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Does Transit Mean Business?
Reconciling academic, organizational, and political perspectives on
Reforming Transit Fare Policies

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A report to the University of California Transportation Center

June 2012

by

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Executive Summary

Public transit systems differ from many other government enterprises in that they charge a fee, or fare, in much the way that private businesses charge for their services. Transit fares are typically of two sorts: flat or differentiated. For decades transportation scholars have argued in favor of flexible, differentiated transit fares, which vary by mode, distance, and/or time-of-day to reflect differences in the marginal costs of service provision (Cervero and Wachs 1982; Cervero 1981; Hodge 1995). Such fare policies, researchers contend, could greatly increase the efficiency, efficacy, and equity of transit service. Research on transit costs suggests that short, off-peak trips tend to be relatively inexpensive to provide, while longer, peak-period trips are more expensive (Taylor, Garrett, and Iseki 2000). Accordingly, varying fares to reflect these differences in costs would encourage passengers to consume more inexpensive-to-serve trips, and be more judicious in consuming more expensive-to-serve trips, thereby increasing the cost-effectiveness of transit service.

Recent technological advances, particularly smart cards, have greatly reduced the operational and administrative obstacles to charging differentiated time- or distance-based fares. However, despite an established body of research on the potential benefits of flexible fares, relatively few transit agencies employ them, and over the past two decades many have actually moved away from variable fare structures and toward simpler fares by dropping zone-based fares. And while many U.S. transit agencies that have adopted smart card technology, very few of these adopting agencies have moved toward variable fares.

The increasingly widespread implementation of smart farecards makes implementing variable pricing far easier and more reliable than in years past. As smart cards become more

ubiquitous, will transit systems gradually reverse course and begin implementing differentiated fares? Will political and institutional resistance to variable pricing hold firm, suggesting that implementation was never the principal obstacle? Or have flat fares become so thoroughly inculcated in transit practice that most transit managers are unaware of the now decades old research on the benefits of differentiated fares? This report explores these questions.

To better understand motivations for fare changes and the potential for implementing marginal cost pricing, we reviewed the literature on transit fares and pricing, conducted in-depth interviews with California transit officials, and administered a nationwide survey of transit agency CEOs, planners and analysts, and board members on the goals that shape fare policies.

Collectively, these interviews and survey find that, with respect to fare policies, transit agencies tend to be reactive to budgetary pressures and reluctant to change fare structures when changing fare levels. Despite this observed lack of strategic thinking with respect to fares, we do see in our survey data some, albeit limited, interest in distance- and time-based fares, especially among agencies that have or soon will introduce smart cards. But any opportunities to move toward differentiated fares created by smartcard adoption are constrained by an industry where simple, flat fares are the norm and where transit managers are risk-averse and seek to minimize public scrutiny and criticism. Smart cards, in other words, are a necessary but not sufficient means of fare innovation in public transit. Beyond this general observation, our interview and survey results collectively suggest three specific findings with respect to transit fare setting:

1. *With respect to fare policies, transit agencies tend to be reactive to budgetary pressures and reluctant to change fare structures when changing fare levels.*

Our survey results find that systematic evaluations of fare policies are subject to and often displaced by the immediate needs of an agency's budget. Respondents indicated that the primary consideration for changing fares is budgetary need, implying a focus on near-term responses to fiscal shortfalls in setting fare policies. Changing fare policies to improve farebox recovery ratios, possibly through marginal cost pricing, which research suggests may improve a given agency's fiscal health over the long term received considerably less consideration. Rational (i.e., cost- or criteria-based) fare setting policies are viewed as important, but in practice the setting of transit fares appears to be almost exclusively budget-driven and fare increases are more often than not induced by fiscal crises. Because transit systems depend so heavily on subsidies, large swings in tax revenues – especially during the current, prolonged economic downturn – can make transit budgets volatile. When rising costs and/or cuts in subsidies threaten service, fare increases are often put on the table in conjunction with service cuts – at what some would argue is precisely the wrong time. While economists have long asserted the superiority of cost-based pricing on economic efficiency grounds, agency policy setting driven by near-term budgetary volatility almost certainly limits reflection on and adoption of such strategies.

This finding also suggests that the crisis-induced and budget-driven fare setting processes may not themselves be the problem, but rather are a manifestation of unclear or contradictory goals. Clearly defined and congruent agency goals and objectives allow staff to work toward given objectives, and board members to defend their decisions in light of these

objectives. But given the often competing and contradictory goals for public transit (reduce congestion and emissions, serve the needs of the poor and disabled, keep subsidies low, provide quality employment for workers, keep fares low, etc.), goal-driven pricing of transit services has proven elusive.

2. There is some, albeit limited, interest in distance- and time-based fares, especially among agencies that have or soon will introduce smart cards.

While scholars and researchers have long argued for transit pricing based on principles of economic efficiency, in practice, most agencies pursue fare policies that appear to favor administrative efficiency (e.g. keeping fare collection simple) and effectiveness (e.g. simple and low transit fares, unlimited use passes that reward frequent riders). Our survey results underscore that even with increasing technological ability to do so, a majority transit agencies are unlikely to implement distance-based or time-of-day pricing anytime in the near future.

According to the American Public Transportation Association (APTA) (2012), 23 percent of transit operators nationwide currently employ some form of distance-based fare pricing and just 6 percent time of day pricing. While only 6 percent of the respondents to our survey who had recently adopted smart cards reported a move to time- or distance-based pricing as a result, nearly a quarter (24%) of those planning to adopt smart cards said that they expect to use them to implement some form of distance-based pricing, and fully 18 percent report the same for time-of-day pricing. This suggests that while resistance to variable pricing remains widespread, at least some of this resistance is likely due to the operational challenges of implementing differentiated pricing in the absence of smart cards. And as those operational

challenges are reduced by smartcards, the longstanding trend away from differentiated fares may begin to reverse.

3. Transit agencies are risk-averse and seek to minimize public scrutiny of any fare changes.

Our survey results emphasize that transit officials seek to ensure their actions avoid public scrutiny and negative publicity, which substantially inhibits implementing variable cost pricing for two reasons. First, implementing variable fare pricing in almost all cases would be a radical departure from the flat fare status quo, and would thus subject a transit agency to financial scrutiny, heightened media attention, and increased lawmaker inquiry – all of which transit officials report they seek to avoid. Secondly, the transit managers we surveyed report that any fare increases will subject their agency to public scrutiny. Concerns over the negative consequences of fare changes appear to be so embedded that transit managers report focusing far more on the riders they might lose from any fare changes than the riders they might gain by implementing, for example, variable fares. They are, in other words, highly loss averse. Finally, the transit agency representatives we interviewed collectively reported that they have generally not conducted market research on non-riders or on customer responses to alternative fare structures, and that they have little understanding of the likely ridership gains and losses that might accompany distance- or time-based pricing.

But despite the many potential benefits of marginal cost-based transit pricing touted in the literature, our interviews found significant evidence of risk-aversion, goal obfuscation, and cost confusion among transit managers, as predicted by the literature on public administration. The interviews revealed, with sometimes surprising candor, how little some senior transit

managers understand their costs of service provision and how they vary. This lack of cost comprehension may be the inevitable result of government agencies' mandate to maintain service without regard to cost or vice versa (Flam, Persson, and Svensson 1982).

We hypothesize that transit agencies' mission ambiguity is a leading explanatory factor of the context in which a poor understanding of costs can persist. As has been argued in the literature, this lack of cost comprehension is manifest in the crude ways in which transit fares are set, despite advances in technology that can facilitate a movement away from cost-abstracted, flat, and uniform fares and toward the cost-specific fares that vary based that cost of service provided. Our findings also suggest that the crisis-induced and budget-driven fare setting processes may be not the cause, but the effect of unclear or altogether absent goals. Even when a *de facto* pursuit of transit fare pricing effectiveness is evident, the absence of explicit goals to which agency decision-makers can refer, can mean that necessary, routine incremental fare increases are deferred until a distracting and destructive budgetary crisis forces a much larger and more disruptive fare increase on riders.

This research suggests that transit agencies could avoid the contentious, fraught, and high-stakes "crises" that currently is all but a *sine qua non* for raising fares, while offering "fairer" fares that could increase ridership and revenue. However, the transit agency officials we interviewed reported having little information about whether such practices actually affect transit's mode share. Several interviewees reported that they would expect to lose riders with any form of marginal-cost fare pricing, but had no idea whether or how they might gain additional riders under such a schema. Distance-based pricing, for example, could attract passenger for new, inexpensively priced short-trip riders who might have previously found

\$1.50 for a four block ride to be too much. The extent to which ridership would change depends on the urban context, economic conditions, traveler demographics, and so on; with information on these factors the ridership effects of fare structure changes could be estimated. Absent such information, any move to distance- or time-based pricing is a decidedly risky policy pursuit.

Our interviewees also speculated that the larger the sources of operating and capital subsidies, the less likely it is that an agency's managers will focus on farebox recovery ratios. This argument, echoed in the literature (Vrooman 1978; Flam, Persson, and Svensson 1982; Pickrell 1989), suggests that public subsidies have the perverse effect of reducing cost-efficiency and promoting subsequent budgetary crises.

