11.S946 Managing Mobility in China: Transportation Research Seminar
Department of Urban Studies and Planning, MIT, Fall 2014
Wed 9:00-11:00; 9-450B; Credits: 2-0-7

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How Were Ideas Born?
This seminar dissects ten research projects from head to toe to illustrate how ideas are initiated, framed, analyzed, evidenced, written, presented, criticized, revised, extended, and hopefully published, quoted and applied! In parallel the course challenges students to design and execute your own research.

How Will China Move? Managing Mobility for China’s Urban Billion
The rapid urbanization and economic growth in China uniquely characterize her transportation challenges and corresponding solutions. Extraordinary growth calls for extraordinary measures: from building 15 Beijing subway lines in 15 years to investing two trillion yuan on high speed rail; from restricting half of Beijing vehicles during the Olympics to charging over USD10,000 to register a Shanghai car license through auction. Boldness in both infrastructure development and policy design seems commonplace in China’s transportation arena. This course, however, will present some subtleties in these bold designs through ten examples.

- Four projects examine mobility behavior and attitude evolution: 1) the rise and decline of bicycles; 2) Chinese car pride and car dependence, and impacts on behavior; 3) public attitude towards government policies and preference variation based on different frames of reference; and 4) mobility evolution from Danwei to suburbanization to transit oriented development.
- Five projects assess transportation policies: 1) contrasting efficiency and equity orientations between three automobile management models in China: Shanghai (bidding to drive: vehicle license auction), Beijing (superficial fairness: the license lottery), and Guangzhou (behavioral economics experiment: a hybrid model); 2) how governments gauge public sentiment and use price as a signal for policy fine-tuning; 3) what has not worked in China’s public transit; 4) purposeful policy leakage: legitimacy and intentionality of non-local vehicles; and regionalism: balancing art of city openness and congestion management; and 5) policy design parameters and optimal policy mixture.
- The 10th project focuses on high speed rail and discusses capacity constrained accessibility and the dispersion of agglomeration through high speed rail.

The course starts and ends with the speculations of the (im)possibility of sustainable transportation in China and glimpses of hope.

Sister Courses: Urbanizing China and Managing Mobility in China alternate between years.
## Schedule

