Human Values and Transportation System Homeostasis

General discussion
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Transportation and human values

• The classical view of transportation is that it is a derived demand.

• In other words, people demand transport as a ‘necessary evil’ to get other things that they truly want, like goods, services, land, quality-of-life etc.

• Others maintain that there is also a component of transportation that is desired in and of itself and hence there is a direct demand for transportation, or, perhaps, more properly speaking, movement.

• Either way, underlying human values are critical. Change the values and you will change the demands, direct or otherwise.
Equilibrium v. Homeostasis

- All systems have equilibrium states, that is, states where opposing forces (in economics, supply and demand) are balanced.

- In organic living systems, one can speak of **homeostasis**, that is, a state which is changing and moving constantly but which is “at rest” in terms of its fundamentals.

- In human systems, the nature and maintenance of homeostasis is critically affected by decisions that the human organism makes.

- Underlying such human decisions are human values, at least in part (assuming a non-deterministic human being)
The difference between ‘machine’ equilibrium....

...and homeostasis of human systems.

Humans use mechanical systems for transport but are not just ‘ghosts in the machine.’
In a famous 1977 article (of the name above) by George Stigler and Gary Becker (both Nobel laureates in economics), elaborated and defended a position considered to be in the mainstream of Anglo-American neoclassical economics -- human tastes do not need to be explained or considered when modeling economic behavior. If everybody is a rational maximizer and competitive equilibrium holds, behavior on a systemic level will be predictable and uniform regardless of individual tastes. Hence “The tastes are not in dispute.” This view therefore relegates human values to the sidelines, at least as far as economic behavior is concerned. The nature and achievement of equilibrium can therefore be assessed and predicted WITHOUT reference to human tastes.
Markets as preference detectors

• IF one subscribes to orthodox neoclassical economics, and adds to it the explicit premise of Stigler/Becker (previously implicit) THEN public policy becomes clear:

  • Let private markets operate freely.
  • Where private markets do not exist, establish institutions which simulate them.
  • In the transportation arena, make sure the ‘competitive’ market exists and through its price-setting mechanism, supply and demand (tastes implicit but of no concern for analytical purposes) will be equilibrated.
Political democracy

- Neoclassical orthodoxy mostly ignores the issues of the ‘polis,’ the ancient Greek notion of political community.
- The word ‘polis’ itself literally refers to the city-state and that reveals the close interconnection between community (city) and political entity (state).
- Modern western society has replaced this organic connection between community and politics with procedural democracy (majority voting) which directs organs of the state to meet societal ‘needs’ and ‘wants’ as identified by the voting procedure.
Political markets, economic markets

• In fact, Anglo-American political thought and economic thought have largely become conflated.

• Economic markets take care of ‘nonpolitical’ needs and wants (where people ‘vote’ with dollars) while political markets take care of ‘public’ needs and wants where people vote with votes.

• Indeed, the former is the essence of ‘public choice’ economics.

• Once again, values are taken outside the practical world and relegated to the temples of philosophy.
Technocracy and Democracy

- Additionally, the increasing complexity of human infrastructure has created the need for a ‘technocracy,’ in which ‘experts’ with specialized skills manage the large systems which meet the expressed wants and needs of the populace, whether the market is public or private.

- This raises the obvious conflict: should the ‘will’ of the populace always be followed (Vox Populi) or do experts know better, at least in certain spheres of activity?

- How are conflicts between populace and expertise to be resolved?

(The US “Fed”: A monetary ‘technocracy’)
Epistemology

• Another issue that arises with the growth of complex, dynamic, human-made systems is one of epistemology: it becomes increasingly difficult to actually know how the system is operating and how it will behave, particularly under stress.

• In this case, both experts and populace may be at a loss
Forcing solutions to the tension

• This tension of ‘opposites’ in some ways can never be resolved.

• Ideally, perhaps, it could serve as a creative living force in the development of a society.

• Such a tension is actually the essence of homeostasis.