Transit officials also report that in a world where driving is cheap and preferred, transit officials have little choice but to maintain low fares in order to encourage mode shift. Given this unlevel playing field, then, the non-pursuit of marginal cost pricing may be reasonable to expect. But it also suggests that transit officials should support pricing policies such as congestion tolling and parking pricing, which help to internalize the costs of driving. However, our survey results show that transit officials tend to oppose, or are at best lukewarm toward, efforts to pricing the externalities of automobile travel. Just four in 10 of those surveyed support market-rate pricing on on-street parking, and just 27 percent support high-occupancy/toll (HOT) lanes; this contrasts dramatically with seven in 10 who support increased carpooling

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Introduction

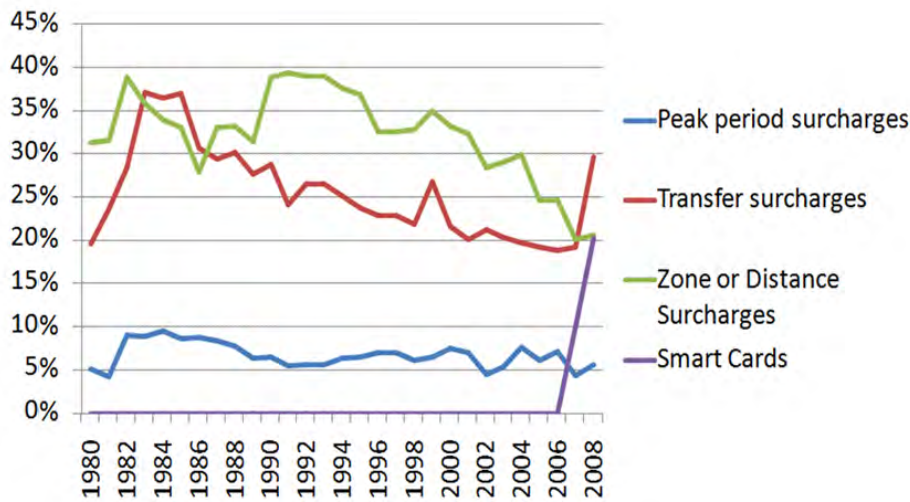
Public transit systems differ from many other government enterprises in that they charge a fee, or fare, in much the way that private businesses charge for their services. Transit fares are typically of two sorts: flat or differentiated. For decades transportation scholars have argued in favor of flexible, differentiated transit fares, which vary by mode, distance, and/or time-of-day to reflect differences in the marginal costs of service provision (Cervero and Wachs 1982; Cervero 1981; Hodge 1995). Such fare policies, researchers contend, could greatly increase the efficiency, efficacy, and equity of transit service. Research on transit costs suggests that short, off-peak trips tend to be relatively inexpensive to provide, while longer, peak-period trips are more expensive (Taylor, Garrett, and Iseki 2000). Accordingly, varying fares to reflect these differences in costs would encourage passengers to consume more inexpensive-to-serve trips, and be more judicious in consuming more expensive-to-serve trips, thereby increasing the cost-effectiveness of transit service.

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¹ Some transit systems divide their service areas into zones and charge higher fares for crossing from one zone to another than for traveling entirely within a given zone. Such systems are in effect a crude form of distance pricing. The London transit system is an example of one using zone-based fares.

proliferation of smartcard use since 2006 to the decline in distance-based fares, indicating that transit agencies are moving away from variable fare pricing even with increased capability to implement it.

Figure 1: Use of variable fares and smart cards among transit agencies



Source: APTA (2009)

Many observers have argued that, despite the opportunities for pricing innovations presented by smart cards, public agencies are risk-adverse, preferring status quo practices over policy changes (Howitt and Wintrobe 1995; Fernandez and Rainey 2006). Maintaining existing policies allows agencies to minimize mistakes and avoid public scrutiny (Leaver 2009; Grigg 1988). Additionally, Bozeman and Kingsley (1998) argue that the amount of risk-taking by organizations is a function of the clarity of agency goals, and public sector goals are often too broad, too vague, or too controversial to evaluate for efficiency and effectiveness (Nutt 2005). Specifically addressing transit pricing, Cervero (1990) finds that transit managers must satisfy multiple goals (e.g. capture the cost of service, maximize revenue, reflect the value of service to

the user, promote equity, encourage transit use, and redress the underpricing of automobile travel) that combine to make it harder for them to strategically price their services.

Nearly all of this research on transit managers' resistance to differentiated fares was conducted prior to the rise of smartcards, which make implementing variable pricing far easier and more reliable than in years past. As smart cards become more ubiquitous, will transit systems gradually reverse course and begin implementing differentiated fares? Will political and institutional resistance to variable pricing hold firm, suggesting that implementation was never the principal obstacle? Or have flat fares become so thoroughly inculcated in transit practice that most transit managers are unaware of the now decades old research on the benefits of differentiated fares? This report explores these questions.

To better understand motivations for fare changes and the potential for implementing marginal cost pricing, we reviewed the literature on transit fares and pricing, conducted in-depth interviews with California transit officials, and administered a nationwide survey of transit agency CEOs, planners and analysts, and board members on the goals that shape fare policies. In the pages that follow, we summarize our review of the literature, describe our research design and methodology, discuss our findings from interview and survey results in turn, and consider their implications for implementing variable fare policies at transit agencies.

What do we know about transit fare setting?

Standard micro-economic theory suggests that, when adequate capacity exists, the price charged for public transit should equal the short-run marginal cost that the last passenger imposes on the system (including other passengers). When supply is maximally

utilized, the long-run marginal cost should be used to take into account the marginal capital costs needed to handle additional passenger loads (Pederson 2003). Marginal cost pricing of this type is a pre-condition of “anonymous equity,” an extension of the Pareto improvement as applied to the fair distribution of costs (Baumol and Fischer 1986). Despite its theoretical advantages (which we do not discuss in detail here), marginal cost fare-setting in even the most approximate sense is rare. Instead, low, uniform fares and free transfers are the norm. And, because the marginal cost of transit service tends to vary substantially by mode, time of day, distance, and travel direction, flat fares result in substantial internal cross-subsidies among riders.

But how much do transit managers really understand about the marginal costs of their services, and the highly variable per trip subsidies among riders? Revenues for public transit come from a wide variety of sources beyond fares, and are usually earmarked as to their purpose. For example, federal funding for transit in metropolitan areas is exclusively confined to specific capital expenditures (vehicles, facilities, way, etc.), which typically involve a “match” of state or local funds. Likewise, local voter approved taxes and bond issuances are almost always project-specific as well, and are usually devoted to new capital investments. Expenditures for operations are covered by a combination of passenger fares, charter and advertising income, and local, regional, and state subsidies. In 2012, one-third (33.3%) of all transit operating costs nationwide were covered by fares, and two-thirds by government subsidies; 100 percent of transit capital costs are covered by subsidies.²

² Authors’ calculation of data in Tables 49 and 68 in APTA 2012.

Because transit revenues are so extensively earmarked for particular expenditures, transit managers' motivation to understand and analyze the intricacies of the variable costs of service provision is considerably diminished (Taylor, Garrett, and Iseki, 2000). For example, if a careful analysis showed that rebuilding engines on older buses twice before retirement minimized long run operating plus capital costs, but federal subsidies earmarked for new vehicles cannot be used to rebuild engines on older buses, transit managers have less incentive to trade capital for operating costs, even if there is a strong economic efficiency argument for doing so. Such perverse incentives have resulted in what some analysts have described as "capital bias" in public transit finance (Pickrell 1992; Obeng and Azam 1995).

With diminished incentives to track and analyze the marginal costs of transit service provision, transit managers may be less aware of how dramatically their costs vary by time of day, direction of travel, mode, and so on. Absent such awareness, the motivation to pursue fare structures that reflect marginal costs is likely considerably dampened as well.

Regardless of the form it takes, the fare structure at a given transit agency should ideally reflect the array of goals and objectives transit officials and planners hope to achieve, within a politically constrained environment. A recurring theme in the literature on transit fares and goals, however, is that agencies' goals are often problematic, being either too broad, too vague, too controversial, or simply absent, which makes it difficult for public officials to make consistent decisions that advance agencies' goals. The goals a transit manager has in setting fare policy can also conflict and overlap: capturing the cost of service, maximizing revenue, reflecting the value of service to the user, promoting equity objectives, encouraging modal

shifts to transit, and “redress[ing] problems stemming from the underpricing of the automobile (e.g. a countervailing subsidy to transit users)” (Cervero 1990).

Other authors comment that public managers lack the clear economic indicators of efficiency and effectiveness available to their counterparts in the private sector, partly as a function of public organizations’ role in addressing complex social functions. While evaluations of performance and innovation in private firms can be measured by levels of profit or satisfaction of stakeholder interests, the evaluation of public sector performance is much more difficult. Public agencies are expected to provide goods and services that cannot be easily packaged for exchange in economic markets and are often at odds with economic efficiency (Baldwin 1987; Rainey 1983, cited in Pandey and Wright 2006).

Moreover, transit agencies are accountable to multiple stakeholders (elected officials, taxpayers, organized labor, commercial property interests, neighborhood associations, and riders) whose interests are not aligned, and often at odds. To serve multiple stakeholders, transit agencies are besieged by multiple, often conflicting service demands, with no overarching interest or objective towards which to steer (Fielding 1992).

The confluence of goals, combined with the challenge of measuring them, makes it difficult for transit officials to develop fare structures that consistently reflect agency goals. Lack of goal clarity also inhibits transit managers’ ability to institute changes to the fare structure, especially regarding any movement to variable fares. Simply, without the clear direction of overarching goals, transit agencies lack the political capital to adopt fares that support those goals.

In addition to lack of goal clarity, a desire to avoid public scrutiny may also limit more widespread implementation of marginal cost pricing. A controversial decision that turns out poorly may have far reaching consequences for a public agency. For example, Wilson (1989) argues that high risk aversion is due to the sometimes staggering political costs paid by an agency when it fails or is perceived to fail at an activity. Moreover, because the public sector does not enjoy a private corporation's clear division of ownership and control, "public scrutiny of actions by these organizations is immediate" (Grigg 1988). Leaver (2009) explains in her "minimum squawk" theory that bureaucrats' concern for their reputations will prompt them to make decisions that "keep interest groups quiet and mistakes out of the public eye" at the cost of efficiency. Decision-makers will also be reluctant to repeal policies even if they have been clear failures because they fear that doing so sends a signal of incompetence to voters and others (Dur 2001). In fact, public sector work may select for employees who are by their nature more risk averse, say Bellante and Link (1981).

