ECONOMIC COMMENTARY

The Energy Tax: Who Pays?

by Mark E. Schweitzer and Adam D. Werner

In his State of the Union address, President Clinton called for a broad-based energy tax to help reduce the federal budget deficit. The tax is expected to generate $21.1 billion in 1997 when it is fully phased in — one-quarter of all new revenue in the overall budget package. However, the motivation of the tax is not solely revenue generation. The administration's favoring of an energy tax over other potential revenue sources is clearly rooted in its desire to further the social goals of protecting the environment, conserving energy, and reducing our dependence on foreign oil.[1] In addition, the Treasury Department indicated that the tax had to be structured so that it would be borne "fairly and equitably across the country."[2]

While the energy tax may or may not survive concerted efforts to kill or reshape it, it nonetheless offers an interesting look at the difficulties that arise when lawmakers try to craft economic policies having multiple, sometimes conflicting, goals. In the case of the current proposal, the dilemma is how to reduce the nation's energy consumption and the attendant social costs while simultaneously ensuring that no particular region or income group bears more than its fair share of the burden. To address the social costs of energy use, an energy tax must favor those who use less or cleaner fuels.
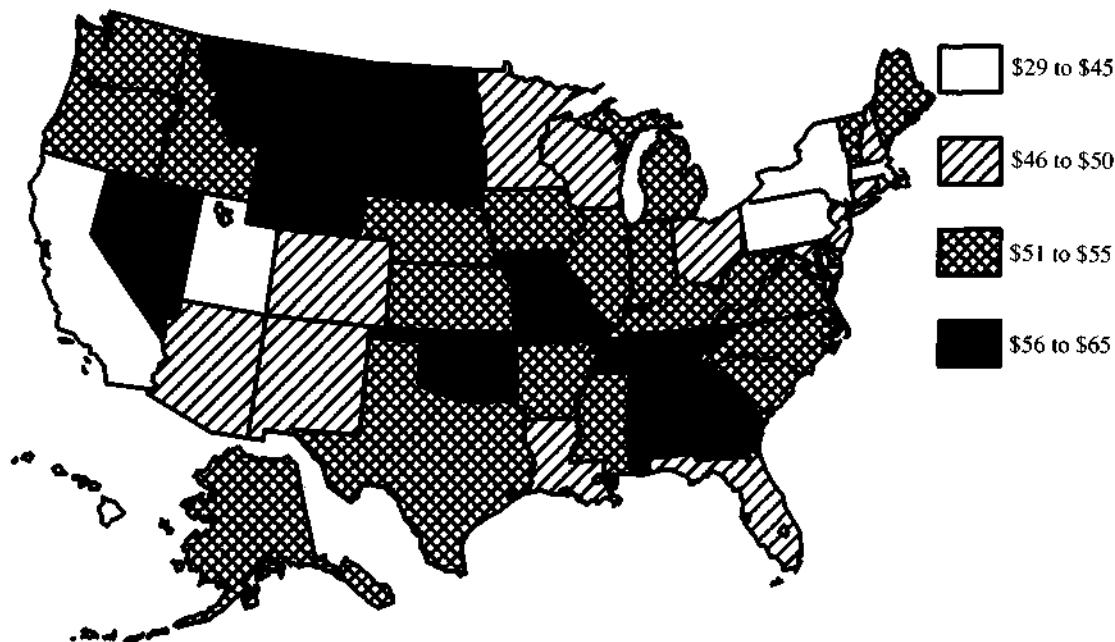
Under a narrower set of goals, a more focused energy tax might have been chosen. For instance, taxing the carbon content of fuels would implicitly tax the production of carbon dioxide, the primary "greenhouse gas" associated with global warming. Or had the government wished to focus on pollution and our dependence on foreign oil, a gasoline tax could have been levied to raise the cost of driving. In fact, both of these approaches, along with oil import fees and an across-the-board tax on petroleum products, were considered but ultimately rejected as being unfair to certain states or low-income families.[3]

In light of its varied goals, the White House opted for a general tax on energy usage based on the heat content of fuels, with rates varying by fuel type. Coal, natural gas, hydroelectric power, and most other fuels are assessed at a base rate of 25.7 cents per million British thermal units (BTUs).[4] Petroleum-based energy sources other than heating oil and liquefied petroleum gas (LPG) are taxed at a premium rate of 59.9 cents per million BTUs. Alternative energy sources, such as alcohol and geothermal energy, are not taxed at all. Thus, the proposal both raises the cost of most energy sources and alters the relative prices of different types of fuel. In particular, it discourages the use of petroleum.

