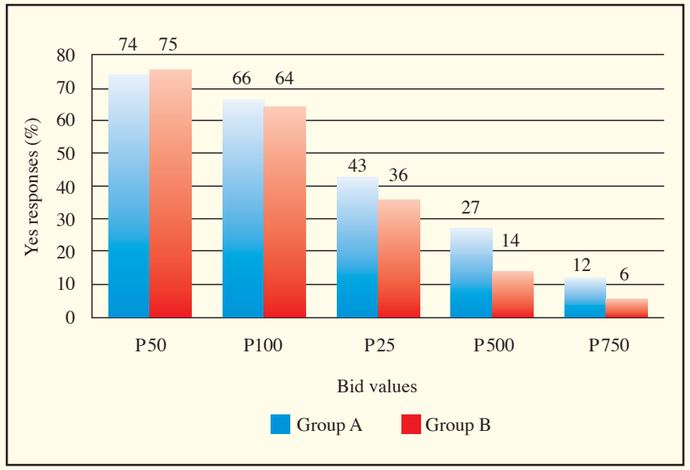
One explanation of the effect produced by the secret ballots is that when people are asked for their opinions face-to-face rather than in secret, they are more likely to give a more 'socially desirable' response. This means that, although the figures for Group A may be more appealing from a financial point of view, Group B data may be more reliable as they avoid this 'social desirability' bias. From a wider perspective, it is clear that secret ballots have an important role to play in WTP research, even when that research is not particularly controversial (as in the case of this study).

The Buy-back Scheme's Benefits and Costs

All Group A respondents who voted 'yes' said that they wanted less air pollution in Metro Manila and that they wanted to protect their family from air pollution-related diseases. However, not all (29%) have faith in the government's ability to implement the program. Most of those who voted 'no' cited financial constraints as their reason for not voting in favor of the proposed program. Over 10% of those who voted "no" wanted the government to pay for the full cost of replacing the current diesel fleet.

The aggregate economic benefit of the e-jeepney program to Metro Manila households is PHP 5.43 billion (USD 120 million) per year. This amount is considerable and reflects the great importance that Metro Manila residents attach to the benefits of clean air and cleaner public transportation. However, since the buy-back scheme forces jeepney operators to prematurely retire their current vehicles and incur the cost of shouldering the balance of the full price of the new electric vehicle, operators would be worse off, in spite of their expected savings on operation and maintenance costs, by a total of PHP 5 billion (USD 110 million) per year. A simple cost-benefit analysis thus yields an annual net benefit of PHP 376 million (USD 8.35 million.

Distribution of yes responses compared between groups



Government Support Needed

Survey results show that a surcharge of PHP 250 per month is optimal. Thirty-two percent of households agreed to pay this amount. This would yield revenues of PHP 2.5 billion (USD 55.5 million) per year for five years. Annualizing the total cost of PHP 17.5 billion (USD 388.9 million) for the buy-back program to cover all 58,200 jeepneys, PHP 3.5 billion (USD 77.7 million) would be needed each year. This means that total collections would be about PHP 981 million (USD 21.8 million) short of breakeven.

The results show that, although Metro Manila households consider the benefits of clean air as very important, the amount that they are willing to pay for a program to bring this about would not be able to cover the full cost of the buy-back program on their own. The results suggest that government support in the form of counterpart funding and tax exemptions may be needed to cover the shortfall. Given the other anxillary health benefits from clean air, the study therefore recommends that government and private enterprises should invest in the program or in other similar projects aimed at providing cleaner public transport and reducing air pollution in Metro Manila.

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Will The Public Pay For Cleaner Air? A Case Study From Metro Manila

EEPSEA POLICY BRIEF • No. 2011-PB1

In Metro Manilla polluted air is linked to almost 5,000 premature deaths each year. To help address this significant pollution and public health problem, a new EEPSEA study has looked at whether people in the city would be willing to pay for a program that would help clean up the city's traffic. This would involve the replacement of the city's current fleet of highly-polluting diesel jeepneys with zero-emission electric vehicles. →

A summary of EEPSEA Research Report No. 2011-RR1: "Are Metro Manila Households Willing to Pay for Cleaner Public Transport? " by Jamil Paolo S. Francisco, Department of Economics, Ateneo de Manila University, Loyola Heights Quezon City 1108, Philippines.
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“ Households would be willing … to pay for cleaner air. ”

Under such a scheme households would pay through a surcharge on top of their monthly electricity bills.

The study is the work of Jamil Paolo S. Francisco from the Ateneo de Manila University in Quezon City. It finds that there would be some public support for the scheme, that it would provide significant financial benefits to the city and that people would be willing to pay to finance it. However, it also shows that the program would not be economically viable without government support. The study also investigates various issues linked to ‘willingness to pay’ research. It finds that using secret ballots can improve the validity of this kind of research and recommends that this method be used more widely.