In addition to conflicting arrays of goals to satisfy multiple transit stakeholders, conflicts within agencies can be common as well, as governing board members (who are often locally elected officials or those appointed by such officials), transit managers, planners, and unionized drivers and mechanics face differing sets of motivations as well. What constitutes an attractive change for some, may be highly threatening to others. For example, transit board members may seek to claim political credit for promoting the contracting of some services to private providers in order to save money, while unionized drivers and mechanics may aggressively oppose such shifts.

Collectively, little is understood about the relationship between risk aversion, public scrutiny avoidance, and failure to implement variable fares. Raising fares entails substantial political scrutiny and risk as well, but transit managers regularly (albeit reluctantly) raise fares to cover rising costs, often in the face of considerable political outcry. But while fare increases are often viewed as unavoidable – and publicly presented as such – differentiated fare structures are rare. Given that they are so atypical, differentiated fares are uncertain in terms of both implementation and outcome, and are in many ways an abstract concept (e.g. varying prices to match variable costs). Implementing differentiated fares therefore entails similar political resistance as simple fare increases, but with far less certain benefits. Given both their substantial promise to increase operating efficiency and potential to threaten risk-averse decision-makers, we now turn next to our interviews with public transit decision-makers and then to our national survey of transit planners, managers, and board members in order to better understand the relationships between costs, fares, and risks in the fare policy decision calculus at U.S. transit systems.

Transit Manager Interviews

Methodology

Given the enormous challenges that transit agency officials face in delivering efficient and effective transit service while at the same time balancing political risks and scrutiny, we aimed to explore through in-depth interviews and a nationwide survey the following issues:

- The goals, objectives, principles, and practices that guide the structure and setting of fares at transit agencies, including the extent to which pricing reflects marginal costs.

- The extent to which respondents see justification for variable pricing.
- How objectives and goals differ among transit agency CEOs, analysts/planners, and board members.
- Utilization of new technologies and how these have or have not enabled fare policy reform.

To examine these ideas, we conducted two phases of research. The first phase consisted of in-depth interviews with eight officials from four transit agencies to gain an understanding of the extent to which transit agency officials understand their agencies' marginal costs of providing services, to gain a better understanding of the kinds of information practitioners deem relevant to making fare policy, to assess their level of risk tolerance, and to investigate practitioners' rationales for setting fare policies. These interviews also informed our evaluation of the unique context in which transit agencies operate, where they are expected both to operate "like a business" and to simultaneously address a broad range of social goals. The results of these interviews informed the second phase of this research, a nationwide survey of transit operators.

Our criteria for selecting the transit agencies at which to conduct our interviews were:

- Size: we selected large agencies because large agencies are more likely to be early adopters of smart card technology (Yoh 2008) and just a few large systems account for the bulk of all transit patronage nationally.
- Recent fare changes: we selected agencies that had changed fares within the past six months to capture perspectives from those likely to be aware of the factors motivating changes in transit fare policies.
- Location: to control somewhat for the effects of geographical location on fare setting, we limited our interviews to transit agencies in California. Unfortunately the conditions placed on our research regarding human subjects restrict us from identifying these representatives or their agencies. Instead, we distinguish among them by referencing

their agency by letter (A, B, C, and D) and the person by number (i.e., Interviewee A-1, Interviewee B-3, etc.).

Agency officials representing finance departments were the target of our first few interviews, because we sought to understand the role that costs, marginal or otherwise, played in deciding (1) the types and levels of service provided, (2) decisions about pricing services, and (3), the share of total (operating and capital) costs that fares should cover. Interviewees were identified either by their job functions and positions within the agency (i.e. they had direct knowledge of their agency's financial or service planning processes, or both). In some cases, interviewees referred us to other candidates; in others we identified them independently. The interviews averaged one hour each, and ranged from 30 minutes to 1 hour and 45 minutes.

The questions we asked the transit officials included:

- What do they understand about how their costs vary by distance, time-of-day, and mode?
- Given that capital costs are normally excluded from farebox ratio calculations, how much do they think including amortized capital costs in subsidy calculations would affect transit cost estimates?
- Do they see logic in systematically relating fares to the costs of providing service? If so, on an average cost basis? On a marginal cost basis? If not, why not?
- What do they see as the appropriate rationales for setting transit fares, costs or otherwise?
- What justifications do they see for subsidizing transit service? How do these justifications relate to fare policies?
- Do they think that transit fares in general are too high? Too low? Just right? Why?
- Do they support discounted fares for certain user groups (low-income riders, students, elderly, disabled, etc.)? If so, on what basis?

- Do they support unlimited ride passes (daily, weekly, monthly, etc.). If so, on what basis? If not, why not? What effects do they think these passes have on ridership? On costs?
- How sensitive do they think riders are to fare changes? To service changes? How does this sensitivity vary among user groups, trip types, and location?
- If smart cards were used to vary the price of transit services to reflect (subsidized) marginal costs, what effects do they think this might have on costs, ridership, labor, and voters?

Most interviews were recorded, except for one session in which the respondent declined to be recorded. Later, notes taken during the interviews and some recorded transcripts were coded to identify any recurring themes, points that evoked particularly strong support or opposition, and other insights shared that provided nuanced understanding of how transit officials view the advantages and disadvantages of differentiated fares.

Interview Findings

Clarity of costs

In general our interviewees reported having only a general sense of the costs of service delivery at their agency, and even then in mostly average cost terms. Further, our interviews indicated that, even when the structure, level, and variance of service delivery costs appear to be reasonably well understood by transit managers, this knowledge is not always well communicated within the organization. For example, one of our interviewees reported that members of the finance department in the transit agency believed that the variance in the costs of operating each type of service offered were important to consider in service planning (but not in fare setting). However, there was little coordination among the staff in the finance and service planning departments, so variable costs were not considered in service planning. The

independent roles and objectives of departments responsible for finance, fare policy, and service planning in transit agencies often have few incentives for collaboration, which inhibits the flow of information and intra-organizational decision-making.

The staff we interviewed who reported understanding how their agency's costs varied by time of day tended to consider this information to be largely moot with respect to service planning, except to the extent that resources are scarce and broadly limit the scale of operations. Interviewee A1, who works in service planning of a large transit agency, put it bluntly: "We'll never make a cost decision. Service is based on policy decisions, weighing the costs with the number of people served."

Some of those interviewed reported knowing far less about their costs of service delivery than the revenues generated by various services, even those working in finance departments. Interviewee C2 told us "You can't just pump a train out and say, well, this train cost this much money... but we do know much more concretely... that the revenues [on express trains] are so much higher." Similarly, when asked about how their costs vary, interviewee B1 reported that her staff were not able to isolate or attribute their costs, that any "rules of thumb were elusive" and that they "have no good answer."

Fares

Our interviewees indicated that systematic evaluations of fare policies are subject to and often displaced by the immediate needs of an agency's budget. When asked about the factors considered when setting fares, Interviewee A2 characterized the issue as: "What fare do you need to make the budget work?" Interviewee A1 said his agency sought to minimize the percentage of costs borne by riders so as to encourage people to ride; they did so by indexing

their fares on the consumer price index (CPI) while seeking to maintain existing levels of service. But, according to this manager, constant cost increases make this delicate equilibrium difficult and, ultimately, balancing the budget takes priority. As a result, said the manager, fares on their system are raised above and beyond the CPI, and are therefore probably “out of sync” with riders’ expectations of modest and incremental fare increases. In this case, the substantial recent increase in fare levels at this agency was the result of budgetary crisis, which the interviewee asserted was a relatively more acceptable rationale to the public than any fare change for the sake of increasing economic efficiency.

Citing their “large and diverse” service area population, this same manager expressed the belief that so-called “price discrimination” – commonly used in private firms, but all but impossible for their agency – would not pass political muster. For example, higher fares for commuters on the agency’s express services would be opposed by the elected officials on the agency oversight board who have long insisted that fares be kept low.

At another agency, Interviewee C2 explained that they benchmarked their fares with peer agencies’ and attempted to take into account passenger demand elasticities, but admitted that “There’s a lot of art; it’s not too much of a science.” Additionally, several interviewees reported that the farebox recovery ratio³ was a central factor in determining fares. One director (C1) said that the ratio itself “triggers our decision whether to increase fares or not.” And not surprisingly, all our interviewees said that increasing fares was an unwelcome process. “The last thing political boards want to do is raise fares,” Interviewee D1 reported.

³ Not technically a ratio, farebox recovery ratio refers to the percentage of operating (but not capital) costs covered by fare revenues.

Goals

The relatively limited focus on costs in fare setting may be a function of agencies' metrics for success and performance, which incorporate many factors extrinsic to the fundamentals of their operations. Interviewee A2 was explicit about this fact, saying that "most agencies consider goals outside of ridership" in setting fares. When asked about his agency's measure of success, his reply was quick: "staying out of the news," a sentiment anticipated by the literature on public sector risk aversion (Grigg 1988) and the "minimum squawk" theory about bureaucrats' rational reluctance to draw attention that may expose mistakes (Leaver 2009) discussed above. We observed similar conservatism reported by interviewees' reports on their agencies' approach to revenue goals. Interviewee C1 asserted that her agency was focused on *retaining* revenue rather than on pursuing new revenue opportunities. She explained that, in the agency's environment of uncertain and vacillating subsidy support, this focus on revenue retention was a necessity.

