

**Testimony of**

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before the

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I welcome the opportunity to testify before this Committee on the use of **macroeconomic** models at CBO and on recent efforts to enhance the supply-side characteristics of econometric models. My statement today will cover three general topics:

- o How CBO prepares its economic forecasts and analyses of alternative policies;
- o The limitations of large econometric **models**; and
- o The recent emphasis on supply and economic growth.

#### CBO Forecasts and Policy Analysis

**CBO's** five-year economic projections, which are generally used by the Budget Committees in preparing their budget estimates, consist of two components: (1) the first 1-1/2 to 2 years of the projection is a forecast of what will happen to the economy if "current law" budget policies continue; and (2) the remaining period is a noncyclical or trend projection reflecting goals for inflation and unemployment that are thought to be realistic and mutually consistent. The preparation of both types of projections relies on many sources of information, including econometric models.

CBO does not have its own econometric model of the whole economy. We currently subscribe to the commercial models provided by Chase **Econometrics**, Data Resources, Inc., **Wharton** Econometric Forecasting Associates, and Merrill Lynch Economics, Inc. We also have access to other models on an occasional **basis**.

In preparing its economic forecasts, the **CBO** staff examines forecasts based upon several of these models, as well as information from many other sources, such as sales or inventory data provided by private sources, surveys of business plans for investment spending from the Commerce Department and others, **manufacturers'** production plans, and surveys of consumer sentiment.

We also review the forecasts of many private forecasters to determine the views of a broad range of economists. About twice each year, a preliminary version of the CBO forecast is reviewed by a panel of outside experts, including distinguished economists from across the political spectrum. Our final forecast represents our best judgment as to the economic outlook, given current law budget assumptions, after taking into account model results, additional information, and the views of other forecasters.

In analyzing the economic impact of alternative fiscal policies, the CBO staff also makes use of evidence from a wide variety of econometric models and other economic research. Since the results generated by various models differ, we have developed a method for averaging the results of several large models. These estimates of the economic and budgetary impacts of fiscal policies permit CBO to provide consistent analyses of different proposals. Frequent reexamination of available models and other information ensures that our impact estimates are kept up to date in the sense that they reflect changing economic conditions and new developments introduced by model builders.

This methodology **is** useful for analyzing comparatively simple changes in budget policies, such as changes in personal income tax rates, government purchases, and transfer payments. Even for these policies, **however**, there is a wide band of uncertainty. For many other fiscal policy changes, the econometric models provide little help, either because the results differ widely or because such models are not designed to analyze those proposals. The large models have not been helpful, for example, in analyzing changes in capital gains taxes, certain business tax changes, and tax exemptions intended to encourage saving. In such cases, CBO must rely on other sources of information. Frequently the difficulty lies in the state of the economists' art. It is an unfortunate fact that many issues of central interest to policymakers are now at the **frontier** of quantitative economics and they may not be resolved **for years**.

Given the difficulty of the task and the limitations of the tools available, I believe that **CBO's** record for forecasting has been relatively good and our analysis of alternative policies as objective as possible. But we are not complacent. We are continually trying to improve our **methodologies**, and we follow with interest new developments introduced by econometric model builders and other research.

#### Limitations of Large Econometric Models

The large econometric models of the U.S. economy are basically sets of equations reflecting the relationships between major economic variables that have existed during the period since World War II.

Forecasting with these models requires that numerous assumptions must be **made** about such things as OPEC policies, farm price increases, and future monetary and fiscal policies. The forecaster must also use his judgment to modify the results in order to take into account a substantial amount of information not incorporated in the models. Thus, the accuracy of econometric model forecasts depends upon the skills of the forecaster as well as the properties of the model.

The systematic relationships among variables in econometric models are based upon historical experience. When proposed policies or economic events are outside the range of this experience, the value of model simulations is doubtful. For example, the models may not be reliable in their estimates of how consumers and business will respond to inflation and interest rates when those rates are at the high levels of recent months. Nor can they be expected to provide reliable estimates of the effect of tax changes that are much larger than those of the **past.**

Another limitation is that each model embodies a structure that the model builder believes represents the actual economy over the historical period as closely as possible. Since each model has a somewhat different structure, the results of simulations also differ and it is difficult to know which is more correct. Moreover, econometric models generally cannot be relied on to predict the outcome of proposed policies that would fundamentally change the structure of the economy. For example, by themselves the models are not very useful for studying proposals to eliminate the corporate income tax, to integrate the corporate and personal income tax, or to adopt a value-added **tax.**

Still another limitation is that macroeconomic models frequently contain insufficient detail for the analysis of specific policy changes. For example, the macroeconomic effects of proposed changes in federal regulations cannot be analyzed with these models. Here again, the forecaster must draw upon other **sources**.

Finally, most of the large models are designed primarily for analyzing the **short-run** effects of policies on output and employment. Because most of the requests we receive from the Budget Committees relate to these short-run **impacts**, the models have been useful to **CBO**.

The models can capture short-run effects on supply as well as demand. For example, econometric models can provide useful analysis of the impact on the economy of strikes and disruptions of oil supplies. Moreover, the models are also capable of forecasting the short-run effects of tax policies on investment.

