
Texas-STAMP

A Sophisticated Tax Model For Texas

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Changes in tax rates have measurable effects on taxable activities. The weight of evidence shows that state-level tax increases have significant negative effects on state economic activity. Yet it is not easy to quantify these effects, and the job can only be done satisfactorily with the help of a complete tax model.

In order to be able to analyze sweeping changes in the tax system, the solution is to build a *Computable General Equilibrium* (CGE) model of Texas. We have constructed a CGE model of Texas (Texas-STAMP), and in this report we explain the concept behind the CGE model, set out the individual components, and then use it to ask what would happen to the Texas economy under three competing tax packages being debated in the Texas Legislature.

CGE models are typically large, complex, and difficult to build; for instance Texas-STAMP has over 15,000 equations, 3,800 variables and almost a thousand lines of computer code, and every run of the model produces 920 pages of output. This provides one reason why CGE models are not used more widely at the state

level. An important exception is the complete and well-documented CGE tax model for California. The California CGE model was developed with state funding, after that state passed a law (SB 1837, 1994) requiring the Department of Finance to perform “dynamic revenue analysis” of any proposed legislation with a revenue impact of \$10 million or more. In this context, a dynamic revenue analysis differs from a static revenue analysis in that it takes account of the secondary effects of tax changes; for instance, a lower property tax might leave more money in people’s pockets and so, as they spend more, revenue from the sales tax might rise, offsetting in part the initial cut in the property tax.

Answers to seven common questions about the Texas-STAMP, its operation, capabilities, limitations and uses.

1. What is Texas-STAMP and what does it do?

Texas-STAMP is a computer program developed to estimate the effects of specific changes in the state tax system. It is a dynamic general equilibrium model. As a dynamic model, Texas-STAMP estimates both primary and secondary effects of tax changes – for example, lowering a property tax might cause sale tax revenues to rise, offsetting some of the loss of government revenues from property tax reduction. As a general model, Texas-STAMP takes all the important markets and interactions into account, such as banking, retail, and utilities. As an equilibrium model, Texas-STAMP assumes demand will equal supply in every market. Texas-STAMP also estimates how changes in taxation affect various facets of the economy over five years, such as labor supply, consumer prices, immigration and growth of capital.

2. How is Texas-STAMP constructed?

Texas-STAMP was built to provide a mathematical description of the economic relationships among

producers, households, government, and the rest of the world. Texas-STAMP has over 15,000 equations, 3,800 variables, and almost 1,000 lines of computer code. Every run of the model produces 920 pages of information, although the user does not have to wade through all of these pages to effectively use the model.

3. What specific information will Texas-STAMP provide?

Texas-STAMP will estimate how a specific change in the state tax system impacts:

- Gross wage rates,
- Number of private jobs,
- Number of government jobs,
- Disposable real income,
- Disposable real income per capita,
- Revenues generated by other state taxes, and
- Revenues generated by local taxes.

4. How does Texas-STAMP work?

The model will instantly produce the estimated impact of a tax reform after a specific tax and rate is keyed into the program, identifying change in state revenues for:

- Sales tax,
- State gross receipts tax,
- Franchise tax,
- Business activity tax,
- Motor fuels tax,
- Motor vehicle tax,
- State personal income tax,
- State cigarette tax,
- State professional services tax -- personal,
- State professional services tax -- business, and
- Local property tax.

5. What are the limitations of Texas-STAMP?

While this model is extremely useful, there are two important limitations to a computerized model of this

type. First, the model cannot account for everything – tax or effect. Secondly, estimations are based on the assumption that economic behavior remains stable. This assumption is problematic because neither human nor computer estimations can predict the unforeseen in an economy. An unpredicted event, such as 9/11, could completely change trends.

6. *Who can use Texas-STAMP?*

The Foundation is making the model available to all members of the Texas Legislature and providing the training required to use the model.

7. *How can Texas-STAMP be accessed?*

The model can be accessed on the Foundation’s web site. Using a laptop computer, policymakers can estimate the effect of tax proposals from the floor of the Capitol, or anywhere an internet connection is available.

This publication is available online at:

<http://www.texaspolicy.com/pdf/2004-03-10-stamp.pdf>.