The reported metrics of success and performance are where transit's departure from traditional business practice is perhaps drawn in sharpest relief. A private firm in transportation (such as an airline) would typically outline goals pertinent to the balance sheet (e.g., return on investment), investor relations (e.g., increase shareholder value), or operations (i.e., increase passenger traffic or reduce production costs), all of which are generally congruent, aligned, compatible, and oriented toward the same objective: increasing profitability.

As discussed above, transit agencies are beholden to multiple stakeholders (elected officials, taxpayers, organized labor, and riders) whose interests are not aligned are besieged

by multiple, often conflicting goals, with no overarching interest or objective towards which to steer (Fielding 1992).

Risk of losing riders

Perhaps the most frequently expressed concern among agency officials we interviewed was over levels of customer satisfaction and their effects on ridership. When asked to identify a chain of consequences if the agency were to implement variable fares reflecting costs, respondents tended to focus more on the riders they expected to lose, rather than the riders they might gain – a commonly reported phenomenon known as *loss aversion* (Kahneman, Knetsch, and Thaler 1990). For example, most reported certainty that they would lose riders from higher-priced expensive-to-serve trips, such as among peak period riders traveling long distances, but were at the same time skeptical that inexpensive-to-serve short-distance or off-peak travelers might be attracted by lower fares for those trips. Several of those interviewed reported that their agency had never conducted market research on non-riders, so they had little information on whether lower fares for some trips might attract new riders.

When asked how they set fare policies, respondents reported that they often considered whether such fares were “reasonable” given the relative inconvenience of transit travel vis-à-vis the costs and convenience of driving. Interviewee C2 stated that because the costs of driving were artificially low, transit fares had to be kept even lower if drivers were to be attracted from their cars and onto transit. Without some “push” policy (from cars to transit), according to this interviewee, transit’s best hope was to use the “pull” of low, simple fares to attract riders.

Path dependency

Agency officials also reported that fare policies are bound by path dependency – that past directives or decisions limit current policy options. For example, officials from different agencies reported that past policies to keep fares low (for example, due to legal actions against an agency that prohibited fare increases, or a need to encourage mode shift during booming economic times accompanied with very high levels of traffic congestion) force agencies to set current fares based on immediate political and budgetary need, rather than on any sort of systematic evaluation or philosophy.

One agency official reported often fares are raised simply as a way to balance an agency's budget, and in these cases, mitigations are often built in to protect low-income riders and create a semblance of fairness and equity. This practice, according to the interviewee (A2), has created a largely *ad hoc* system of fares that is difficult to overhaul because in some instances, any change toward a more equitable, efficient, or effective policy would be a dramatic (rather than incremental) change from *status quo*.

Our interviews suggested, not surprisingly, that agencies have little incentive to consider the variability of cost when planning services or forming fare policies. Fares changes, in particular, are unpalatable to the public and to the officials they elect, and such changes are performed with more “art than science,” as officials seek to balance a multitude of policy and service goals. These factors, along with concerns with losing riders to automobiles due to fare increases results in situations where those interviewed report having their hands tied with respect to fare policies.

National Survey of Transit Officials

Survey Methodology

To test whether findings from our interviews are held commonly among board members, executives, and staff at transit agencies nationwide, we conducted a survey to identify whether there were differences in views on transit costs and fare policies among (1) transit executives such as chief executive officers or general managers, (2) their immediate deputy executives in different functional units such as finance, service planning, operations, etc., and (3) transit agency board members. We chose not to survey other stakeholders, such as passengers, drivers, or business interests, as their influence on fare setting is indirect and via the three surveyed groups.

To identify transit officials to survey, we developed a database of transit officials in three stages. First, we selected top executives from transit agencies in a recent National Transit Database (NTD) maintained by the U.S. Department of Transportation (2007) that received at least some federal subsidy for services and capital investment. We excluded NTD-listed agencies that did not operate at least one fixed route, b) operated only paratransit dial-a-ride or demand-responsive transit service, c) were a non-operating (i.e., planning) agency and did have any apparent control over fare policies, or d) were exclusively an operating company (i.e., a private contractor) with no role or influence in setting fare policy. Most agencies use the title "general manager," but we also considered "executive director" or "chief executive officer." We exercised judgment in determining the most appropriate contact at small transit properties, especially those that existed as a departmental subdivision of a larger governmental

organization, like a city. For generic email addresses in the NTD (e.g., "info@transitagency.org," etc.), we obtained names and contact information for general managers from agency websites.

The second stage involved supplementing the records culled from the NTD with those in the American Public Transportation Association (APTA) database to identify departmental unit leaders. We compared agencies listed in the state-by-state search results for "Regular transit agencies" in the APTA member database with the NTD, and added a small number of agencies listed in the APTA database, but not the NTD, to our database. We then obtained contact information for the directors of departmental units through the APTA database of members, and supplemented missing information with information from transit websites. Additionally we obtained contact information for staff likely to be involved in fare collection from a 2010 APTA fare collection workshop attendees list.

Lastly, we added agency board members to our database by searching the APTA member database for persons with "Board of Directors" listed in their title. The completed survey panel comprised 415 transit executives, 367 transit staff members and 343 transit board members.

The survey was designed and administered by an online survey service through UCLA's Anderson School of Management. It was administered via email invitation between November 2010 and January 2011, and included questions on the agency's goals, customers and market segments, fares, fare policies, and fare setting and their incorporation of technology (i.e., smartcards) for fare collection. The survey was *beta* tested by a half dozen UCLA alumni and graduate students studying transportation policy and planning. The survey was revised slightly

based on the *beta* test and then distributed. The online survey took an average of 15 to 20 minutes to complete; a copy is in Appendix B.

After the survey closed, individual responses were checked for completeness, and any survey records that were not at least 50 percent complete were removed from the final sample used for analysis. Of the 1,125 individuals invited to participate in the survey, about one-sixth (182 respondents, or 16%) provided complete surveys. For the survey respondents who reported their titles, 36 percent were CEOs or Executive Director, 56 percent were transit agency staff, including financial directors, analysts and planners, and about 8 percent were board members.

Table 1 and Figure 2 below show the geographic distribution of our sample agencies compared with the agencies included in the NTD data. Our survey is broadly representative geographically, though it over-represents agencies from California and somewhat under represents agencies in the eastern United States. This is perhaps because the University of California funded the project, so California agencies had a stronger interest in or familiarity with our work, and thus a higher motivation to complete our survey.

Table 1: Geographic representation of our sample

	Survey Sample (n=142)	NTD dataset (n=611)	Difference
New England	7%	7%	0.1%
New York/New Jersey	6%	9%	3.7%
Mid-Atlantic	8%	10%	1.8%
Southeast	12%	18%	5.5%
Great Lakes	14%	17%	3.3%
Plains	4%	4%	0.4%
Southwest	9%	9%	-0.7%
Mountain	5%	4%	-1.3%
Pacific	11%	9%	- 2.1%
California	25%	14%	-10.9%
Total	100%	100%	

Figure 2: Location of responding agencies, and distribution of respondents by state

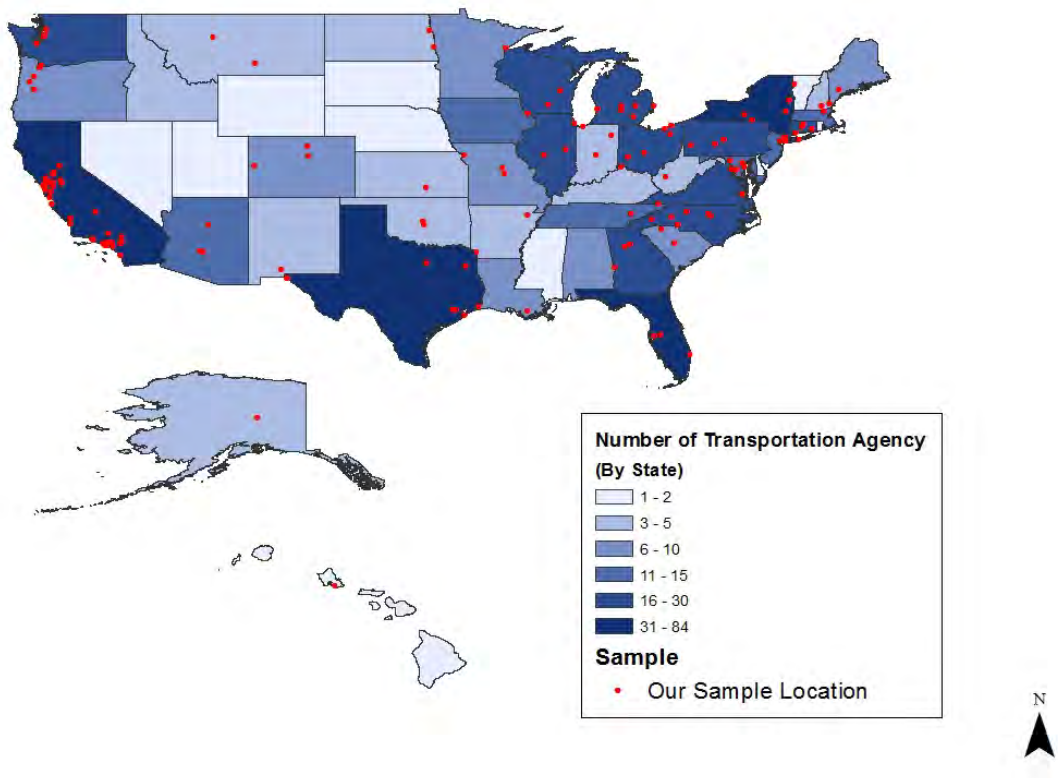


Table 2 shows the distribution of our sample by agency size. Our sample reflects the broad spectrum of large and small transit systems, though it somewhat under-represents small agencies, especially those with fewer than 50 vehicles operated in maximum service, and over-represents medium-sized and large agencies.

