

BHI FaxSheet

Information and Updates on Current Issues

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*The Beacon Hill Institute's Tax
Analysis Modeling Program:
A Response to Charney*



Introduction

Alberta H. Charney of the University of Arizona Economic and Business Research Center recently issued a critique of an analysis published by the Goldwater Institute of a proposed 1¢ increase in the Arizona sales tax.¹

The Goldwater Institute's analysis was based on work performed by the Beacon Hill Institute at Suffolk University in Boston.² That work was, in turn, based on the Institute's STAMP (Tax Analysis Modeling Program) model, which it has applied to tax policy issues as they have arisen over the last several years in more than 25 states.³

The purpose here is to correct the record as provided by Dr. Charney in her remarks. We proceed by breaking her remarks into major topics. Then, for each topic, we provide, first, her comment or criticism and, second, our rebuttal.

BHI's STAMP Model

The Charney Comment

"There are many similarities between the IMPLAN input-output model used by UA and the STAMP model. Both are used for impact/policy analysis."

BHI's rebuttal

Although this seems like an innocent enough statement, it betrays a fundamental misunderstanding on Dr. Charney's part – one that pervades her comments about our work. Although both IMPLAN and STAMP are used for policy analysis, both are not "impact models." An impact model is commonly seen as one that utilizes Keynesian multipliers to estimate the impact of some proposed tax or spending change on the economy. STAMP is not, by this standard, an impact model. Rather, it is a policy simulation model that avoids any use of Keynesian multipliers and that utilizes instead a "general equilibrium" framework in which prices adjust to clear markets.

¹ Alberta H. Charney, "Comparison of UA, REMI, and STAMP Simulations of Tax/Spending Increases," Articles and Updates, Economic and Business Research Center, (March 2010)

http://ebr.eller.arizona.edu/research/articles/2010/compare_ua_remi_stamp_simulations.asp; (accessed April 22, 2010).

² Goldwater Institute, "Lawmakers Consider Sending One-Cent Sales Tax Increase to Voters," (February 2010) <http://www.goldwaterinstitute.org/article/4364> (accessed April 22, 2010).

³ For a more detailed explanation of STAMP, see

http://www.beaconhill.org/STAMP_Web_Brochure/STAMP_IntroductionMS.html.

Different economists will have different views on which of these approaches is better – Keynesian or general equilibrium. The current economic downturn has returned some luster to the very tarnished Keynesian approach. We nevertheless believe that our approach is superior for long-run policy analysis, particularly when undertaken at the state level, where the principal Keynesian policy tool – deficit spending – is not generally available as a policy option. At the end of the day, a Keynesian defense of tax hikes at the state level depends for its justification on the notion (identified in textbooks as “the balanced-budget multiplier”) that the government spending made possible by new taxes will exert a positive effect on the economy that outweighs the negative effect exerted by the higher taxes. This line of argument makes no sense in light of the fact that states compete with each other for residents and business and that state taxes negatively affect state competitiveness.

The Charney Criticism

“A thorough search of the Beacon Hill website does not reveal a report for Arizona or a discussion of the model used for Arizona. The only report available was a description of the STAMP (State Tax Analysis Modeling Program) built for Pennsylvania. Most of the following comments are based on that 40 page report. It must be noted that the PA STAMP model report is difficult to follow because many of the variables and notation used in the report are not carefully defined.”

BHI’s Rebuttal

We, in fact, clearly define all variables and notations used in PA STAMP on pages 37-39 of the Pennsylvania report.⁴ If, however, Dr. Charney found our documentation inadequate for her purposes, she should have done what academics commonly do in such instances, i.e., she should have asked us directly about what she needed. Indeed, a more careful critic would, in the spirit of academic discourse, have requested this documentation before charging ahead with criticisms that turn out to be wrong and, in at least several instances, predicated on a misunderstanding of how STAMP works.