• Human beings being what they are, however, the desire to ‘resolve’ the discomfort represented by a tension is strong.

• Some archetypal ‘solutions’ to be considered next:
  – Populism
  – Planner autocracy
  – Caudillismo
1. Populism

• Populism is a political term, also originating in ancient Greece, where it referred to movements based on demagogoy, that is, appeals to the ‘mob.’

• In more modern settings it refers to political agendas which claim to ‘give the people what they want,’ and which express explicit distrust of elites, either economic, racial or intellectual.
Political and market populism

- For purposes of this discussion, there are two forms of populism which are most relevant.
- One is more typical, a sort of classic political populism where experts in particular, or perhaps governmental bodies in general, are accused of keeping secrets from the people and of hidden agendas expressed in terms of technical expertise. Here the group being ‘defended’ is the individual citizen. An example: “Those Eurocrats in Brussels.”
- Another more recent form is something that I would call ‘market populism.’ Advanced mainly by ‘free marketeers,’ this doctrine appeals to the idea that free markets lead to optimal outcomes and that ‘the government which governs best, governs least.’ Here the group being ‘defended’ is the individual consumer, who should be allowed to buy and sell as s/he sees fit, with the economic market sorting everything out.
Distrust of the Planner

- Both forms of thinking lead to the same result: planners are not to be trusted.
- Planners either are too insulated from the true common good and ignore the true preferences of the aggrieved citizen OR
- Planners live in an artificial world where they think they can control individual producers and consumers when, in fact, only the ‘impersonal’ market can mediate between the two in an optimal way.
- In both cases, planners should get out of the way and, at most, stick to the tasks assigned to them by the community (however defined).
2. Planner Autocracy

• On the other side of populism is autocracy.

• Populism holds that elites cannot be trusted. Autocracy holds that the people cannot be trusted.

• For this discussion, something that I will call “Planner Autocracy” is most relevant.

• The basic argument is that modernity is so complex that only experts can really be trusted to understand them and so should be given the final say in designing and operating them.

• Thus the planner should be given authority and it is the community that should get out of the way.
“If the ends don’t justify the means, what does?”
-- Robert Moses
3. Caudillismo

• A third forced solution is “caudillismo.”

• A caudillo is a term derived from Latin America experience which refers to the ‘charismatic leader.’
Caudillismo is a natural outgrowth of unfettered populism in that ‘the mob’ is most effective when ‘properly’ led. The Greeks were subject to this danger often as periodically demagogues would captivate voting citizens and manipulate the mass of them to back the leader in grabs for ever-increasing power. Of course the Latin American archetype is the military strong-man with the silver tongue (e.g. Juan and Eva Peron).
Tragic Equilibria

- All of these modalities potentially represent tragic equilibria of human systems.
- The potential tragedy of all three scenarios is ‘creative destruction’ run amok.
• Potential tragic equilibrium of planner autocracy and ‘caudillismo’: hubris leading to needless destruction and wounding of organic systems.

• Potential tragic equilibrium of populism (at least the market variety): unsustainable sprawl.

(Le Corbusier)

(Planned displacement caused by a proposed superhighway)
Restoring the creative tension

• So forced solutions to these tensions of opposites potentially result in tragedy.
• However, the key word here is ‘potential.’ These forces -- popular will, common sense of the ‘common man,’ the need for expertise in a complex world, the value of technical principles -- are legitimate and necessary in and of themselves.
• How can they be dynamically balanced, on an ongoing basis, without tipping into one extreme or the other?
An additional note: scale

- Keep in mind that equilibrium and homeostasis are defined for differing levels of scale.
- The scale and ‘organism’ must be defined.
- It is quite possible -- even probable -- that one transportation policy may be best for one scale of system (e.g., a nation) and a seemingly contradictory one may be best for a different scale (e.g. a particular locality)
Session A papers -- a syncretic review