This *Economic Commentary* examines the narrow issue of whether the BTU tax meets the administration's goals of equal distribution among consumers across states and income levels. We focus the analysis on consumers' direct energy purchases, since this is the portion of the tax

President Clinton's proposed energy tax is aimed not just at cutting the budget deficit, but also at encouraging fuel conservation, reducing pollution, and lessening our dependence on foreign oil. This *Economic Commentary* takes a look at the problems that arise when the government attempts to formulate economic policies having multiple objectives — in this case, reducing the nation's energy consumption and its associated social costs while making sure that no particular region or income group bears a disproportionate share of the burden.

FIGURE 1   CONSUMERS' PER CAPITA PAYMENTS UNDER THE BTU TAX

$29 to $45

$46 to $50

$51 to $55

$56 to $65

NOTE: U.S. mean = $49.20.
SOURCE: Authors' calculations based on the Department of Energy's 1990 State Energy Data System files.

most likely to vary among regions and to place a disproportionate burden on low-income families.[5] Climatic differences, existing investments by consumers and utilities in fuel-consuming technologies, regional housing patterns, and availability of public transportation are the major reasons why consumers' share of the tax could vary substantially by region and income level. We do not analyze the business portion of the expected revenue by state because much of this burden will be shifted to consumers nationwide and will be borne roughly in proportion to their income level.

While we make no attempt to justify the imposition of an energy tax, our comparisons indicate that the current proposal does indeed generate revenue evenly across states and does not burden low- or middle-income families more than would alternative consumption taxes (particularly if the administration's proposed increases in aid to low-income households are included).[6] However, readers should consider other

factors when judging the proposal's overall merit.

◼ Incidence across States[7]

Despite the administration's recent revisions to the BTU tax proposal, which were intended to distribute the burden more equitably across states, many opponents argue that it still has an unequal incidence.[8] One need only contrast the Department of Energy's total fuel usage figures for the West South Central region with those for New England to find the oft-quoted differences in expected per capita revenue collections. Based on total energy consumption data for 1990, residents of the West South Central states would have paid nearly twice as much per capita as New Englanders, $154 versus $84. However, most of this gap is traceable to the regions' differing industrial compositions. The West South Central area is a large producer of oil and has attracted oil-intensive industries that serve consumers throughout the nation. Energy consumption in Texas alone

would generate revenue equal to $150 per resident, but 63 percent of this amount would be picked up by the state's business community.

Differences in industrial energy consumption patterns across states do not translate directly into differences in consumer tax burdens, however. Because a substantial number of goods are marketed nationally, companies can pass along their additional costs to customers throughout the country. The primary sources of consumer tax differentials based on location are the assessments on residential power and gasoline.[9] Thus, we focus on these two components of the household budget to determine whether residents of certain states would bear a disproportionate share of the new tax.

Based on aggregate state data, the BTU tax would cost the average consumer $49 on direct purchases of energy, with 36 states falling into the narrow range of $46 to $55 (see figure 1). While the largest per capita revenue would be collected in

TABLE 1 PER CAPITA PAYMENTS UNDER THREE ALTERNATIVE TAX PLANS
(Dollars per year)

Region	BTU Tax	Carbon Tax	Gasoline Tax
New England	46.99	54.43	45.29
Mid-Atlantic	41.92	46.82	40.01
East North Central	50.92	55.07	48.67
West North Central	53.89	55.07	53.15
South Atlantic	51.80	46.25	52.56
East South Central	54.50	48.52	54.45
West South Central	53.97	48.63	54.42
Mountain	49.92	49.56	51.68
Pacific	44.55	44.64	47.97
Variance	19.88	16.01	23.28

SOURCE: Authors' calculations based on the Department of Energy's 1990 State Energy Data System files.

Alaska ($261 with business assessments factored in), its citizens would each pay only $6 more than the national average. The majority of Americans would bear a comparable burden.

Most of the states expected to fall below the $46 mark have gasoline consumption rates well below the national average. These include New York, Rhode Island, Pennsylvania, and Massachusetts. California, Hawaii, and Utah benefit from unusually low residential power consumption, a result of their relatively mild climates. States with tax rates above $55 typically combine high gasoline consumption with above-average residential power usage. For example, Wyoming, the only state with per capita taxes exceeding $60, had the highest gasoline-based tax ($46) and the eighth-highest residential energy tax ($19).

