

Notes for talk: "A critical review of the UNITE approach"
Kenneth A. Small -- Paris, ENPC, 18 Sept. 2001

Thank you for the honor to speak to you about this most interesting subject, highlighted with this most European style of project.

1. Transport Accounts and Decision Making

The UNITE project is complex, multi-faceted, yet has a simple goal: to use data to improve decision-making. Specifically, to create a system of routinely collected data -- most of it not very different from what is collected now -- but in which the categories in which it is assembled, and the way it is presented, facilitate its use for pricing according to economic principles that are set out rigorously and clearly as part of the project.

I am reminded of the title of a paper by Amartya Sen, recently a Nobel prize winner in economics: "Description as theory". By choosing how you describe a situation, Sen suggested, is implicitly to choose a theory to analyze it. If you describe aggregate income through Gross Domestic Product, you invite theoretical work relating GDP to other things we care about -- income inequality, environmental performance, education, unemployment, and the like. That work will be led inexorably to postulate that those activities included in GDP are a proxy for economic activity in general. Those activities that are not -- dishwashing at home, child care by parents, for example -- are implicitly treated as either too small to bother with, or as not affecting income inequality, environmental performance, etc. in the same way as paid work, like sitting in conferences.

If you change to a different set of accounts -- say a "green" national product, which includes changes in the value of environmental resources -- you invite some different kinds of theories. They will emphasize the importance of environmental resources -- forests, air, water -- in economic activity, and also in consumer satisfaction. If you add an imputed value for housework and home child care, you invite theories that focus on allocation of time within the household. And so forth.

So what if you change to a set of transport accounts such as proposed here? Then you invite use of those theories of pricing and investment that are described in the UNITE project. Specifically, you invite regulators and policy makers to consider marginal costs in their pricing decisions, and to

consider user and environmental costs in investment decisions. This is already done sometimes, but, as the reports on current practice reveal, practice is by no means uniform nor consistent. An accounting system institutionalizes these economic principles and provides the information to use them in a consistent and systematic way. It then becomes possible to make their use *routine* when engaging in pricing and investment analyses; manuals can be written; analysts trained; so that in the routine meetings of decision-makers on transport issues, large and small, the *expectation* is that those economic principles will be incorporated, and if not the analyst will need to explain why. In a sense, it shifts the burden of proof -- instead of , as today, having to specifically justify using economic theories that may seem complex and esoteric to the skeptic, you would have to justify *departing* from those theories which have become enshrined through the accounting system as the norm.

2. The UNITE Project

So how well does this research project do at laying out the accounts?

First, a disclaimer: I am not an accountant, and I do not pretend to have all the insights I would need to say definitely whether the procedures recommended are going to have all the hoped-for impacts on decision-making.

But I am an economist, familiar with principles of pricing and investment. And I can assure you that the development and use of these principles in the UNITE project is extremely competent. I do not say this just to be polite -- Americans are never polite, some would say -- nor is this a nice way of saying that the project is just acceptable. The quality of economic analysis you have hear is really extraordinary for a report of this nature. I think it is rare for government agencies to be able to entice people with this level of expertise and subtlety of understanding to grapple with the practical implications of their analysis in such detail. The theory is sound, its application thorough and well documented. And even though I'm not an accountant, my common sense tells me that these recommendations would move decisions in the desired direction.

3. How to Use the Proposed Transport Accounts

So if I'm going to let the consultants off so easily, I need to tell you something to put this project in perspective. I will first give some negative advice, then a positive example.

The negative advice is this: Do not be misled into thinking that transport decision-making can be fully automated through good accounting software.

First, accounting is an excruciatingly detailed and meticulous exercise. No matter how good the accounts are, it is really easy to get caught up in the details and forget the principles. The ultimate goals of transport will remain social goals -- to serve the needs of people, business, and government; to promote social integration and cohesion; to promote political stability; and so forth. These require philosophy and political science as much as economics, and this side must not be forgotten.

