidence shows that demand by the poor for transit is surprisingly elastic. Increasing bus frequencies, expanding center city bus networks, and in particular cutting bus fares have been shown to be powerful stimuli for increasing ridership. For example, in 1983 Los Angeles cut transit fares (almost exclusively bus fares) from $0.85 to $0.50; the result was a 40 % increase in ridership. However, when funding priorities were shifted to building Los Angeles' rail network, the $0.85 fare was restored, and then raised further to $1.10; the result was a system-wide patronage drop of almost 20 % (Rubin et al. 1999). Thus a redirected focus toward the needs of its best customers may actually mean more progress toward improving transit's service effectiveness, ridership, financial base, and important social and environmental goals.

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