The Charney Criticism

“The 5,260 employment figure for \$1 billion of government expenditures is extraordinarily low That’s lower than the direct impact (excluding the multiplier effects) of \$1 billion in expenditures on general merchandise, in which no goods sold are produced locally and only the retail margin is retained in the state. This is absurd. Governments produce or buy mostly services, which result in far more jobs per \$1 billion than 5,260. No other studies produce government expenditure impacts that low – not REMI, not IMPLAN, or any other.”

⁴ Beacon Hill Institute, “PA STAMP: A Complete Tax Model for Pennsylvania State,” (2009) <http://www.beaconhill.org/BHISTudies/PA-STAMP2009/PA-STAMP2009.pdf> (accessed April 22, 2010).

BHI's Rebuttal

Dr. Charney seems to assume that the sales tax increase will raise \$1 billion in revenue to fund an equal amount of new spending. If this is the case, she ignores a central purpose of the STAMP model, or of any model of tax policy that recognizes economic fundamentals, which is to capture the negative dynamic effects of a rise in taxes on the tax base and on economic activity. STAMP shows that a tax that raises \$1 billion in revenue through a static analysis, in which there are no negative effects on the tax base, will raise something less than that when consideration is given to the negative effects that are unavoidably created. Dr. Charney may want to ignore these effects because she wants to operate in a Keynesian world where higher tax rates and their effects on economic incentives, and on competitiveness, don't matter. But those effects are present in the real world and must, we argue, be accounted for.

Her most egregious error lies, however, in her back-of-the-envelope calculation, whereby we vastly underestimate the number of public jobs that another billion dollars in government spending would create. Sure, if the government did collect another billion dollars and if it did spend that entire amount hiring public workers it could (even given the high pay received by those workers) hire more than 5,260 new workers. But our model does not make the absurd assumption that this would in fact occur. Rather, it allows that a large portion of the new revenue would find its way back to households, which would in turn spend the money and, in that process, "create" new jobs in the private sector.

There are other problems with the "job creation" fixation of the Keynesian approach. Governments spend, presumably, not to create jobs but to provide services, the provision of which requires not just the creation of jobs but also the purchase of materials and capital investment. It is this fixation itself, however, that leads Dr. Charney astray in her criticism of STAMP.

The Charney Criticism

"First, not all government revenue is necessarily spent in the STAMP model. Specifically, an equation for government savings is defined as the residual between government income and government spending. The half-page table that was linked to the Goldwater Institute's press release did not indicate the change in government savings as a result of the tax increase. It is very likely that government savings increases in the simulation so not all tax revenue are spent."

BHI's Rebuttal

In our simulation of the sales tax increase, government savings are fixed and government spends *all* the new tax revenue. If Dr. Charney had wished, she could have easily found this out without suggesting, wrongly, just the opposite.

The Charney Criticism

“Second, the STAMP model explicitly prevents some government spending from responding to a change in tax revenues: ‘Some government spending is assumed to remain unchanged even if tax revenues vary; the rest of spending is endogenous, in that it responds to the availability of funds (p.25).’ It is difficult to imagine which components of government spending remain unchanged when there are zero funds. Elsewhere in the PA STAMP report states “The purchases of goods and services by some government sectors are considered to be exogenous to [determined outside of] the model (p.31).” This whole concept is absurd and results in a) an increase in government savings and b) a very low job response to an increase in tax revenues because a portion of government spending continues on, no matter how revenues change. The whole point of the present study and this discussion is to compare economic impacts of raising taxes by \$1 billion and increasing government spending by \$1 billion. In the STAMP model, when taxes are increased, not all of the revenue increase is spent, and portions of government remain unchanged “even if the tax revenues vary.” No wonder so few government jobs are affected by a tax increase of \$1 billion in the STAMP model.”

BHI’s Rebuttal

Dr. Charney has not read our report carefully. On page 26, we clearly state that state and local government spending “are endogenous in the model.” Thus a change in state spending, in fact, responds completely to the change in sales tax revenues. It is only federal government spending that is exogenous and that therefore does not respond.