Table 2: Agency size in sample vs. National Transit Database

Vehicles Operated in Maximum Service	Survey Sample (n=135)	NTD U.S. (n=611)	NTD California (n=83)
1-49	39%	54%	49%
50-99	20%	20%	17%
100-249	22%	12%	17%
250-499	7%	7%	6%
500-999	4%	3%	7%
1000+	8%	4%	4%
Total	100%	100%	100%

Overall we find the survey respondents to be broadly representative of U.S. transit agencies in terms of both geography and agency size. While there might possibly be other factors causing a response bias – for example agencies that had recently adjusted fares might have been more likely to respond – we have no way to test for such factors directly or know how they might influence our results. As such, we are reasonably confident that our sample is representative of the U.S. transit industry and now turn to the results of our survey.

Survey Results

Goals

As noted above, transit agencies must manage numerous, and often competing, goals.

Accordingly, the survey asked respondents to identify their agency's three most important goals.

Table 3 summarizes the results. The most commonly identified goals are improving mobility and access for everyone, providing cost-effective and efficient service, and increasing overall ridership. In practice these three goals often conflict with one another – improving mobility and access for everyone may help increase ridership, but policies enacted to accomplish these goals – such as providing services to difficult- and/or expensive-to-serve areas while charging low, flat fares – can compromise cost-effective and efficient service.

Responses to this question varied little between CEOs, transit agency staff, and board members, suggesting that those in the transit industry, of all stripes, tend to share a common perspective on goals, and that these goals tend to be widely diverse. However, there are a few exceptions to this generalization. Agency staff are more likely than CEOs to cite reducing traffic congestion and providing affordable travel alternatives as goals. Board members are more likely than CEOs to name providing multi-modal transportation options and less likely identify increasing ridership as an important goal. Board members are also less likely than agency staff to cite reducing traffic congestion and increasing ridership as the most important goals at their agency.

Table 3: Which of these goals does your agency pursue?

Goals	All	CEO	Staff	Board	Difference b/t Categories		
		[1]	[2]	[3]	[2]-[1]	[3]-[1]	[3]-[2]
Improving mobility and access for everyone	94%	95%	94%	92%	-2%	-3%	-2%
Cost-effective, efficient service	92%	92%	92%	92%	1%	0%	-1%
Increase ridership	92%	95%	91%	75%	-4%	-20% ***	-16% *
Provide affordable transportation alternative	89%	84%	92%	92%	9% ***	8%	-1%
Mobility for seniors and disabled	88%	89%	87%	92%	-1%	3%	5%
Service for poor resident/transit dependent	84%	82%	87%	83%	5%	1%	-4%
Providing environmental benefits	80%	74%	83%	83%	9%	10%	1%
Build regional connectivity	76%	70%	78%	83%	8%	13%	5%
Reducing traffic congestion	76%	62%	87%	58%	25% **	-4%	-29% ***
Provide service to key destinations	68%	64%	72%	58%	8%	-6%	-14%
Expand services	66%	61%	69%	67%	8%	6%	-2%
Provide multi-modal transportation options	62%	57%	62%	83%	5%	26% *	21%
Economic development	59%	56%	60%	67%	4%	11%	6%
Improve land use	43%	43%	44%	42%	1%	-1%	-2%

1. Test if the difference between groups is statistically significant; *: significant under 90% level, **: significant under 95%. (p-value is reported)

We then asked respondents about the objectives of their fare policies more specifically. Table 4 summarizes respondents' assessments of current fare policy practices at their agencies, as well as their views on the merit of these practices. While some fare policies closely align with previously identified goals, others appear to directly contradict them. For example, a similar number of respondents indicated that their agencies seek to set fares as low as possible (55%) – which corresponds with improving mobility and access for everyone, increasing ridership, and providing affordable transportation alternatives – as reported their agencies aim to set fares to reflect the cost of service (51%), which helps to maximize cost-effectiveness, but not ridership. Put simply setting fares as low as possible and to reflect costs are two very different things. This finding underscores the difficulty of capturing multiple goals within a single fare policy.

Table 4 also shows the differences between what respondents say what there agencies do with respect to fare policies, as well as their views on what they think their agency *ought* to do. The most dramatic difference between these two is with respect to time-of-day pricing. While just 10 percent of respondents report that their agency varies fares by time of day, more than a third (35%) of all respondents think that time-of-day pricing is a good idea. This is a remarkable gap between beliefs and policy practice, which suggests that a substantial minority of transit managers, staff, and board members understand the nature of variable costs in public transit and the merits of time-of-day pricing to address them. Relatedly, while a third (33%) of respondents report that their agencies employ some form of distance-based pricing, nearly half (46%) think that such policies are a good idea. With respect to both time-of-day and distance-

based pricing, the difference between what respondents report their agencies do and what they think they ought to do is statistically significant at the 0.01 level.⁴

Table 4: Does your agency do this? Do you think it should?

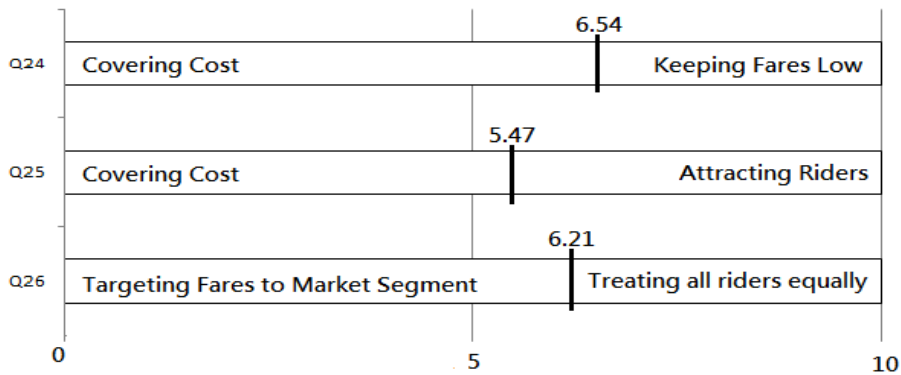
	Does agency do this? [1]		Do you think it should? [2]		Difference [2]-[1]	
	%	n	%	n		
Set fares as low as possible	55%	149	52%	137	-3%	
Set fares to reflect costs of the service	51%	150	59%	135	8%	
Offer special fares for groups, events, etc.	49%	152	63%	133	14%	***
Set fares to cover budgetary shortfalls	42%	151	48%	135	6%	
Vary fares based on distance traveled	33%	154	46%	136	12%	***
Set fares based on riders' ability to pay	28%	149	33%	130	6%	
Set fares based on riders' willingness to pay	26%	144	35%	127	9%	
Vary fares based on time of day	10%	154	35%	130	25%	***

*Note: We use a t-test to test if the difference between "Does your agency do it?" and "Do you think it should?" is statistically significant. ***1% level; **5% level; *10% level*

Balancing competing goals can be understood by looking at how agencies make trade-offs among multiple objectives. We asked respondents to indicate using a sliding scale where their agency makes the trade-off between covering the costs of providing services and keeping fares low, as well as the trade-off between attracting more riders by segmenting markets or treating all riders the same. Figure 2 shows that agency officials report more concern with keeping fares low, attracting riders, and treating them equally than with covering costs or targeting fares to market segments.

⁴ The third statistically significant difference is between offering special fares for groups and events, wherein more (63%) respondents think their agencies ought to do this than actually do it (49%).

Figure 2: Trade-offs reported by transit agency officials



Together, these results indicate that transit managers are more likely to use fare policies to pursue a broad social policy agenda of attracting riders, charging them as little as possible, and treating them all equally, rather than a more business-focused agenda of covering costs or targeting customer markets. But given that these tradeoffs are scored between about 5½ and 6½ on a 0 to 10 scale, it’s clear that respondents see both social policy and business agendas as relevant to the work of their transit agencies.

Fares

As shown in Table 5, two-thirds (67.1%) of respondents report that their transit agency employ flat fare systems. A majority (59.7%) of respondents say that their agency also varies fares among user groups, such as students. Fewer, but not inconsequential numbers of, respondents report fares that vary by (1) mode or service type (such as charging a premium fare for express service, 43.6%), (2) distance traveled (30.9%), and (3) time of day (13.4%).⁵

⁵ The reported use of distance- and time-based fares in response to this question about *current practice* differs slightly from the percentages reported in the earlier question about *fare policies*.

Table 5: Reported fares offered by transit agencies

Flat fares	67.1%
Fares vary by user group	59.7%
Fares vary by mode/service type	43.6%
Fares vary by distance	30.9%
Fares vary by time of day	13.4%
Don't Know	1.3%

Note: n=149; multiple responses provided.

Table 6 reveals the reluctance with which transit managers embrace changes to fare levels or policies. First, the vast majority (81%) of respondents report that they consider changes to fares only when forced to by budgetary exigency. And about half (47%) report that public reaction to fare changes are one of the three most important factors they consider when changing fares. Nearly half (45%) as well report that farebox recovery ratio is one of the most important factors to considered in changing fares; this could reflect a desire among respondents to link fares with costs, or it could simply be viewed by respondents as a proxy for budgetary pressures.

Only two of the nine factors identified by respondents and listed in Table 6 might be characterized as strategic motivations – (1) losing/gaining riders to/from automobile use (19%) and (2) losing/gaining riders to/from other transit providers (4%) – and these rank 5th and 8th respectively in importance. The six of the seven other factors, including three – budgetary need (81%), public reaction (47%), and fare levels at other agencies (39%) – that were identified by between two-fifths and four-fifths of respondents are reactive, and not strategic, in character.

