Public Evaluation of HSR, and Midwest Perspectives
Public Interest/Evaluation

• Private market—why not?
  – Spillovers
    • Economic Development (eminent domain etc. who else can do the big projects?)
      – “Network” gains (connectivity/density)
      – Nodal development
      – “Job creation” macro-economic “costless resources”
    • Environment (market prices don’t reflect these costs and benefits)

• But let the public buyer beware
  – Measurement far from perfect
  – Studies often neglect alternatives (opportunity cost)
  – Cost efficiencies hard to achieve
    • Operational costs of public systems (sticker price and productivity)
    • Out-sourcing not free from difficulties (e.g. station location)
    • Raising revenues “costly” (not dollar for dollar)
      – Incentive effects
      – Transaction costs
      – Money sticks where it hits? (zero-based budgeting, not)
Public Interest/Evaluation

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  – Spillovers
    • Economic Development (eminent domain etc. who else can do the big projects?)
      – “Network” gains (connectivity/density)
      – “Job creation” macro-economic “costless resources”
  • Environment/safety (market prices don’t reflect these costs and benefits)
    – Embedding such benefits not a “surgical instrument” but a meat-ax
      » Carbon tax/trading system preferred, Americans like their taxes hidden (e.g. CAFÉ)? E.g. Energy gains depend on ridership/capacity being attained
    – CO2 a “global pollutant”….. Its your call on local subsidy (Cal. Vs. Ohio/Wisconsin)
Public Interest/Evaluation

• But let the public buyer beware
  – Measurement far from perfect
    • risk is not at a premium right now?
      – Public attitude toward risk and public risk is strange perhaps, especially in the Midwest
Federal debt long term projections are worrisome

Source: U.S. Congressional Budget Office, August, 2011.
The widely-used measure—state and local long- and short-term debt as share of GDP (GSP)

Source: FRB staff estimates using Census of Govt. and BEA data.
State debt plus pension and OPEB liabilities as a percent of GSP (2007)
Public Interest/Evaluation

- But let the public buyer beware... Even if the B/C ratio looks favorable....is it the best alternative?
  - Measurement far from perfect
  - Studies often neglect alternatives (opportunity cost)
    - Do we need other stuff more? (Infrastructure bank evaluation)
      - California HSR assumes no other alternative...Ohio and IL O’Hare have used similar analysis; and so....
    - (De)-Congestion is a legitimate benefit as a spillover with subsidy
      - IF driving/flying are mis-priced” or “underpriced”, then it is efficient to under-price (subsidize) the alternative (and count the decongestion as benefit)
      - But if we are evaluating capacity addition
        » more roads/airfield better?
        » or more air travel capacity (Next Gen)
        » or actual tolling of roads?
Exhibit 10-3. Percent breakdown of the main benefit categories

More than half the benefits from CAHSR will come from the travel-time savings for users who switch to high-speed rail and from faster highway travel from reduced congestion.
<table>
<thead>
<tr>
<th>Category</th>
<th>Bay to Basin</th>
<th></th>
<th>Phase 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capital Cost Scenario 1</td>
<td>Capital Cost Scenario 2</td>
<td>Capital Cost Scenario 1</td>
<td>Capital Cost Scenario 2</td>
</tr>
<tr>
<td>Benefits for HSR users</td>
<td>$35,409</td>
<td>$34,143</td>
<td>$48,790</td>
<td>$45,037</td>
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<tr>
<td>Benefits from reduced driving</td>
<td>$26,421</td>
<td>$25,737</td>
<td>$37,470</td>
<td>$35,149</td>
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<tr>
<td>Benefits from reduced flying</td>
<td>$3,153</td>
<td>$3,054</td>
<td>$4,399</td>
<td>$4,093</td>
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<tr>
<td>Total benefits</td>
<td>$64,983</td>
<td>$62,934</td>
<td>$90,659</td>
<td>$84,279</td>
</tr>
<tr>
<td>Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction costs, net of real estate</td>
<td>$26,752</td>
<td>$31,336</td>
<td>$37,242</td>
<td>$41,166</td>
</tr>
<tr>
<td>Operating and maintenance costs</td>
<td>$12,309</td>
<td>$11,811</td>
<td>$13,934</td>
<td>$13,106</td>
</tr>
<tr>
<td>Periodic rehabilitation costs</td>
<td>$726</td>
<td>$743</td>
<td>$955</td>
<td>$855</td>
</tr>
<tr>
<td>Salvage value</td>
<td>$722</td>
<td>$888</td>
<td>$1,247</td>
<td>$1,456</td>
</tr>
<tr>
<td>Total costs, net of salvage value</td>
<td>$39,066</td>
<td>$43,002</td>
<td>$50,884</td>
<td>$53,673</td>
</tr>
<tr>
<td>Net present value</td>
<td>$25,918</td>
<td>$19,932</td>
<td>$39,774</td>
<td>$30,606</td>
</tr>
<tr>
<td>Benefit-cost ratio</td>
<td>1.66</td>
<td>1.46</td>
<td>1.78</td>
<td>1.57</td>
</tr>
<tr>
<td>Economic rate of return</td>
<td>6.83%</td>
<td>5.94%</td>
<td>7.10%</td>
<td>6.22%</td>
</tr>
</tbody>
</table>