The Charney Criticism

“Third, the STAMP model specifies government spending in ways that will automatically result in low economic impacts of government spending. The major arguments of why government spending has larger economic impacts than household spending are because a) governments buy more goods and services locally (in-state) compared to households, b) governments spend mostly on services, and c) service sectors have high direct jobs/\$million expenditures. In STAMP, the model structure prevents government spending to generate those comparatively larger impacts than household spending. For example, rather than healthcare expenditures in STAMP directly affecting health-related jobs (doctors, hospitals, nurses, long-term care facilities), this important government expenditure is treated as a transfer payment to low-income households (PA STAMP, p. 11). If portions of government spending are treated as household income instead of direct spending, then (by design) the job impact of government spending will be extremely low.”

BHI's Rebuttal

It is not clear that governments spend a larger share of their funds locally than households do. But let's give Dr. Charney the benefit of the doubt on this and see where her reasoning would take her. The answer is clear: In order to expand the economy, the state should divert as much money as possible from the private sector, which spends less, to the public sector, which spends more. After all, if spending is the goal, then certainly government has a better track record at this than do households and businesses. Here again, Dr. Charney gets twisted up in the Keynesian paradigm, in which only spending matters and in which saving is a vice, not a virtue.

But let's go to her comments about transfer payment. The reason we call Medicaid payments "transfer payments" is that they are so categorized by the U.S. Bureau of Economic Analysis in their National Income and Product Accounts. But the name doesn't matter. If Medicaid pays \$100 for a private-sector doctor to treat a poor person, the job-creation effect of that payment is exactly the same as it would be if the government hired its own doctor to provide the treatment. Thus tax money that we allocate to households goes into spending (and job creation) as effectively as it would if we allocated it to government to provide the same services.

The Charney Criticism

"Finally, there is no explicit link in the STAMP model between state expenditures and the level of intergovernmental (federal matching) revenues. Thus the \$442.5 million in federal matching funds associated with state government funding were not considered in the Goldwater Institute's press release. Not assessing the loss of federal matching funds is really not a failure of the STAMP model; rather it is the fault of the Goldwater Institute's use of the STAMP model when they neglected to incorporate those additional dollars."

BHI's Rebuttal

We thank Dr. Charney for absolving us of this "failure." But while she's providing absolution, she should consider the implication of her argument: which is that Arizona should raise taxes high enough to maximize in the inflow of federal dollars. This amounts to a policy of pushing a part of the burden of increased Arizona taxes onto taxpayers in other states. It also confuses the discussion of the effect that the higher tax, in and of itself, would have on the state economy. If Arizona wants the federal money badly enough, the state can get it by raising taxes but only at the cost of a shrunken state economy. The purpose of STAMP is to identify this cost. Because Dr. Charney sees only benefits, not costs, of expanded government spending, she ignores this tradeoff.

The Charney Criticism

“What is unclear, however, is how Arizona's transaction privilege tax was interfaced with the STAMP model. In particular, price appears in every relationship in the CGE model, including the demand for industrial inputs and consumer demand, by category. However, Arizona's transaction privilege tax does not apply to most industrial inputs. All inputs that are directly incorporated into the manufacture of a product are not taxable in Arizona. In addition, there are exemptions for equipment used in the production process. Further, most services (telephone and utilities are exceptions) are not taxed for either consumers or businesses.”

“Since the STAMP model structure is the same for all states and since there is no description of which prices the sales tax applies to in the PA STAMP model, the obvious question arises: When sales taxes are increased in the STAMP model, does it impact the purchase of all inputs and the purchase of all consumption categories? Just how state-specific is the stamp model structure for Arizona? There is absolutely no way of telling from the PA STAMP write-up.”

BHI's Rebuttal

It is true that different states have different sales tax structures and that a tax increase in one state will have different effects than a similar increase in another state. It is not true that the STAMP model structure is the same for all states. A STAMP model accounts for the relevant state's sales tax exemptions in the different sectors of the state it models. That is why we modeled proportional sales tax increases in five different states to calculate the average percentage change in each economic variable that we then applied to Arizona. It is interesting that Dr. Charney would say that it is not clear whether the tax falls on inputs or not, considering that we explicitly write the tax rates into the formulas that she claims to have read and analyzed. In our simulation we assume that the sales tax falls only on final goods consumed in the state.