Generally, states with low population densities would have higher per capita tax burdens, with the major exception being those southwestern states blessed with mild climates. Using the Department of Energy's survey data and controlling for the number of drivers in a household, we found that suburbanites would, on average, pay 18 percent more than city dwellers with regard to the BTU tax on gasoline. Facing an even greater burden are rural residents, who would pay 22 percent more than their urban counterparts.

Regional variations would have been different had the administration opted for either a gasoline or a carbon tax (see table 1).[10] A gasoline tax would generally boost the payments faced by rural and suburban residents while lowering the incidence on urban dwellers, who have greater access to public transportation. It would also result in a slight increase in the variance among regional average tax collections while shifting the burden west and south. A carbon tax, typically proposed at a rate of $30 per ton of carbon, would have a lower variance for consumers than the BTU tax. New Englanders and residents of the West and East North Central areas would be hit the hardest by this approach.

Part of the administration's concern for regional equity is linked to maintaining the BTU tax's political viability. To appease New England legislators, most of whose constituents heat their homes with oil, the rate on this fuel (as well as on LPG) was lowered from the petroleum rate to the base rate. This subtle shift moved New England from the most highly taxed region ($58 per person) to the third least highly taxed ($47 per person), but in so doing eliminated one of the proposal's main goals: motivating easterners to switch from home heating oil to a cleaner fuel like natural gas or electricity.

■ Incidence across Income Levels

Energy taxes, like most other consumption taxes, are generally thought to be regressive. That is, lower-income families pay a higher percentage of their earnings in taxes than do higher-income families. The reason for this is that as earnings rise, the percentage of current income spent directly on energy (and thus the average tax burden) falls.[11] Regressivity is typically evaluated at the family level, so in this section we report revenues from direct energy purchases as a percentage of family income rather than on a per capita basis.
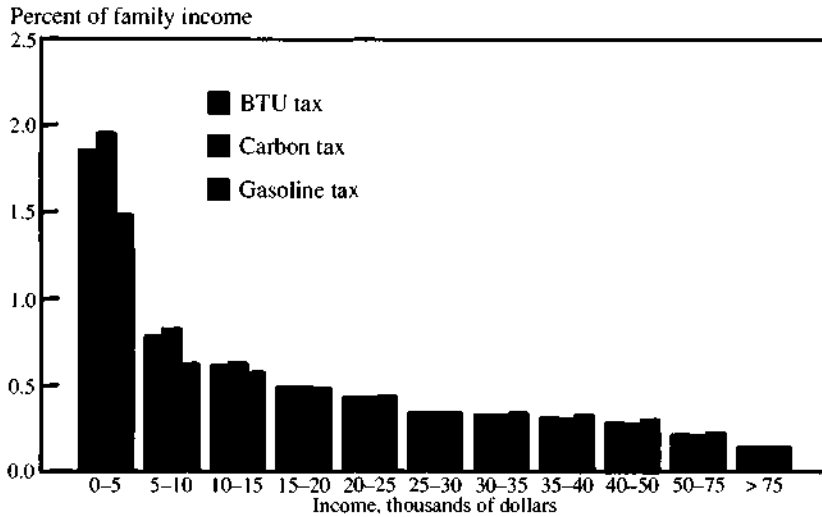
Not surprisingly, the nation's poorest families would bear the brunt of the BTU tax — or a gasoline or carbon tax (see figure 2). For households making less than $5,000 per year, the BTU tax would represent 1.8 percent of their income. This figure falls to 0.14 percent for families earning more than $75,000 annually. The carbon and gasoline taxes would show a similar pattern, with the differences among the three alternatives declining as incomes rise.

The upshot of these comparisons is that, based on equity, there appears to be little justification for favoring one energy tax over another. One must then ask whether energy taxes are too regressive *in general*. That is, do they place too high a burden on those Americans who can least afford to pay?