- Twelve papers were accepted for this session but not presented directly.
- What follows is a discussion of these papers that were accepted but not presented (although two have been added to the direct presentations since this presentation was prepared).
- These papers cover a wide variety of topics within transportation, but in many ways can be discussed under the framework offered here.
1. Human Values and Transport

- Some of the papers can be compared and contrasted in terms of differing views on how transport should be shaped to fit with underlying human values.
- Start with one: “The Functional Requalification Of a Transport Infrastructural System: Objectives, Criteria And Intervention Priorities.” by Maltinti and Annunziata of the DIT – University Of Cagliari
The “Sensitive Technocrat”

• Maltinti and Annunziata make a core claim: “the transport system and its road net must be adjusted to the social-economic situation of the territory and to its development principles and must respect, safeguard and enhance the peculiar historical environmental realities, in harmony with a general economic planning. The planning of the transport system should correspond to a global vision of the economic development process in which the intervention is placed: the planning of a road doesn't have an independent configuration, it is an integral part of the territorial planning;”

• In many ways this is the view of the ‘sensitive technocrat.’ In other words, transportation is a system which has a significant technical component and which requires grand oversight. This component must inevitably be subject to the control of planners and technocrats.

• However, technocrats have learned from past mistakes of arrogance and hubris. They now know, and are able to respond to, the values and needs or the population and the overall context.

• Main point: experts can be trusted if properly acculturated.
Sustainable Development

• Which brings up the topic of sustainable development.
• Sustainable development is a concept that can mean many things but in current parlance means that some sort of expert planning and intervention should be used to balance the economic development aspects of transportation with the environmental stress that transportation causes.
• This view is evident in “Transport System and Sustainable Development” by Duchon of the Czech Technical University in Prague, in which the expected energy demands of transportation system growth are estimated and a preliminary model of overall growth and management of that growth is offered.
• Here is the sensitive technocrat in action -- human agents are left to their own devices, but experts help make sure the process stays stable and positive.
A good vision....
…but a potential nightmare if not mindful?
Rebellion against the planners

- Now consider: “Dimensions of Sustainability” by Wendell Cox and Jean-Claude Ziv of the Conservatoire National des Arts et Metiers, Paris
- The Cox and Ziv paper attacks this particular notion of sustainable development.
- They argue that the data show that many of the precepts of sustainable development planning -- energy efficiency of transit, links between urban density and transit and land-use planning -- are wrong. They further argue that public policies based on these wrong data are both counter-productive and counter to what people really want.
- Does that mean sustainability is impossible?
- No. Cox and Ziv express faith in the political and economic markets to sort things out, implicitly arguing that people will not choose to doom themselves.
- The basic precept here: experts should stay out of all but technical areas and that overall systemic issues are not technical (amenable to technical management) in the proper sense.
A middle ground

• Without getting into the thickets of this overall debate, two of the papers, by taking a more narrow view, cover a middle ground. These are:

• “Transport and mobility issues in environmental planning: A forum-based scenario approach in southern Italy” by Borri, Camarda, and De Liddo of the Politecnico di Bari; and

• “Motorway and local development: experience drawn from studies conducted by the A39 motorway in France over a period of ten years: 1993-2003” by Langumier of the Société des Autoroutes Paris-Rhin-Rhône – SAPRR – (France)
Collaborative models

- Both of these papers have the implicit premise that public values, tastes and opinions are critical and also that the ‘public’ also has expertise in its own right.
- The key is to have ‘public’ and ‘experts’ working together on a co-equal basis to determine both societal values, desires and goals and to share information and expertise.
- The implicit tenet here: both public and experts can be trusted but only if working together.
Processes of Collaborating

• Such collaboration will not happen in and of itself. A PROCESS is needed to make it happen and to make sense of its results.

• The Borri et. al. Paper describes a forum process where experts and non-experts in a particular transport corridor get together. Results of these meetings are mapped in a way that draws out contrasts and common grounds. The point is made that overall knowledge is expanded by such collaboration, not shrunk, and that greater clarity is achieved.