Estimates from the Philippine Environment Monitor 2007, a joint project between the World Bank and the Department of Environment and Natural resources (DENR), show that there have been close to 5,000 premature deaths each year in Metro Manila from exposure to poor air quality. To help address this significant pollution and public health problem, a new EEPSEA study has looked at whether people in the city would be willing to pay for a program that would help clean up the city’s traffic. This would involve the replacement of the city’s current fleet of highly-polluting diesel jeepneys with zero-emission electric vehicles. Under such a scheme households would pay through a surcharge on top of their monthly electricity bills.

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The Pollution Challenge and a Possible Solution

Metro Manila is the national capital region of the Philippines, with a population of 11.5 million in 2007. Covering an area of 636 km2, Metro Manila is the smallest of the country’s 17 regions. It is also the most densely populated (18,166 people per km2), the most urban and the region with the highest density of road traffic. The World Health Organization and the United Nations Environment Program have ranked Metro Manila as the fourth most polluted urban region in the world. Mobile sources contribute between 70% and 90% of this air pollution and jeepneys - the iconic public utility vehicles that ply Manila’s streets - are one of the main culprits. There are about 58,200 registered jeepneys on the streets of Metro Manila; most of these are powered by reconditioned diesel engines that are often of substandard quality, poorly maintained and highly polluting.

In 2007 two electric-powered jeepneys were pilot tested in one of Metro Manilla’s districts by Greenpeace and the Makati City Government. As with all electric vehicles, these ‘e-jeepneys’ run very quietly and produce zero emissions. It was estimated that if all Manilla’s diesel jeepneys were replaced with electric vehicles there would be a 50% reduction in particulate emissions. The operating cost of an electric jeepney is less than that for the traditional diesel-powered vehicle. However, an e-jeepney costs PHP 150,000 (USD 3,000) more than a newly assembled jeepney with a reconditioned diesel engine.

A Buy-back Program for Diesel Jeepneys

The higher cost of e-Jeepneys is the main barrier to their wider adoption. Even though operators would benefit from lower operating costs, these would not be enough to enable many of them to switch to the new vehicles. A comprehensive government program is needed to promote the e-jeepney. The government has already run a program of this type to promote compressed natural gas as an alternative fuel for buses. This program offered a long list of incentives including tax breaks and affordable financing. However, unlike the relatively large public transport companies that operate buses, jeepney operators tend to be small, family-run enterprises with limited resources.

This makes it vital that any program to promote a switch to e-Jeepneys should provide appropriate support to operators.

The study proposes that the government supports a mandatory jeepney buy-back program. Under this program, the government would pay jeepney owners a lump sum of PHP 300,000 (USD 6,000) to retire their diesel vehicles. Jeepney owners and operators would then have to cover the remaining cost of the new e-jeepneys themselves, but they would be offered competitive loan finance rates to help them.

It would cost some PHP 17.46 billion to extend the proposed buy-back program to Metro Manilla’s entire fleet of 58,200 diesel jeepneys. Given the fiscal constraints currently being faced by the national government, it is unlikely that the country’s administration would be able to afford to implement the program on its own. The study therefore proposes that the government sets up a fund for the buy-back program to be supported from the monthly contributions of Metro Manila households through a fee added onto their electricity bills.

Are Households Willing to Pay?

A survey was carried out to find out if householders would be willing to help pay for the jeepney buy-back scheme. Households were drawn randomly from the five largest regions in Metro Manila. These were Quezon City (21% of the Metro Manila population), Manila (15%), Caloocan (11%), Makati (5%) and Pasig (5%). A total of 1,000 households were interviewed. Participants were asked whether they would say ‘yes’ to a specific amount of money being added to their monthly electricity bill. Five different amounts (bid levels) were used to get a full picture of people’s willingness to pay. The bid levels were: PHP 50 (USD 1.11), PHP 100 (USD 2.22), PHP 250 (USD 5.55) PHP 500 (USD 11.11) and PHP 750 (USD 16.67). These amounts were randomly assigned to participants.

Almost all the survey participants thought that air pollution was a problem in Metro Manila and that reducing the level of air pollution was important or very important. The study also showed that Metro Manila households have a positive and significant willingness to pay for the benefits of cleaner public transport. They would be willing to pay between PHP 173.10 (USD 3.85) to PHP 259.75 (USD 5.77) per month to finance the buy-back scheme. Income and education were found to have a strong influence on a household’s willingness to pay.

The Impact of Secret Ballots

The study was also interested in finding out if the way in which survey responses were obtained (secret ballots vs. face-to-face interviews) influenced the amount that people would be willing to pay. The results of the study revealed that respondents who were asked directly through a conventional face-to-face interview were more likely to respond positively than those who were asked using a secret ballot. Not surprisingly, the estimated Willingness to Pay (WTP) obtained from Group A (face-to-face method) was significantly higher than the estimate from Group B (secret ballot method). For Group A the mean WTP was estimated at PHP 259.75 (USD 5.77) per month for 60 months. For Group B the figure was PHP 205.04 (USD 4.56). These values amount to 1.68% and 1.43% of average household income .