The direct portion of the BTU tax is not substantially more regressive than other consumption-based taxes. The relative regressivity of the proposed tax can be judged by comparing it to a broad-based consumption tax like the value-added tax (VAT).[12] The VAT has often been proposed as a new source of federal revenue and was recently suggested as a way to help underwrite a universal health care plan.
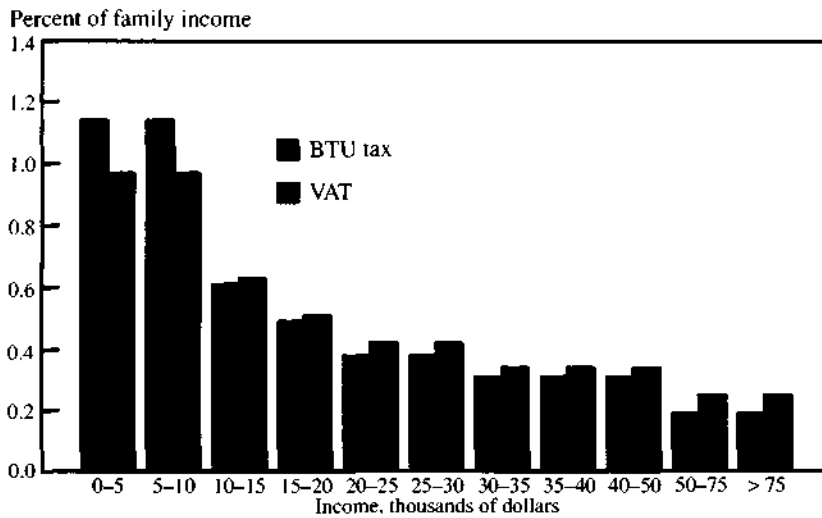
Figure 3 compares the percentage of family income that would be devoted to taxes under the current proposal versus under the VAT. As the chart makes clear, the taxes are quite similar in their incidence, indicating that the broad-based energy tax is not unusually

FIGURE 2   INCOME INCIDENCE OF ALTERNATIVE TAXES

Percent of family income

SOURCE: Authors' calculations based on the Department of Energy's 1990 Residential Energy Consumption and Residential Transportation Energy Consumption Surveys.

FIGURE 3   BTU TAX VERSUS THE VALUE-ADDED TAX

Percent of family income

NOTE: These estimates are based on the Treasury Department's six broader income categories (0–10, 10–15, 15–20, 20–30, 30–50, and >50).

SOURCES: Authors' calculations based on the Department of Energy's 1990 Residential Energy Consumption and Residential Transportation Energy Consumption Surveys; and U.S. Treasury Department, *Tax Reform for Fairness, Simplicity, and Economic Growth*, vol. 3, November 1984.

regressive, as some critics claim. The largest gap in the incidences is 0.17 percent, found in the Treasury Department's $0 to $10,000 income category, and the differences decline as earnings rise. The indirect portion of consumers' BTU tax burden would likely mirror the incidence of the VAT, since energy is an important factor in the production of most consumer goods.

Because the BTU tax exacts the harshest toll on the lowest income group, it is possible to correct much of its regressivity without severely cutting into revenue. The administration has proposed accompanying the energy tax with a $1 billion increase in the Low Income Home Energy Assistance Program (LIHEAP), which channels money to states to help poor Americans with their heating and cooling expenses, weatherization, and energy-related emergencies. This 66 percent funding jump could fully offset the increase in residential energy costs facing low-income families. Our estimates of the total tax receipts for residential power usage from households that earned less than $10,000 in 1987 is only $505 million — half the proposed increase in the LIHEAP. Unfortunately, exact estimates of the added benefits that would accrue to the poor are not easily determined, since states are allowed to structure their own energy assistance programs.

Even assuming that the entire home-utility portion of the tax burden is offset by increases in the LIHEAP for families currently receiving aid, the regressivity of the energy tax is only partially offset. The reasons for this are twofold: uneven distribution of family assistance and the fact that 60 percent of low-income consumers' energy tax burden would be devoted to taxes on gasoline. Thus, the White House has also proposed an additional $3 billion for the food stamp program. Families that receive most of their income from indexed transfer payments, such as Social Security, would generally bear little of the burden, since mandated cost-of-living increases would cover most of the energy price rise.[13]

■ Conclusion

To encourage conservation, cleaner fuels, and energy independence — all admirable goals — an energy tax must focus on individuals who are relatively intensive users of energy, particularly heavily polluting or imported fuels. This raises the distinct possibility that such a tax will have a disproportionate impact on specific regions or on low-income families. The Clinton administration appears to have carefully formulated the BTU tax to be equitable in terms of the average consumer's tax burden across states, and with the planned increase in transfer payments, much of the apparent regressivity of the tax will be eliminated.

Nonetheless, some families and regions will still pay larger shares. For instance, the average tax burden will be higher in America's rural and suburban communities, where access to public transportation is limited. Inequities in the tax will also encourage behavioral changes the administration favors, such as consumers opting for more fuel-efficient cars.