Table 6: What are the top three most important factors considered at your agency when changing fares?

Budgetary need	81%
Reaction from the public	47%
Farebox recovery ratio	45%
Fare levels at other agencies in the region	39%
Losing/gaining riders to/from automobile use	19%
Reaction from board members	17%
Fares charged by other agencies elsewhere in the U.S.	8%
Losing/gaining riders to/from other transit providers	4%
Reaction from the media	2%

Note: n=154

Even with increasingly widespread smart card adoption in the transit industry, interest in differentiating fares among transit managers is mixed at best. Only six percent of respondents from agencies that already implement smart cards use them to vary fares by distance or time of day. A clear majority (59%) of respondents at systems that have adopted smart cards, and 58 percent of those at systems that plan to implement them, retained or expect to retain existing fare policies after smartcard implementation. Less than a fifth (18%) of those who implemented smart cards used the opportunity to introduce a new fare structure, and just 6 percent reported using smart cards to implement distance of time-of-day pricing. On the other hand, about a quarter (24%) of those planning to introduce smart cards in the near future indicated that they might move to distance-based pricing and a fifth (18%) indicated that time-of-day pricing was a possibility.

Given the multi-year decline in the use of differentiated fares reported at the outset, that from six to 24 percent of respondents suggested that a shift to smart cards has or may precipitate a shift to some form of differentiated fares suggests that at least some of the

resistance to variable fares can be attributed to their administrative difficulty absent the use of smartcard technologies.

Table 7: Pricing reform among existing and expecting smart card adopters

Existing Adopters	Smart cards were an added option to other fare media, and existing fare policies were retained (n=34)	59%
	Smart cards were used to introduce or increase the use of different fares for different modes/types of service (n=34)	18%
	Smart cards were used to introduce or increase the use of zoned or distance-based fares (n=35)	6%
	Smart cards were used to introduce or increase the use of time of day fares (e.g., off-peak fares) (n=35)	6%
Expecting to Adopt	Smart cards will be an additional option other existing fare media, and existing fare policies will be retained (n=55)	58%
	Smart cards will be used to introduce or increase the use of different fares for different modes/types of service (n=44)	55%
	Smart cards will be used to introduce or increase the use of zoned or distance-based fares (n=49)	24%
	Smart cards will be used to introduce or increase the use of time of day fares (e.g., off-peak fares) (n=45)	18%

Discussion of Findings

Our interview and survey results collectively suggest three principal findings with respect to transit fare setting, each of which is discussed in turn below:

1. With respect to fare policies, transit agencies tend to be reactive to budgetary pressures and reluctant to change fare structures when changing fare levels;
2. There is some, albeit limited, interest in distance- and time-based fares, especially among agencies that have or soon will introduce smart cards; and
3. Agencies are risk-averse and seek to minimize public scrutiny of any fare changes.

With respect to fare policies, transit agencies tend to be reactive to budgetary pressures and reluctant to change fare structures when changing fare levels.

Survey results suggest that systematic evaluation of fare policies are subject to and often displaced by the immediate needs of an agency's budget. Respondents indicated that the primary consideration for changing fares is budgetary need, implying a focus on near-term responses to fiscal shortfalls in setting fare policies. Changing fare policies to improve farebox recovery ratios, possibly through marginal cost pricing, which research suggests may improve a given agency's fiscal health over the long term received considerably less consideration. Rational (i.e., cost- or criteria-based) fare setting policies are viewed as important, but in practice the setting of transit fares appears to be almost exclusively budget-driven and fare increases are more often than not induced by fiscal crises. Because transit systems depend so heavily on subsidies, large swings in tax revenues – especially during the current, prolonged economic downturn – can make transit budgets volatile. When rising costs and/or cuts in subsidies threaten service, fare increases are often put on the table in conjunction with service cuts; what some would argue is precisely the wrong time. While economists have long asserted the superiority of cost-based pricing on economic efficiency grounds, agency policy setting driven by near-term budgetary volatility almost certainly limits reflection on and adoption of such strategies.

This finding also suggests that the crisis-induced and budget-driven fare setting processes may not themselves be the problem, but rather are a manifestation of unclear or contradictory goals. Clearly defined and congruent agency goals and objectives allow staff to work toward given objectives, and board members to defend their decisions in light of these objectives. But given the often competing and contradictory goals for public transit (reduce

congestion and emissions, serve the needs of the poor and disabled, keep subsidies low, provide quality employment for workers, keep fares low, etc.), goal-driven pricing of transit services has proven elusive.

There is some, albeit limited, interest in distance- and time-based fares, especially among agencies that have or soon will introduce smart cards

While scholars and researchers have long argued for transit pricing based on principles of economic efficiency, in practice, most agencies pursue fare policies that appear to favor administrative efficiency (e.g. keeping fare collection simple) and effectiveness (e.g. simple and low transit fares, unlimited use passes that reward frequent riders). The survey results underscore that even with increasing technological ability to do so, a majority transit agencies are unlikely to implement distance-based or time-of-day pricing anytime in the near future.

According to APTA (2012), 23 percent of transit operators nationwide currently employ some form of distance-based fare pricing and just 6 percent time of day pricing.⁶ While only 6 percent of the respondents to our survey who had recently adopted smart cards reported a move to time- or distance-based pricing as a result, nearly a quarter (24%) of those planning to adopt smart cards said that they expect to use them to implement some form of distance-based pricing, and fully 18 percent report the same for time-of-day pricing. This suggests that while resistance to variable pricing remains widespread, at least some of this resistance is likely due to the operational challenges of implementing differentiated pricing in the absence of smart cards. And as those operational challenges are reduced by smartcards, the longstanding trend away from differentiated fares may begin to reverse.

⁶ The number of respondents reporting distance-based pricing (30 – 33%) and time-of-day pricing (10 – 13%) in hour sample was somewhat higher, suggesting that respondents to our survey may be somewhat more progressive with respect to transit fare policies than the average transit manager.

Agencies are risk-averse and seek to minimize public scrutiny of any fare changes

The survey results emphasize that transit officials seek to ensure their actions avoid public scrutiny and negative publicity, which substantially inhibits implementing variable cost pricing for two reasons. First, implementing variable fare pricing in almost all cases would be a radical departure from the flat fare status quo, and would thus subject a transit agency to financial scrutiny, heightened media attention, and increased lawmaker inquiry – all of which transit officials report they seek to avoid. Secondly, the transit managers we surveyed report that any fare increases will subject their agency to public scrutiny. Concerns over the negative consequences of fare changes appear to be so embedded that transit managers report focusing far more on the riders they might lose from any fare changes than the riders they might gain by implementing, for example, variable fares. They are, in other words, highly loss averse. Finally, the transit agency representatives we interviewed collectively reported that they have generally not conducted market research on non-riders or on customer responses to alternative fare structures, and that they have little understanding of the likely ridership gains and losses that might accompany distance- or time-based pricing.

Conclusion

While the demand for transit service is relatively price inelastic (Litman 2004; Cervero 1990), research has shown that, *ceteris paribus*, the difference between the highest and lowest average transit fares can halve or double ridership (Taylor et al. 2009). Thus to the extent that high levels of transit use contribute to laudable public goals such as congestion mitigation and reduced emissions, transit fare structures and levels are very important. “Fair” fares are also critical in meeting transit’s more understated but nevertheless important role as a social service

for their riders who are profoundly and even increasingly poor (Taylor and Garrett 1999; Cervero and Wachs 1982; Cervero 1981).

Rational (i.e., cost- or criteria-based) fare setting policies are important. In their absence, transit fares tend to change only in response to fiscal crises – and almost always through across-the-board increases to existing flat fare structures. Because transit systems depend so heavily on government subsidies, large swings in tax revenues can make transit budgets volatile, and non-fare revenues unreliable. When increasing costs or cuts in subsidies threaten service, fare increases are often put on the table at, what many would argue, precisely the wrong time: fares are increased and service is cut simultaneously to close budget gaps such that riders end up paying more for lower levels of service.

Economists have long asserted the superiority of cost-based pricing to the currently predominant budget-based approach (Rothengatter 2003). Fares that reflect the marginal costs of service provision by varying by distance, time, and mode would increase by small amounts, year after year, to reflect gradually inflating costs. Such cost-based fare structures and regular adjustment to levels need not be coupled with service reductions, and budget crises are more likely avoided. This sort of incremental cost-based fare adjustment is relatively common in the private sector, among airlines and shipping companies, and among public transit operators in Canada and Europe, but is largely unknown among U.S. transit systems.

But despite the many potential benefits of marginal cost-based transit pricing,⁷ our interviews found significant evidence of risk-aversion, goal obfuscation, and cost confusion

⁷ Even if transit service is publicly subsidized, it can still vary to reflect marginal costs. In other words, if subsidies cover half of all costs, then marginal cost fares would be structured to reflect, to the extent

among transit managers, as predicted by the literature on public administration. These interviews revealed, with sometimes surprising candor, how little some senior transit managers understand their costs of service provision and how they vary. This lack of cost comprehension may be the inevitable result of government agencies' mandate to maintain service efficiency without regard to cost or vice versa (Flam, Persson, and Svensson 1982).

We hypothesize that transit agencies' mission ambiguity is a leading explanatory factor for the context in which a poor understanding of costs can persist. As has been argued in the literature, this lack of cost comprehension is manifest in the crude ways in which transit fares are set, despite advances in technology that can facilitate a movement away from cost-abstracted, flat, and uniform fares and toward the cost-specific fares that vary based that cost of service provided. Our findings also suggest that the crisis-induced and budget-driven fare setting processes may be not the cause, but the effect of unclear or altogether absent goals. Even when a *de facto* pursuit of transit fare pricing effectiveness is evident (see Table 3), the absence of explicit goals to which agency decision-makers can refer, can mean that necessary, routine incremental fare increases are deferred until a distracting and destructive budgetary crisis forces a much larger and more disruptive fare increase on riders.