• More anthropological in its approach is that described by Langumier, in which field stations have been established, and have remained in place for multiple years, staffed by people in different fields, to collect data and exchange impressions of locals to understand the deep and subtle impacts of transport improvements. (Perhaps it is no accident that this approach has been developed in France where the ‘Annales’ school of historical research developed).
Economic and technical realities

• Transportation systems, of course, are built infrastructure and, like any built structure, they have impacts on the society around them.

• As mentioned already, there are both local impacts and systemic impacts and equilibria.

• The remainder of these papers focus on one or more of these equilibria at different scales.
Economics -- Continents

• “Feasibility of a high-speed railway network on the main corridors of the countries recently incorporated into the European Union” by López Pita et. al. Of CENIT, takes a broad look at the economic impacts of transport.

• The paper estimates the likely demand for high-speed rail as the EU-15 expands to the EU-25, in particular attempting to link such demand to estimates in travel-timed saved.

• Here a classical issue is raised: the link between transportation infrastructure investments and speed/mobility improvements.
Economics -- Nations

- Two of the papers -- “Roads And Regional Integration In Spain” by Díaz y Pérez de la Lastra and Sarabia, and
- “The Relations Between Regional Economic Development And Evolution Of Transport Demand In Italy” by Cappelli, Libardo and Nocera of the Università IUAV di Venezia
- -- look at national impacts of transportation infrastructure along particular economic dimensions.
- Lastra and Sarabia use correlation analysis to demonstrate a relationship (which they admit cannot be shown to be causal given the analysis they employ) between freight movement and road capacity and between road capacity and regional freight movement growth.
- Cappelli et. al. update passenger and freight transport demand elasticities for both road and rail for the various Italian regions. They find a link between GDP growth and travel demand.
Economics -- localities

- Two of the papers look at impacts on a more localized basis.
- “The Impact of Transport Infrastructure on Land Value Using Tyne and Wear Metro As Case Study” by Du and Mulley of the University of Newcastle upon Tyne look at the impact of transit improvements on land values in an English city. The methodological wrinkle is that the observations for the statistical analysis are each weighted to account for their precise geographic location, thus emphasizing that ‘all economics is local,’ especially for smaller areas.
- “Long-Term Business and Land Development Impacts of Access Management: Minnesota Interstate 394 Case Study” by Plazak and Preston of Iowa State University, examine changes in travel times and travel patterns before and after a major road expansion, focusing specifically on how local businesses fared (most generally benefiting).
The final two papers have more a project-specific focus.

“Assessing Transportation Investment Priority Using Data Envelopment Analysis (DEA)” by Alam and Sikder (BUET, Bangladesh) and Goulias (Univ. of California, Santa Barbara) describe a technique for ranking different investment alternatives according to different economic criteria.

“Italian Multimodal Transportation Corridors: Railway - Motorway Interference” by Buzzetti et. al. (variously of C. Lotti & Associati, Cepav Due – Consorzio Eni per l’Alta Velocità, and the University of Florence) is the most engineering-specific of the papers, analyzing considerations which go into safely separating high-speed rail and road facilities while at the same time maximizing transportation performance.
• **Motivating questions**

• *What is the cause and effect link between transportation and various economic and social outcomes?* This is an age-old challenge and the papers suggest some methods and some viewpoints on approaching it.

• *How can social values be understood and how should they be dealt with in transportation systems?* There is no question that values are important. In a democratic society, these cannot simply be dictated and yet in a complex world, they cannot simply be left to popularity. The balance between the two extremes must be found and processes for usefully articulating social values and preferences must be developed.
• How can we maintain a creative tension between expertise and public values without tipping into an extreme? This is perhaps the key challenge of modern complexity in the context of public democracies.

• How can we properly model and understand transportation equilibrium (expanding it to an understanding of homeostasis)? Here we need to both integrate the role and formation of human tastes into equilibration analysis (they can no longer be taken for granted) and also focus on the way in which different public policies affect that equilibrium.