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<tr>
<th>Date</th>
<th>Topics</th>
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<tr>
<td>09/03</td>
<td><strong>Bidding to drive: managing auto-mobility in Shanghai</strong>&lt;br&gt;  • Bidding to drive: car license auction policy in Shanghai and its public acceptance  &lt;br&gt;  • How were ideas born? Course introduction</td>
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<td>09/10</td>
<td><strong>Dialog with Prof. Rui Wang, UCLA</strong>&lt;br&gt;  • Restricting driving for better traffic and clearer skies: did it work in beijing?  &lt;br&gt;  • Parking policies and practices under rapid motorization: the case of china</td>
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<td>09/17</td>
<td><strong>Superficial fairness: Beijing’s vehicle license lottery</strong>&lt;br&gt;  • Efficiency vs. equity orientation: beijing and shanghai comparison  &lt;br&gt;  • Superficial fairness: a pathway towards acceptable car deterring policy?  &lt;br&gt;  • Policy evaluation criteria</td>
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<td>09/24</td>
<td>No class</td>
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<td>10/01</td>
<td><strong>Accidental behavioral economics experiment</strong>&lt;br&gt;  • Guangzhou’s hybrid (auction + lottery) license model  &lt;br&gt;  • Policy design: optimal policy mixture; modelling salience</td>
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<td>10/08</td>
<td><strong>Car pride and car dependence: attitude, value and life aspiration</strong>&lt;br&gt;  • Car pride: psychological structure and behavioral implications; car dependence  &lt;br&gt;  • Rise and decline of the bicycle in beijing  &lt;br&gt;  • Environmental attitudes and travel behavior</td>
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<td>10/15</td>
<td><strong>Dialog with prof. Ralph Gakenheimer, MIT</strong>&lt;br&gt;  • Urban mobility in the developing world  &lt;br&gt;  • What has changed between 1999 and now? What are the directions for update?  &lt;br&gt;  • What does the paper inspire you for your own research?  &lt;br&gt;  • What has not worked in china’s public transit?</td>
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<td>10/22</td>
<td><strong>Price as a signal for policy fine-tuning</strong>&lt;br&gt;  • Gauging the public: price as a signal for policy fine-tuning  &lt;br&gt;  • Car owners as supporting constituency: preference variation of policy acceptance  &lt;br&gt;  • Frame of reference and perceived fairness</td>
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<td>10/29</td>
<td><strong>Dialog with Dr. Jieping Li, CTPS</strong>&lt;br&gt;  • Travel demand models in the developing world: correcting for measurement errors  &lt;br&gt;  • Modeling private car ownership in china: investigation of urban form impact across megacities  &lt;br&gt;  • Latent lifestyle preferences and household location decisions</td>
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<td>11/05</td>
<td><strong>Purposeful policy leakage: legitimacy and intentionality of non local vehicles</strong>&lt;br&gt;  • Regionalism and city openness  &lt;br&gt;  • Gaming the government policies; respect of rule of law</td>
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<td>11/12</td>
<td>No class</td>
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<td>11/17</td>
<td><strong>Dialog with Dr. Zhi Liu</strong> (class meets on Monday)&lt;br&gt;  • Transportation infrastructure finance  &lt;br&gt;  • Value creation through TOD  &lt;br&gt;  • Financing urban accessibility</td>
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<td>11/26</td>
<td><strong>Urbanization, suburbanization and TOD</strong>&lt;br&gt;  • Suburbanization and transit-oriented development in china  &lt;br&gt;  • Has transportation demand of shanghai passed its peak growth?</td>
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Managing Mobility in China

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<th>Date</th>
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<tr>
<td>12/03</td>
<td>A two trillion yuan bet? High speed rail in China</td>
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<td>• Urban transportation in Shanghai: problems and planning implications</td>
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<td>• Capacity constrained accessibility</td>
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<td>• Dispersion of agglomeration through HSR</td>
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<td>• Impact of HSR on China’s regional accessibility</td>
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<td>12/10</td>
<td>(Im)possibility of sustainable transportation in China</td>
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<td>• Do cities learn? Transportation policy mobility and policy market in China</td>
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Four Dialogs with Guests

- **Guests**
  - Prof. Rui Wang, UCLA (Sep 10)
  - Prof. Ralph Gakenheimer, MIT (Oct 15)
  - Dr. Jieping Li, Central Transportation Planning Staff (Oct 29)
  - Dr. Zhi Liu, Lincoln Institute (Nov 17)
- **Format**: Guest lectures are organized as “reflective dialogs”. Typically we break the class into two one-hour sections. For each session, we have
  - Guest presentation (20min): research content
  - Guest + Jinhua dialog (20min): how were ideas born?
  - Guest + Students Q&A (20min): student inspirations

Student Expectations

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<th>Part 1: Class Participation and Idea Notes</th>
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<td>Class participation 20%</td>
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<td>Six idea notes 30%</td>
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<th>Part 2: Term Project</th>
<th>50%</th>
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<td>Proposal 10%; Interim report 10%; Full report 20%; Revised report 10%</td>
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Part 1. Class participation and Idea Notes

After illustrating one particular research idea at each seminar, Jinhua will challenge each student to identify or create an idea, frame it into a research question, justify its significance, and ponder upon potential methods and data. During and after the six seminars, you will write a 1~2 page idea note, summarizing your responses to my challenges. Specific challenges will be announced in class.

Part 2. Term Project

Students will work in pairs to deliver a term project. We will provide you with three unique datasets we have collected from Chinese cities, as well as the following list of candidate project topics.