This research suggests that transit agencies could avoid the contentious, fraught, and high-stakes "crises" that currently is all but a *sine qua non* for raising fares, while offering "fairer" fares that could increase ridership and revenue. The various rationales listed in Table 3 for setting transit fares were drawn from both the literature and our interview findings. It shows that most U.S. transit agencies appear to have pursued fare changes out of exigency and

possible, the variance in the costs of serving various trips. In other words, the per trip subsidies would be roughly equalized, where they currently vary dramatically under flat fare systems.

fare policies that favor administrative efficiency (e.g. keeping fare collection simple), and effectiveness goals (e.g. simple and low transit fares, unlimited use passes that reward frequent riders, and the like). However, the transit agency officials we interviewed reported having little information about whether such practices actually affect transit's mode share. Several interviewees reported that they would expect to lose riders with any form of marginal-cost fare pricing, but had no idea whether or how they might gain additional riders under such a schema. Distance-based pricing, for example, could attract passenger for new, inexpensively priced short-trip riders who might have previously found \$1.50 for a four block ride to be too much. The extent to which ridership would change depends on the urban context, economic conditions, traveler demographics, and so on; with information on these factors the ridership effects of fare structure changes could be estimated. Absent such information, any move to distance- or time-based pricing is a decidedly risky policy pursuit.

Our interviewees also speculated that the larger the sources of operating and capital subsidies, the less likely it is that an agency's managers will focus on farebox recovery ratios. This argument, echoed in the literature (Vrooman 1978; Flam, Persson, and Svensson 1982; Pickrell 1989), suggests that public subsidies have the perverse effect of reducing cost-efficiency and promoting subsequent budgetary crises.

Transit officials also report that in a world where driving is cheap and preferred, transit officials have little choice but to maintain low fares in order to encourage mode shift. Given this unlevel playing field, then, the non-pursuit of marginal cost pricing may be reasonable to expect. But it also suggests that transit officials should support pricing policies such as congestion tolling and parking pricing, which help to internalize the costs of driving. However,

as Table 8 shows, transit officials tend to oppose, or are at best lukewarm toward, efforts to pricing the externalities of automobile travel. Just four in 10 of those surveyed support market-rate pricing on on-street parking, and just 27 percent support high-occupancy/toll (HOT) lanes; this contrasts dramatically with seven in 10 who support increased carpooling.

Table 8: Support for Other Transportation Programs and Policies

	Support (%)	Neutral (%)	Oppose (%)	DNK (%)	n
Car pooling	70%	11%	17%	2%	138
Car sharing	56%	17%	26%	1%	131
Market-rate on-street parking	40%	23%	34%	4%	124
High occupancy toll (HOT) lanes	27%	17%	30%	25%	168
Premium transit fare for peak periods	20%	16%	62%	2%	132

Collectively, this research has shown that, with respect to fare policies, transit agencies tend to be reactive to budgetary pressures and reluctant to change fare structures when changing fare levels. Despite this observed lack of strategic thinking with respect to fares, we do see in our survey data some, albeit limited, interest in distance- and time-based fares, especially among agencies that have or soon will introduce smart cards. But any opportunities to move toward differentiated fares created by smartcard adoption are constrained by an industry where simple, flat fares are the norm and where transit managers are risk-averse and seek to minimize public scrutiny and criticism. Smart cards, in other words, are a necessary but not sufficient means of fare innovation in public transit.

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Appendix A: Interview Guide

1. What are the goals of your agency? Of your board?
 - a. [Probe for multiple goals]
 - b. [Probe for differences/conflicting goals between board and managers]
2. Does your agency target a particular market of users?
 - a. [Probe whether target market is the same as current customer base]
 - b. [If agency serves “everyone,” does this differ from current customer base?]
 - c. [If they have the goal of serving everyone, but only serving niche markets] What steps are they taking to expand their services to everyone?
3. How does your agency decide on which services to run, and when?
4. How does your agency collect information about costs of transit provision?
5. Do costs vary by time of day, distance, and mode?
 - a. If so, how?
 - b. [If he/she does not know] Is there someone else in the agency with whom we can speak later?
6. Do you see logic in systematically relating fares to the costs of providing service? On an average cost basis? On a marginal cost basis?
7. What are your agency’s rationales for setting transit fares?
 - c. [Probe: projected revenue potential, denominations available, availability of technology to manage fare policies, to retain/attract riders, simplicity, recover costs of service provision...]
8. Do you think that transit fares in general are too low? Too high? About right? Why?

9. Does your agency provide transit fare discounts for certain user groups? On what basis?
10. Does your agency provide unlimited ride passes? If so, on what basis? If not, why not/
What effects do you think these passes have on ridership? On costs?
11. How sensitive do you think riders are to fare changes? To service changes? Does this sensitivity vary among user groups? Trip types? Locations?
12. If smart cards were used to vary the price of transit services to reflect (subsidized) marginal costs, what effects do you think this might have on the costs of service provision? On ridership? On organized labor groups? On voters?
13. How does your agency measure “success” or “performance”?
 - d. Probe: Fare stabilization, ridership gains, service expansion, labor relations, vehicle procurement, service to the elderly and handicapped?

FOR AGENCIES THAT HAVE CHANGED FARES IN 2009, ADDITIONAL QUESTIONS:

14. What is/was the rationale for changing your fares?
 - a. Probe: budgetary crisis, costs of services are increasing, politically good time to do this, collapse of the state transit assistance funds, etc...?
15. *Who* first identified the need to change fares?
16. Had there been discussions about fare changes *prior* to the fiscal crisis?
 - a. If so, what was the nature of these discussions? How have they changed since the fiscal crisis has emerged?
 - b. If not, what other revenue-improving alternatives were considered?

17. What is the process by which a fare modification is decided?

- a. Where does the decision start?
- b. Is there an established “path” for the decision-making?
- c. At what point in the process is the Board brought in or informed?
- d. At what point does the agency decide to make public the proposed fare modification?

Appendix B: Survey Questions

UCLA Transportation Research Survey: Transit Fare Setting

Pre-survey question:

Does your system include at least one scheduled route?

- Yes
- No
- I don't know
- This does not explain our system.

You have indicated either that your transit agency does not operate at least one fixed route. We thank you for your willingness to participate in the survey, but our research methodology requires that we survey only transit agencies that fit these criteria. If you have any questions, please e-mail us at jgabauer@ucla.edu.

Thank you for participating in our research.

What this research concerns

We are exploring how transportation professionals and the agencies they represent develop and form fare policies.

Why you're being surveyed

You have been selected because of your role within your organization. We value your professional insight, and your completing this survey will greatly contribute to this research.

How your responses will be used (and your privacy assured)

- Aggregate survey responses may be reported in publication or presentation in a statistically summarized fashion (e.g., "68% of respondents answered 'yes' to X.")
- None of your individual responses will be presented in any way that identifies you or your agency, without your explicit and written authorization.

What to expect

- The survey has 20-30 questions (depending on your responses) and should take about 20-30 minutes to complete
- Questions are single-choice, multiple-choice, and open-ended
- You need not finish the survey in one sitting; you can return to the survey anytime within 7 days
- You can skip any question (except the first two) if you prefer not to answer

If you have any questions about this research or your participation in it, feel free to contact:

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If you wish to ask questions about your rights as a research participant or if you wish to voice any problems or concerns you may have about the study to someone other than the researchers, please call the Office for Protection of Research Subjects at (310) 825-7122 or write to Office for Protection of Research Subjects, UCLA, 11000 Kinross Avenue, Suite 102, Box 951694, Los Angeles, CA 90095-1694.

Your participation in this survey is entirely voluntary, but we value your insights and would appreciate your contribution to this research.

To participate, please click the "Next" button at the bottom of this page. Thank you.

Survey overview

The survey will ask questions about the following:

- General information about you and your agency
- Your agency's goals
- Customers and market segments
- Fares, fare policies, and fare setting
- Technology (i.e., Smartcards)

Block 2

Which title best describes your primary role?

- Transit Agency Board Member
- CEO / General Manager / Executive Director
- Functional Director (e.g. Chief Financial Officer, Director of Planning, Chief Operating Officer, etc.)
- Analyst/Planner
- Other

What is your general duty area?

- Finance
- Service planning
- Operations
- Information technology
- Public relations / communications / marketing
- Capital planning
- Research/analysis
- Other

What is the name of your transportation agency or organization?

By providing the name of your agency, you can skip some questions. If you prefer not to answer, please leave this blank; the next few questions will ask you general questions about your agency's size and services.

GENERAL:

How would you characterize your service levels to the following geographic areas?
Check all that apply.

	Agency	
	Primary services	Secondary services
Central city	<input type="radio"/>	<input type="radio"/>
Suburban	<input type="radio"/>	<input type="radio"/>
Regional (across jurisdictions)	<input type="radio"/>	<input type="radio"/>
Rural	<input type="radio"/>	<input type="radio"/>
Paratransit	<input type="radio"/>	<input type="radio"/>
Other <input type="text"/>	<input type="radio"/>	<input type="radio"/>

What is your agency's approximate weekday ridership and how many peak vehicles do you operate?

Weekday ridership

Number of peak vehicles

What modes does your agency directly operate?

Check all that apply.