The Charney Criticism

“Although there may be price effects on domestic vs. imported input purchases, the parameters needed to determine the size of those effects are simply unknown, so they are set arbitrarily and by assumption in the STAMP model.”

BHI's Rebuttal

In her very next sentence, Dr. Charney writes that “the PA STAMP description said that the import elasticities were taken from the literature and referenced an article and a book.” We rely on the economic literature to parameterize our model. There is nothing arbitrary about the values we assign to elasticities.

The Charney Criticism

“The STAMP model assumes import price elasticities much larger than this – 1.50 – for producers' purchases of intermediates, indicating that producers have a very strong response to in-state price changes, reducing their purchases of in-state produced inputs and choosing instead to import inputs. Thus the builders of the STAMP model have chosen to incorporate into its structure very large import responses to changes in prices.”

BHI's Rebuttal

Again, the elasticities used throughout the model are provided by the literature. We do not specifically choose them to be large, but rather take the values we find there.

The Charney Criticism

“Further, and even more objectionable, the STAMP model applies those same 1.50 import elasticities of demand to most of the economic sectors in the model, despite the fact that the referenced elasticities were estimated for manufactured goods and mining commodities, i.e., items that are typically transported. But STAMP applies import elasticities to all sectors and sets most of them at the very high level of 1.50. Some of these make no sense at all. For example, they apply a 1.50 import elasticity of demand to construction, implying that if domestic construction costs increase, industries will "import" more construction, which is nonsensical. Industries will reduce the amount of construction they undertake because of the increase in price (both the UA study and STAMP apply a price elasticity of one). But STAMP assumes that not only will they purchase less construction overall, they will import more and buy less of it in-state. It just doesn't make any sense. According to STAMP, industries will change their in-state vs. import shares of utilities, banking services, real estate services, insurance services, and communications if domestic prices increase, all with the same 1.50 import elasticities of demand that were estimated for manufactured goods and mining commodities.”

BHI's Rebuttal

The reason for the uniformity of the elasticities of imports across sectors is that we could not find more detailed estimates in the literature. At the same time, we can point out that, though the elasticity of imports may be high for sectors like construction, one must also consider the import share of total spending in those sectors. Taking construction as an example, only 9% of total spending in construction is on imports. Even though the actual elasticity may be smaller than we allow for in this sector, a given change in the sales tax will not lead to a large increase in imports.

BHI's Conclusions

Dr. Charney's dispute with us is not about elasticities or imported inputs. It is about methodology. She apparently subscribes the school of thought whereby it is always better for government to spend a dollar than for an individual or business to spend the same dollar, if the government, in spending that dollar, will have a bigger "impact" on the economy. By this (Keynesian) logic, it is always a good idea to raise taxes as long as there remains a private sector to tax.

Our methodology is different. In our world view, government, in raising a dollar, creates distortions in economic incentives that exert negative effects on the economy. In the case of a sales tax, this distortion consists of raising the price of a good above the cost of producing it and thereby reducing consumer demand for the good, with resulting negative effects on production and employment. Yes, the new money will permit government to provide additional, perhaps well-needed services. And, in spending or distributing the money, government will cause some new jobs to be created.

At the end of the day, however, there will be less production and fewer jobs – less production because of the negative effect of the tax on consumer demand and fewer jobs because the reduction in private sector production will always exceed the increase in production that the new government spending brings about. Here, though, the effect on jobs is seen as it should be, as the consequence of a shrunken economy, not of some artificial "stimulus" provided by government.

It may well be that voters or policy makers will find the shrinkage in the economy that results from raising taxes to be a price worth paying, considering the new services that government will be able to provide with the new revenue that it raises. But it is the job of the economist to identify this shrinkage, not to mask it with rhetoric about fictitious spending multipliers and the like.

The Beacon Hill Institute

The Beacon Hill Institute at Suffolk University in Boston focuses on federal, state and local economic policies as they affect citizens and businesses. The institute conducts research and educational programs to provide timely, concise and readable analyses that help voters, policymakers and opinion leaders understand today's leading public policy issues.

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