Source: California High-Speed Rail Benefit-Cost Analysis (BCA)—October 2011

Although Scenarios 1 and 2 are driven by the capital cost estimates in Chapter 3, Capital Costs, Scenario 2 leads to fewer benefits because it delays the opening of each step of the system, delaying the benefits that each step generates.
Public Interest/Evaluation

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      – Job gains/benefits
      – Nodal development
      – Productivity/network gains
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Employment benefits of HSR: “No, cash, no hope, no jobs”?
Public Interest/Evaluation

• “Job Creation” The Key is to distinguish (Benefit/Cost vs. Impact Analysis; gross v. net)
  – Local multipliers and hiring of unemployed can be sizable
  – but from local perspective, in-migration large for skilled jobs
  – And crowding out (hiring those who are otherwise employed)
  – From macro-economic perspective, re-employment is indeed desirable during long down-turns
    • Though timing is tricky (“shovel-ready”)
    • Should benefits be considered at all unless one is comparing alternative projects with employment?
Nodal development

• Land value increments *can* be largely pecuniary....one at expense of another

• One also needs to avoid double counting...e.g. increment in land values reflects high air quality of a project (only one should be counted, or partial counting at best).

  – Are nodal land price increases already counted in “willingness to pay” for train tickets?
“Productivity” as benefit: Can we *engineer* density with HSR?

(Benefits from density, labor matching and specialization, face-to-face idea generation and learning etc. e.g. Glaeser & Mare; Carlino

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TABLE 3-3 Increase in Functional Specialization of Metropolitan Areas

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>5–20 million</td>
<td>+10.2</td>
<td>+22.1</td>
<td>+39.0</td>
</tr>
<tr>
<td>1.5 to 5 million</td>
<td>+0.30</td>
<td>+11.0</td>
<td>+25.7</td>
</tr>
<tr>
<td>75,000 to 250,000</td>
<td>−2.1</td>
<td>−7.9</td>
<td>−20.7</td>
</tr>
<tr>
<td>67,000 to 75,000</td>
<td>−4.0</td>
<td>−31.7</td>
<td>−49.5</td>
</tr>
</tbody>
</table>


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Productivity

-- labor matching
-- specialization of function
-- idea generation/learning
-- “new markets” (Pecuniary?)
In the past: Clusters have been furthered through transportation: (at least from local perspective)
O’Hare and other “home runs” for Chicago in prof. services and finance—what are the next ones to be?

Global Reach

- Only “dual hub” airport in North America --handling over 3,300 flights per day
- Within a 4-hour flight to all major North American destinations – 139 nonstop domestic routes
- Nonstop global gateway to 43 international business capitals

Chicago’s economy has achieved profound re-structuring

Manufacturing Share of Total Jobs

- U.S.
- Chicago MSA
- Great Lakes Lakes Region

Source: BEA.
The Midwest network of cities is still steeped in manufacturing: Can transportation help achieve a 21st century economic base?
At end...

• Benefits in economic development hold great promise....but they are quite uncertain and would likely require public subsidy;
  – What is the public’s appetite for risk (possible failure)?

• “Costs” can be slippery concepts
  – Questions of “for whom” are important, as well as “opportunity costs” which means “are there better alternatives that are being crowded out”? 
If we think of the Midwest as a network of cities, its configuration may be fashioned by old-economy manufacturing

MSA Population 2009
Top 30 from IL, IN, MI, MN, MO, OH, WI
Many mid-size Midwest cities grew large on manufacturing, but it is uncertain whether that can be maintained.

A rank-size rule would show the manufacturing-based Midwest as over-built.
One question to be answered if so: For Chicago and other MW MSAs: Is HSR redundant with its airports?

- HSR competes well connecting high HC workers across high density places (where air cannot reach)

- Would a HSR link from O’Hare to CBD be preferable or complementary?

Source: Alain Bertaud and Harry W. Richardson, “Transit and Density: Atlanta, the United States and Europe.”
Chicago’s central work/living area for high HC people is more dense than rest of Midwest.

Would HSR reproduce Manhattan at a region-wide scale?