- Behavioral Types
  - Guangzhou’s Hybrid Policy: An Accidental Behavioral Economics Experiment in Transportation Policy Design
  - Frames of Reference and Perception of Transportation Equity
Managing Mobility in China

- Preference Variation: Car Ownership as Supporting Constituency for Car Deterring Policies
- Gauging Transport Policy Attitude using Microblogs

- **Policy Types**
  - Eventuality of Car Management Policies in China’s Mega Cities
  - Mobility Challenges of Migrants Workers
  - Policy Dilemma of Government Vehicles
  - Unifying Urban-Rural Transportation Policies
  - Property Right and Parking Policies in China

- **Modelling Types**
  - Modelling Joint Car Ownership and License Type Choices
  - Knowledge’s Impact on Transportation Policy Acceptance
  - Impact of Car Restricting Policies on Vehicle Type Choice
  - SEM Modeling Public Policy Acceptance

**Listeners**
Listeners are welcome with instructor’s permission: to attend at least 11 of the 13 classes and complete two idea notes.

**Readings**

09/03  Bidding to drive: managing auto-mobility in Shanghai


09/10  Dialog with Prof. Rui Wang, UCLA

- Cong Suna, Siqi Zhenga, and Rui Wang (2014) Restricting driving for better traffic and clearer skies: did it work in beijing? Transport Policy, 32: 34-41

09/17  Superficial fairness: Beijing’s vehicle license lottery


10/01  Accidental behavioral economics experiment


10/08  Car pride and car dependence: attitude, value and life aspiration

- Zhao, J. (2011) A Subjective Measure of Car Dependence, Transportation Research Record: Journal of the Transportation Research Board, No. 2231, p44-52
• Zhan Zhao and Jinhua Zhao: Car Pride: Psychological Structure and Behavioral Implication
• Ming Yang, Maggie Wang, Jinhua Zhao and John Zacharias, The Rise and Decline of the Bicycle in Beijing, Transportation Review, under review

10/15 Dialog with prof. Ralph Gakenheimer, MIT
• Gakenheimer, R (1999) Urban mobility in the developing world, Transportation Research A

10/22 Price as a signal for policy fine-tuning
• Marisol Castro and Jinhua Zhao 2014 Price as a Signal for Policy Fine-tuning, Transport Policy, under review
• Zhao, J and T. Chen (2014) Car owners as supporting constituency: preference variation of policy acceptance, working paper, presented at WCTR 2013

10/29 Dialog with Dr. Jieping Li, CTPS

11/05 Purposeful policy leakage: legitimacy and intentionality of non-local vehicles
• Chen, X. and J. Zhao (2013) Shanghai’s Non-Local Vehicles As A Dilemma In Transportation Policy Transfer From Singapore, Selected Proceedings of the 13th World Conference on Transport Research, Rio, Brazil
• Zhao, J., D. Block-Schachter, A. Lai and X. Chen (2014) Purposeful policy leakage: legitimacy and intentionality of non-local vehicles, working paper

11/17 Dialog with Dr. Zhi Liu (class meets on Monday)
• Hiriaki Suzuki, Robert Cervero, Kanako Luchi, 2013, Transforming cities with transit: transit and land-use integration for sustainable urban development, World Bank.
11/26 Urbanization, suburbanization and TOD

- Robert Cervero and Jennifer Day 2008, Suburbanization and transit oriented development in China, Transport Policy 15
- Q Shen 1997 Urban transportation in Shanghai, China: problems and planning implications, International Journal of Urban and Regional Research

12/03 A two trillion yuan bet? High speed rail in China

- Yu Shen, Jinhua Zhao, Capacity Constrained Accessibility, working paper, submitted to TRB 2015
- Wanli Fang and Jinhua Zhao: Dispersion of Urban Agglomeration through High Speed Rail in China, accepted for presentation at ACSP 2014

12/10 (Im)possibility of sustainable transportation in China

- Jinhua Zhao, Drewry Wang and Ying Gao (2014) Formation of Transportation Policy Market in China: From Policy Transfer to Policy Mobility, working paper, presented at TRB 2014

All readings are prepared for you and shared via dropbox.