The Motorization of China

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China: Vehicles per 1000 Persons

Sources: U.S. DOE Transportation Energy Data Book, Automotive Analysis Division of UMTRI
China Annual Vehicle Sales:
Passenger Cars and Commercial

Millions

Sources: U.S. DOE Transportation Energy Data Book, Economic Intelligence Unit, Automotive Analysis Division of UMTRI
China Vehicle Parc:
Growth and Replacement Rates

Sources: U.S. DOE Transportation Energy Data Book, Economic Intelligence Unit, Automotive Analysis Division of UMTRI
Forecasting Future Motorization in China

- World Business Council for Sustainable Development (2004), *Mobility 2030: meeting the challenges to sustainability*

Household Demand

- Survey of Chinese Households, 2005
- Conducted by Automotive Analysis Division and World Bank
- 2,500 households in five cities
- Demographics and economics
- Automotive demand
  - Ownership (revealed preference)
  - Likelihood of future ownership (stated preference)
Cities in the 2005 AAD-World Bank
90% of households in the AAD-World Bank sample had total annual expenditure of less than 32,000 yuan or $712
Ownership
(revealed preference)

• Probit regression of 0,1 indicator of car ownership on total annual expenditure, market value of home, size of household (number of persons), and 0,1 indicators of city
Expenditure used as proxy for income (income missing for a majority of the sample)
• One percent increase in expenditure leads to an increase in probability of car ownership of 0.0026 Pp.
### Ordered Probit Regression Elasticities: How Likely to Buy a Car

|                          | Not Likely | Sometimes | Definitely | P>|z|** |
|--------------------------|------------|-----------|------------|-------|
| Expenditure (0.023)      | 0.018      | 0.005     |            | 0%    |
| Household Size (0.026)   | 0.021      | 0.006     |            | 26%   |
| Probability Own Car 0.040| (0.031)    | (0.009)   |            | 0%    |
| Survey City*             |            |           |            |       |
| Wuhan                    | 0.002      | (0.002)   | (0.001)    | 63%   |
| Shenyang (0.000)         |            | 0.000     | 0.000      | 100%  |
| Fuzhou (0.016)           |            | 0.012     | 0.003      | 0%    |
| Xi'an                    | 0.007      | (0.005)   | (0.002)    | 15%   |
| Home Ownership**         |            |           |            |       |
| From parents 0.001       | (0.001)    | (0.000)   |            | 82%   |
| Bought (0.016)           | 0.013      | 0.004     |            | 0%    |
| Self-built (0.001)       | 0.001      | 0.000     |            | 46%   |
| Rent (0.004)             | 0.003      | 0.001     |            | 4%    |
| From others (0.001)      | 0.001      | 0.000     |            | 43%   |
| Other                    | 0.001      | (0.001)   | (0.000)    | 78%   |

Number of obs = 2,298  
LR chi2(13) = 108.35  
Prob > chi2 = 0.0000  
Log likelihood = -1,012.0611  
Pseudo R2 = 0.0508  

* Shanghai is the reference city.  
** Employer-owned is the reference category.
Vehicles per 1,000 Persons in China:
Comparison of Alternative Forecasts

Year

Historical

Dargay et al. 269
AAD 178
WBCSD 113
Concluding Comments

- Very rapid motorization expected
- Infrastructure issues
- Manufacturing capabilities issues
- Fuel supply issues