- | | |
|--|--|
| <input type="checkbox"/> Local bus | <input type="checkbox"/> Commuter rail |
| <input type="checkbox"/> Express bus | <input type="checkbox"/> Ferryboat |
| <input type="checkbox"/> Bus rapid transit (BRT) | <input type="checkbox"/> Demand response (e.g., paratransit) |
| <input type="checkbox"/> Light rail | <input type="checkbox"/> Vanpool |
| <input type="checkbox"/> Heavy rail (subway) | <input type="checkbox"/> Other (cable car, inclined plane railway, aerial tramway, monorail, etc.) |

What is your city ZIP code?

ZIP code

GOALS:

From your point of view, which of these goals does your agency pursue?

Check all that apply.

- | | |
|---|---|
| <input type="checkbox"/> Improving mobility and access for everyone | <input type="checkbox"/> Service for poor residents/transit dependents or "lifeline services" |
| <input type="checkbox"/> Providing environmental benefits | <input type="checkbox"/> Build regional connectivity |
| <input type="checkbox"/> Reducing traffic congestion | <input type="checkbox"/> Provide multi-modal transportation options |
| <input type="checkbox"/> Providing an affordable transportation alternative | <input type="checkbox"/> Expand services |
| <input type="checkbox"/> Economic development | <input type="checkbox"/> Increase ridership |
| <input type="checkbox"/> Cost-effective, efficient service | <input type="checkbox"/> Provide service to key destinations |
| <input type="checkbox"/> Improve land use | <input type="checkbox"/> Other (1) <input type="text"/> |
| <input type="checkbox"/> Mobility for seniors and disabled | <input type="checkbox"/> Other (2) <input type="text"/> |

Of the goals you identified your agency as pursuing, which would you identify as the top 3?

- * Improving mobility and access for everyone
- * Providing environmental benefits
- * Reducing traffic congestion
- * Providing an affordable transportation alternative
- * Economic development
- * Cost-effective, efficient service
- * Improve land use
- * Mobility for seniors and disabled
- * Service for poor residents/transit dependents or "lifeline services"

- » Build regional connectivity
- » Provide multi-modal transportation options
- » Expand services
- » Increase ridership
- » Provide service to key destinations
- » Other (1)
- » Other (2)

Does your agency have a mission statement?

Yes

No

I don't know

Do you agree with the following statements about setting fares?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	I don't know
Fares should be simple to administer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fares should be simple for riders to understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fares should be acceptable to the public	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fares should be largely subsidized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fares should be competitive with the cost of driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fares should be affordable for low-income residents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fares should reflect the cost of the service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transit service should be free	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fares should be increased/decreased to encourage/discourage certain types of trips	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please tell us whether or not your agency currently does the following, and whether or not you think it should.

	Does your agency do this?			Do you think it should?		
	Yes	No	Unsure	Yes	No	Unsure
Set fares to reflect the specific cost of the mode or service being used	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Set fares to cover budgetary shortfalls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Set fares as low as possible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Set fares based on riders' willingness to pay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Set fares based on riders' ability to pay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vary fares based on distance traveled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vary fares based on time of day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offer special fares for groups, events, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What are some ways in which you think your agency could improve its fare structure?

Are there specific impediments your agency faces in making these improvements?

When was the last time your agency's fares were changed?

- Within 1 year
- 1-2 years ago
- 3-4 years ago
- More than 5 years ago
- I don't know

What are the top three most important factors that are considered at your agency when fares are changed?

Please select up to three answer options.

- | | |
|--|---|
| <input type="checkbox"/> Budgetary need | <input type="checkbox"/> Losing/gaining riders to/from automobile use |
| <input type="checkbox"/> Farebox recovery ratio | <input type="checkbox"/> Reaction from the public |
| <input type="checkbox"/> Fare levels at other agencies in the region | <input type="checkbox"/> Reaction from board members and/or elected officials |
| <input type="checkbox"/> Fare levels charged at other agencies elsewhere in the U.S. | <input type="checkbox"/> Reaction from the media |
| <input type="checkbox"/> Losing/gaining riders to/from other transit providers | <input type="checkbox"/> Other <input type="text"/> |

When fares were changed, what were the three most important factors considered at your agency?

Please select up to three answer options.

- | | |
|--|---|
| <input type="checkbox"/> Budgetary need | <input type="checkbox"/> Reaction from the public |
| <input type="checkbox"/> Farebox recovery ratio | <input type="checkbox"/> Reaction from board members and/or elected officials |
| <input type="checkbox"/> Fare levels at other agencies in the region | <input type="checkbox"/> Reaction from the media |
| <input type="checkbox"/> Fare levels charged at other agencies elsewhere in the U.S. | <input type="checkbox"/> Other |
| <input type="checkbox"/> Losing/gaining riders to/from other transit providers | <input type="checkbox"/> I don't know / I wasn't there |
| <input type="checkbox"/> Losing/gaining riders to/from automobile use | |

Whether or not you agree with it, which of the following options most closely matches the way in which you interpret this statement:

"Transit fares should be market-based."

- The statement means that fares should be appropriate for the market segments that transit serves (i.e., targeted at current riders).
- The statement means that fares should be set high to recover as many costs as possible.
- The statement means that fares should be competitive with alternative transportation options in the marketplace.

- The statement means that fares should be unsubsidized.
- I don't know what the statement means.

Whether or not you agree with it, which of the following options most closely matches the way you interpret this statement:

"Transit fares should reflect marginal costs."

- The statement means fares should be as high as possible to maximize revenue.
- The statement means fares should be based on the cost of providing service to an additional rider.
- The statement means fares should be set based on budgetary need.
- The statement means transit fares should cover all costs.
- I don't know what the statement means.

Where do you think your agency makes the trade-off between these two goals?



Where do you think your agency makes the trade-off between these two goals?



Where do you think your agency makes the trade-off between these two goals?



Thinking about all the services your agency provides and for which you charge a fare, which types of fares do you offer? Check all that apply.

- Flat fares
- Fares that vary by times of day
- Fares that vary by distance
- Fares that vary by mode

- Fares that vary by user group
- I don't know / Not applicable

In your view, are these flat fares too high, too low, or just right?

- Generally too high for all users
- Generally too low for all users
- Generally about right for all users
- Too high for some users, too low for other users
- I don't know

CUSTOMERS/MARKET SEGMENTS:

In your view, how attractive is your agency's current fare structure to the following types of users?

	Very Unattractive	Unattractive	Neither Unattractive nor Attractive	Attractive	Very Attractive	I don't know
Occasional riders using one-way fares	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Occasional groups of riders (e.g. families) traveling together	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular riders who commute during off-peak hours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular commuters who travel far	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular commuters who do not travel far	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day-pass holders/visitors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weekly-pass holders/visitors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Low-income riders who travel far	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Low-income riders who do not travel far	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Has your agency implemented or considered implementing the use of smart cards for fare collection?

- We have never considered adopting smart cards
- We are currently considering the use of smart cards
- We considered smart cards but decided against using them
- We are planning to implement smart cards on our own
- We are planning to implement smart cards in conjunction with other agencies
- We have already adopted smart cards
- I don't know / I'm not sure

Please tell us how smart cards changed your other fare media.

Answers		
Yes	No	N/A or Don't know

	Answers		
	Yes	No	N/A or Don't know
Smart cards replaced other fare media (passes, tokens, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart cards were an added option to other fare media, and existing fare policies were retained	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cash fares were still accepted after smart card adoption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paper passes were still offered after smart card adoption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Yes	No	N/A or Don't know
Smart cards were used to introduce or increase the use of zoned or distance-based fares	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart cards were used to introduce or increase the use of time of day fares (e.g., off-peak fares)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart cards were used to introduce or increase the use of different fares for different modes/types of service.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart card users now have some benefits (e.g. free transfers) that are unavailable to users of other fare media.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Compared to the fares that cash, token, and paper pass users pay, the fares that smart card users pay are:

- Higher Lower The same I don't know

Please tell us how smart cards are expected to change your other fare media?

	Answers		
	Yes	No	N/A or Don't know
Smart cards will replace existing media (passes, tokens, etc.) and we will retain the same fare policies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After smart card adoption, we will continue to accept cash fares	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart card users will have some benefit (e.g., free transfers) that are not available to users of other fare media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart cards will be an added option to existing media options (passes, tokens, etc.) and we will retain the same fare policies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After smart card adoption, we will continue to offer paper passes (e.g. for monthly or weekly use).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please tell us how smart cards are expected to change your fare policies.

	Answers		
	Yes	No	N/A or Don't know
Smart cards will be used to introduce or increase the use of zoned or distance-based fares	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart cards will be used to introduce or increase the use of time of day fares	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart cards will be used to introduce or increase the use of different fares for different modes/types of service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After smart card adoption, we will continue to offer paper passes (e.g. for monthly or weekly use).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Compared to the fares that cash, token, and paper pass users pay, the fares that smart card users will pay are:

- Higher Lower The same I don't know

Are there any other ways in which your agency's smart card fare structure differs (or will differ) from its standard fare structure? (E.g., do you offer or plan to offer fare discounts for smart cards, pricing by distance, longer transfer periods, a rewards program, or some other benefit?)

To what extent does your agency support the following transportation initiatives?

	Not at all	Not really	Indifferent	Somewhat	Fully	I don't know
Congestion pricing (e.g., HOT lanes)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market-rate on-street parking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Premium transit fare for peak periods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Car pooling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Car sharing (e.g. Zipcar)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Block 1

Thank you for completing our survey, which will inform the research we are doing on fare policies. If you have any questions about this research, please contact Brian Taylor, PhD at btaylor@ucla.edu or Allison Yoh, PhD at ayoh@ucla.edu.

If you have any comments about a topic that you feel was not adequately covered in this survey, or if you would like to elaborate on an answer you gave, we invite you to do so in the text box below:

Additionally, if you would like to invite others to participate in this survey, please enter their e-mail addresses here: