



# A volatile relationship: The effect of changing gasoline prices on public support for mass transit



Michael J. Smart \*

Edward J. Bloustein School of Planning and Public Policy, Rutgers, The State University of New Jersey, 33 Livingston Avenue, New Brunswick, NJ 08901, USA

## ARTICLE INFO

### Article history:

Received 27 September 2012

Received in revised form 19 December 2013

Accepted 29 January 2014

### Keywords:

Gasoline prices

Price volatility

Mass transportation

Public opinion

## ABSTRACT

The determinants of public opinion toward public transit is a little-researched topic, though a better understanding of what makes consumers willing to support transit may reveal which attributes of transit consumers value most. One determinant of people's willingness to support investments in mass transit may be the price of fuel for transit's principal competition, the private automobile. In this paper, I examine the relationship between the cost of gasoline and stated willingness to invest public money in mass transit improvements. I hypothesize that fuel price volatility—in addition to price itself—is a determinant of support for more mass transit funding, controlling for other factors. As the price of gasoline becomes more uncertain, the public should, all else equal, support investment in mass transportation, a form of transportation that may provide some measure of protection from the price of fuel. Results suggest a strong effect of price volatility on consumers' willingness to support transit expenditures.

© 2014 Elsevier Ltd. All rights reserved.

## 1. Introduction

In May of 2012, the American Public Transportation Association published a circular stating that “public transportation protects Americans from gas price volatility” (Grigsby et al., 2012). In this publication, the authors suggest that the relatively stable price (for the consumer, at least) of public transportation serves as a “buffer” from fuel price shocks, particularly in those regions where transit service is nearly ubiquitous.

But how to pay for public transportation in a democracy? In many jurisdictions, citizens vote directly on taxes for public transportation, such as in the case of local options sales taxes (Goldman and Wachs, 2003). In other jurisdictions, politicians allocate funding to transit service, and must therefore weigh the opportunity cost of doing so—as well as the potential cost to their re-electability in the next election cycle. In either case, public opinion counts.

What sways public opinion on the funding of public transportation? While public opinion towards other transportation projects such as road pricing has received some scholarly attention (Smirti et al., 2007; Ungemah and Collier, 2007), a review of the literature revealed no studies on what drives the public's perception of the usefulness of public transportation. The question is not just of academic importance. A better understanding of the determinants of public opinion toward mass transit can reveal which attributes of transit the public finds useful and worth paying for.

This study tests the hypothesis that consumers' willingness to support the funding of public transit is motivated in part by fluctuations in gasoline prices, the chief marginal cost associated with using the automobile—mass transit's principal competition. I use public opinion data from the U.S.-based General Social Survey from the years 1984–2012 and match them with

\* Tel.: +1 848 932 2751; fax: +1 310 825 1575.

E-mail address: [mike.smart@rutgers.edu](mailto:mike.smart@rutgers.edu)

inflation-adjusted gasoline prices from the month and year of each survey (Smith et al., 2013). I include the year-over-year change in average real gasoline prices as a measure of the direction of price changes over the mid-term. Finally, I include a measure of price volatility. I model price volatility as the statistical variance in average monthly gasoline prices over several periods; thus, this measure captures the rapidity and magnitude with which prices “swing” higher and lower, rather than the direction in which they swing.

The analysis presented here suggests that consumers are motivated to support public transit when gas prices are increasing rapidly, but that price volatility may be an even stronger motivator of the willingness to pay for transit. The results further suggest that short-term variance (3–6 month trailing price variance) has a strong and significant effect on individuals' willingness to support transit, while longer-term price fluctuations are less influential. Transit agencies, advocates, and policymakers who wish to increase transit ridership and funding may therefore wish to highlight the relative price stability of a transit ride, rather than its low cost.

## 2. Prices and travel behavior

Economists have long examined consumers' reactions to changes in prices for a given good. While standard microeconomic models of consumer behavior posit a relatively straightforward relationship between price and the quantity of a good that consumers demand, more recent conceptualizations of this relationship from the subfield of behavioral economics have drawn on behavioral theories of adaptation (Helson, 1964) and prospect theory (Kahneman and Tversky, 1979) to emphasize the psychological and behavioral effects of price thresholds and reference prices (Adaval and Monroe, 2002; Cunha and Shulman, 2011; Mazumdar et al., 2005; Monroe, 1973). In these models of consumer behavior, consumers react not only to the absolute price of a good, but also in relation to a *reference price* established through repetitive purchasing at or near a given price. By stressing that the consumers' reaction to a given price can only be understood with reference to price history, these theories—supported meanwhile by countless experiments (for a review, see Mazumdar et al., 2005)—counter the classical economic model in which consumers view the price of a given good as being too high or too low based on a bounded-rational cost-benefit analysis.

In instances where the price of a good has remained stable for long periods, consumers are likely to use the reference (historical) price as a particularly deeply engrained standard against which they judge price fluctuations. Gasoline may be one such commodity, and one study suggests that recent gasoline price fluctuations have produced strong emotional reactions in consumers (Boyd-Swan and Herbst, 2012). The nominal price of gasoline has typically increased quite slowly, often just below the rate of inflation (U.S. Department of Energy, n.d.). As a result, the real, inflation-adjusted, price of gasoline has remained remarkably steady until recent years. With the exception of the oil crisis of the 1970s, changes in gasoline prices (both real and nominal) were gradual until about 2005. Fig. 1 shows the real price of gasoline per gallon in the United States since 1979, as well as the 6- and 12-month trailing fuel price variance based on monthly average prices for the nation. Indeed, since the early 1900s, gasoline prices have remained in a steady decline from just under \$3.00 (in year 2012 dollars) per gallon in 1919 to just under \$2.00 in the late 1990s, with a sharp spike in the 1970s and early 1980s (U.S. Department of Energy, n.d.).

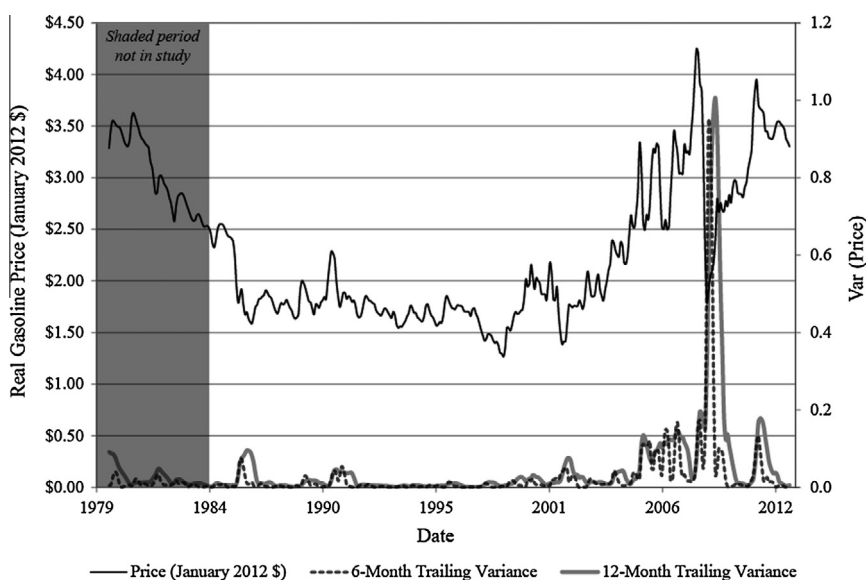


Fig. 1. Real gasoline prices in January 2012 dollars and the 6- and 12-month trailing price variance, 1979–2012 (study period: 1984–2012).

Download English Version:

<https://daneshyari.com/en/article/310744>

Download Persian Version:

<https://daneshyari.com/article/310744>

[Daneshyari.com](https://daneshyari.com)