Recently, however, there has been increased interest in the impact of policy changes on productivity gains and **long-run** economic growth. With regard to these long-run issues, we have less confidence in the results of model simulations. Long-run analyses require more emphasis on conditions that affect the trend growth of potential output, particularly the supply of physical and human capital and technology. It is very difficult, because of data limitations, to capture long-run effects of policies in econometric models. **Also, short-run** swings in the data tend to swamp long-run trend movements so that it is hard to distinguish **longer-run** responses to policy changes.

One aspect of supply that until recently has not generally been incorporated in econometric models is the effect of marginal tax

rates on both work effort and savings. These effects were excluded from the models because the empirical evidence was **inconclusive**. Recently, model builders have attempted to enrich their models with increased emphasis on the effects of taxes on the supply of labor and on savings. This work has taken two forms: **modifications** of traditional large **macroeconomic** models and new supply models.

Modifications of traditional demand-oriented models. Recently, DRI and Evans Econometrics have attempted to enhance the supply-side characteristics of large econometric models which traditionally have given more extensive coverage to demand conditions. For example, the DRI **modifications** attempt to capture the effect of taxes on labor supply. The Evans model, **which** is not yet available for simulation, will apparently show the **effects** of taxes on both labor supply and saving. The DRI model shows somewhat larger effects from tax cuts than in the past; the Evans model **is** expected to show even larger effects, but apparently not large enough for tax cuts to pay for themselves in the first few **years**. It should be kept in mind that efforts to modify traditional econometric models in this way *is* a fairly new development that has not been subjected to scrutiny by the economics profession. CBO expects to review the results of such **modifications** and update our analysis of policy impacts accordingly.

New supply models. There are also ongoing attempts to construct new models to isolate supply effects. Two models that have come to our attention are those developed by Norman **Ture** and Arthur Laffer. While work with supply models is still in the early stages

of development, they may **in** time provide important insights about the long-run effects of taxes on economic activity. At present, these models do not address the problems of short-run effects that CBO is asked to examine by the Budget Committees. They are full-employment equilibrium **models**, applicable only to a hypothetical full-employment economy in which increases in the unemployment rate are assumed to be voluntary. Thus, these supply models generally exclude economic conditions characteristic of the business cycle, such as increases in the unemployment rate resulting from weak demands or accelerating inflation resulting from excess demands. Such conditions are important in analyzing **short-run effects**. Moreover, these models assume either that budget policies have no impact on inflation (Laffer) or that they affect prices only by bringing about increases in supply (Ture).

The shortcomings of econometric models with respect to the analysis of economic growth is a serious limitation, because the long-run effects of changes in policy on productivity and inflation may be more important than short-run effects on the level of economic activity. At **present**, CBO does not have much confidence in the ability of econometric models to estimate long-run effects of fiscal policy changes. **Thus**, our analysis of the impact of budget policies on economic growth has generally been qualitative, relying heavily on the economic literature in this field rather than on econometric models. Perhaps the inclusion of additional supply-side effects in large econometric models and the development of new supply models will eventually improve the state of the art in **longer-run** analysis.

The Recent Emphasis on Supply and Economic Growth

In recent years, there has been considerable controversy about the analysis of the short-run impact of fiscal policy changes. Economists have disagreed about the size of tax multipliers; about whether tax changes or spending changes have larger economic effects; and about the importance of initial conditions in determining the impact of policy **changes**. Available empirical evidence does not now support the view that tax cuts have very large short-run effects. But to focus the debate on short-run effects is to misplace the emphasis. CBO believes that emphasis needs to be placed more on the objectives of supply-side measures, particularly on productivity, economic growth, and price stability. The recent decline in productivity growth together with the acceleration of inflation have heightened this concern. Surely the long-run growth of our economy must now be a major consideration shaping budget policies.

The unfortunate emphasis on large short-run effects of supply-side policies should not be used to discredit this increased concern for productivity and economic growth. We all agree that there must be some income tax rate so high that it will severely discourage work effort and saving. Whether we have reached such a tax rate in the United States is an empirical question that is not easily resolved. But while it may be difficult to test the proposition empirically, there is considerable common sense and theoretical appeal **in** the view that the cumulative **effects** of high marginal tax rates could be quite large over a long **period--say**, ten or more years. This type of supply-side effect

may be an important determinant of long-run growth. More importantly, the older emphasis in supply **economics--particularly** the impact of business taxes on capital formation and on research and **development--** provides considerable support for the view that taxes are an important determinant of productivity and long-run growth.

Supply-side tax cuts are important tools for helping to achieve our long-run objectives. They are **not**, however, an instant cure for inflation. Moreover, the evidence available so far does not support the contention that such tax cuts will pay for themselves during the first **years**.

#### Conclusion

At present, I know of no instant cure for the trend in our economy toward weak growth in productivity and higher rates of inflation; these problems reflect an underlying weakness of our system that does not respond quickly to monetary and fiscal policy **changes**. As a result, the cure is likely to be painful. In the short run, a difficult period of slack demand may be needed to prevent further acceleration of inflation. Increased economic growth will require policies that divert resources from current consumption to business investment. But it is important to begin now to emphasize the long-run effects of current **action--to** begin the long road to improving the performance of the economy. The recent emphasis on supply-side issues, and the related model **developments**, will contribute to economic **policymaking**, if it results in greater attention to the longer-run effects of changes in fiscal policy.