Transport decisions will continue to be made by people, in a political environment. These people may or may not be well-intentioned. They may or may not be well educated and intelligent. They may or may not know any accounting. But for sure they will be influenced, to some degree at least, by their environment and self-interest. Which is to say, the decisions will be political. That is not a criticism -- it is a fact of life. In designing any social institution, a central task must be to make it work for an overall social purpose even when implemented by petty, narrow, self-interested bureaucrats. Again, I do not pass judgment on bureaucrats or suggest that all are petty and narrow -- but some are, and always will always be, and their time and talents are important to overall success, so we want to channel them in productive directions. It is not hard to look around the world to see what happens when we don't do this -- to look at corrupt or ineffective regimes and find bureaucrats who, as individuals, are probably no better or worse people than any other bureaucrats, but who are channeled by their incentive system into decisions that thwart public goals.

So can transport accounts come to the rescue? Once again, think of "description as theory" -- that is, think of the transport accounts as a system for describing routine data that embodies principles we desire to have implemented. There is a very nice quote in Deliverable 3 (p. 3):

This project's aim is to maximize the quality of the marginal cost 'building blocks' for subsequent use in policy analysis.

I really like the humility of this statement. The authors do not imagine that they have created a panacea that will automatically deliver good transport policy. Rather, they are creating better building blocks -- the basic starting points that intelligent people can use to create intelligent transport policy.

4. Example of Application: Optimal Gasoline Tax

I will close with a very brief account of a North American research project that uses the very kinds of "building blocks" described in the UNITE project. It is work initiated by Dr. Ian Parry of Resources for the Future, an environmental research institution in Washington, DC. Dr. Parry and I worked together to build a model and find the empirical numbers to attach to it, in order to answer a simple question:

If one cannot implement perfect marginal-cost pricing to cover all the important externalities from use of motor vehicles (as of course one cannot), then what level of fuel tax would be the next-best substitute?

Theoretical model:

contains:

Externalities (air pollution, congestion, accidents);

Costly means of raising public funds (distorting tax on labor);

Possibility of substituting more expensive technology for fuel consumption (improved fuel efficiency of vehicles).

Formula

Basic formula for optimal fuel tax:

$$\frac{MEC}{1+MEB} + \text{"Ramsey" component}$$
 + Congestion-feedback component

MEC = marginal external cost of fuel use
MEB = marginal excess burden of raising taxes
 "Ramsey" = revenue-raising considerations
 "Congestion-feedback" = effects of changed congestion on labor supply

Empirical numbers

Table 1. Parameter Assumptions

Parameter	US		UK	
	Central value	range	Central value	range
Fuel efficiency (miles/gal)	20	15-25	30	25-35
Pollution damages, distance-related (cents/mile)	2.0	0.4-1.0	2.0	0.4-1.0
Pollution damages, fuel-related (cents/gal)	1.4	0.2-10.8	1.4	0.2-10.8
External congestion costs (cents/mile)	4	2-10	7	3-15
External accident cost (cents/mile)	3	1.2-7.5	2.4	0.96-6.0

you asked for a talk "with particular reference to North American experience" -- so I give you miles instead of km (with apologies to other North American countries besides the US)

Results - still preliminary

Observations: Estimating the key "building blocks" -- marginal costs of pollution, congestion, and accidents -- was a very large and difficult task. Perhaps this is why no one has written this paper before. We were aided by a lot of excellent work by people on both sides of the Atlantic -- including some in this room. But even so, the range of uncertainty is huge, even for such well understood components like congestion. We would have been greatly helped by a set of transport accounts that already compiled the best information on these quantities.

5. Conclusion

So my advice is -- try to institutionalize the framework developed here as much as possible, so that good practice in decision-making can become routine. Don't expect to automate transport policy. Instead, expect improved building blocks, so when ordinary people apply their intelligence to putting those blocks together, they produce structures that you will be proud of.