In sum, the BTU tax represents a delicate balance between social goals and tax equity. Adjustments aimed at strengthening its fairness — or its political viability — are likely to lessen its ability to encourage positive shifts in behavior and can only complicate what is already a relatively evenly spread tax.

■ Footnotes

1. See "Summary of Administration's Revenue Proposals," released by the Treasury Department on February 25, 1993, as published in the *Daily Report for Executives*. Washington, D.C.: Bureau of National Affairs, Report No. 37, February 26, 1993.

2. See "Treasury Department Description of Proposal for Modified British Thermal Unit Tax," released by the Treasury Department on April 1, 1993, as published in the *Daily Report for Executives, Washington, D.C.: Bureau of National Affairs, Report No. 62, April 2, 1993.*

3. Treasury Secretary Bentson describes the process by which the BTU tax was chosen in "Clinton Plan's Aim to Balance Pain Regionally Misses Bull's Eye by What May Be a Crucial Inch," *The Wall Street Journal*, February 25, 1993.

4. For purposes of comparison, 1 million BTUs represents about eight gallons of gasoline, or 1.1 days of U.S. per capita energy usage in 1990.

5. Relatively homogeneous consumption patterns across the United States tend to limit variations in the indirect portion of the tax.

6. Our analysis is based on the proposal released by the Treasury Department on April 1, 1993.

7. Tax incidence is defined according to who makes the final payment. For example, business taxes are borne jointly by investors in the form of reduced market value of their investment, by employees in the form of lower wages, and by customers in the form of higher prices.

8. The primary revision affecting consumers is the exclusion of fuel oil and LPG from the higher petroleum tax. Additional revisions have already been proposed by the House Ways and Means Committee, and more changes are likely as the bill wends its way through the legislative process.

9. The energy consumption figures used in our analysis are from the Department of Energy's 1990 State Energy Data System files.

10. The carbon tax would raise more than twice the revenue of the BTU tax ($189 billion versus $71 billion over five years). All figures reported in this article have been adjusted so that the tax alternatives generate equal revenues from consumers.

11. Based on 1990 consumption data, families making less than $3,000 per year spend nearly half their reported income on energy, while those making more than $75,000 pay less than 2 percent. (These figures do not include government subsidies to low-income families.)

12. A VAT is a general tax on consumption collected at all stages of production. Businesses pay the tax on their revenues minus their purchases of capital and intermediate goods. Ultimately, consumers pay most of the tax through higher prices for goods and services. State sales taxes are similar in their incidence, but do not adjust for capital and intermediate goods used in production.

13. Energy expenses represent 7 percent of the Consumer Price Index. Other prices could also be expected to rise as industries pass on their added costs to customers.

Mark E. Schweitzer is an economist and Adam D. Werner is a research assistant at the Federal Reserve Bank of Cleveland. The authors are grateful to Randall Eberts and E. J. Stevens for helpful comments and suggestions.

1993:1Q Economic Review Now Available

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by Alan J. Auerbach,
Jagadeesh Gokhale, and
Laurence J. Kotlikoff

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Has the Long-Run Velocity of M2 Shifted? Evidence from the P* Model

by Jeffrey J. Hallman and
Richard G. Anderson

The P-Star (P*) model forecasts inflation by exploiting the stability of M2 velocity and the tendency of the real economy to operate near its potential. While originally offered as a link between inflation and money growth, inverting the model provides a test of one of its primary assumptions: the constancy of M2's long-run velocity, or V-Star (V*). If V* has increased during the last three years, predictions of inflation from the original P* model should be inferior to predictions from a model that incorporates the new, higher V*. In fact, the deceleration of inflation through 1992:IIIQ was quite close to the original model's prediction, and simulations of the model under a variety of hypotheses regarding changes in V* provide relatively little support for a dramatic shift in that measure.

Examining the Microfoundations of Market Incentives for Asset-Backed Lending

by Charles T. Carlstrom and
Katherine A. Samolyk

Many view the proliferation of securitization as a response to competitive or regulatory pressures. But to what extent would asset-backed lending occur in a less regulated environment? This paper addresses the extent to which models of credit intermediation have been able to formalize some of the market-based forces driving this phenomenon. The authors examine four papers that model some of the dimensions of asset-backed markets. An underlying theme is that under certain conditions, the very information costs that make financial markets important as conduits of credit can also create nonregulatory incentives for asset-backed lending as an efficient funding mode.

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