

A Standby Levy on Gasoline

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The policy case for a gasoline tax is strong. It is a powerful way to deal with three enormously significant challenges: environmental harms arising from the use of fossil fuels, including climate change and the health effects of auto pollution; the burdens on national security from assuring an adequate supply of imported energy; and the costs associated with urban sprawl and traffic congestion. Yet political opposition to a petroleum fuel tax is overwhelming. With energy prices near record levels, the American people are unlikely to accept a tax of, say, a dollar per gallon on all carbon-based fuels. Although such taxes are common elsewhere in the world, the U.S. presidential campaign has mostly focused on whether to *forgive* them in a tax “holiday,” instead of on raising them.

In response, this Article proposes an alternative that offers many important benefits of a petroleum fuel tax, but is more politically palatable: a standby levy that would take effect only if the retail price of petroleum fuel falls significantly below today’s historically high levels, and would be fully refundable to consumers. The essential idea is that, if the world price of oil falls such that gasoline prices would ordinarily decline below a designated threshold – we propose \$3.30 per gallon – then the federal excise tax on petroleum fuel would increase by an amount that would return the price paid by consumers to approximately this minimum level; for example, if a decline in world oil prices would translate into a price at the pump of \$3.00, the excise tax would increase by 30 cents. This measure is not intended to raise revenue, but to influence behavior. Consequently, whatever is collected from these standby levies would be returned to taxpayers through a refundable tax credit. In any event, the amount of revenue generated by the levy would be very unpredictable, depending on the ups and downs of world oil

prices, so it would be impractical to rely on the levy as a source of revenue for the government.

One advantage of our proposal is that it signals to consumers, auto manufacturers, and investors in alternative energy technology that petroleum fuel prices will not appreciably decline in the future. Armed with this information, consumers, manufacturers and energy investors can commit to making fundamental changes in their behavior and their investments in new technology, knowing that these commitments will not be undermined by a sudden collapse in petroleum fuel prices back to levels of the past. These behavioral changes and investments, within a few years, should dramatically reduce America's consumption of oil.

Another advantage of our proposal is that it is much more politically feasible than an ordinary excise tax increase or a carbon tax, since it does not impose any *additional* cost on taxpayers beyond what they are already incurring today; indeed, if world oil prices remain high, the standby levy would never be activated at all. A policy change that only threatens to deprive voters of a hypothetical future benefit – in the form of falling gasoline prices – and which would be revenue neutral if it does have this result, should encounter less opposition than proposals like President's Clinton's BTU tax of 1993, which promised to raise everyone's energy bills and to provide funding for additional government programs. In this sense, our proposal represents an attempt to seize a political opportunity created by the current spike in world oil prices, which may not last.

A final advantage is that our proposal provides a powerful incentive for innovation in both energy consuming products and alternative energy sources, but without requiring the government to pick and choose which innovations deserve taxpayer support. In

contrast, current proposals to stimulate investment in electric cars and “renewable energy” sources entail a hodge-podge of targeted subsidies and credits in which the government attempts to pick future technological winners and losers. We doubt the government can make these judgments as well as market participants.

The idea for a standby gasoline levy is not new. Such a proposal has been floated in the popular media by a variety of editorial writers in recent months, including Thomas Friedman, Charles Krauthammer, and Robert Samuelson,¹ and a variant on the idea was briefly proposed by the Carter Administration in the late 1970s. As far as we are aware, however, no one has sought to spell out in any detail why such a proposal is justified, and how it might be structured and implemented. That is the objective of this Article.

Part I offers a summary of our proposal. Part II develops the advantages of the proposal. Like a Pigouvian tax, our standby levy would reduce consumption of gasoline, which would have positive effects on the environment, national security, and urban sprawl and congestion. Yet as compared to a Pigouvian tax, it would stand a greater chance of gathering political support, while also lending greater stability to petroleum fuel prices. Moreover, because the levy would be refunded, it generally would not distort the distribution of income or incentives to work and save. Part III describes its disadvantages, including the risk that it would be repealed, and that consumers and producers would discount it accordingly. We also consider the possibility that consumers would stop comparison-shopping for gasoline if prices are at or below the threshold, such that producers would be able to keep prices artificially high, reducing the refund that consumers otherwise would receive. Finally, we note the ways in which our standby levy

¹ See Thomas Friedman, ___, New York Times, May 28, 2008; Charles Krauthammer, *At \$4, Everybody Gets Rational*, The Washington Post, June 6, 2008, at A19; Robert Samuelson, ___, Newsweek, June 18, 2008 at ___.

is less comprehensive than a Pigouvian carbon tax. It does not try to set the levy equal to the marginal social harm caused by the relevant externalities, as an ideal corrective tax would, and it also does not include some substitutes for gasoline, such as natural gas and coal.

I. A Summary of the Standby Levy

The federal excise tax on gasoline is currently 18.4 cents per gallon.² We propose to designate that tax rate as a minimum, and to provide for tax increases to offset declines in the retail price of gasoline, below a designated threshold, that are attributable to reductions in world oil prices. This would ensure that consumers pay at least this minimum threshold amount for gasoline and other petroleum fuels, even if the price of oil later falls below a level that would generate such a price.

A. The Threshold

We suggest that the threshold be set approximately ten per cent below the retail price of gasoline at the time the levy is adopted. For instance, if the price at the time of adoption is approximately \$3.70 per gallon nationwide for regular gasoline,³ a threshold of \$3.30 is approximately right. When the levy is enacted, therefore, it would impose no immediate out of pocket cost on taxpayers. As long as the price stays above \$3.30 per gallon, no additional revenue would be collected. If world oil prices decline to the point where the retail price would fall to \$3.00, the federal excise tax on petroleum fuels would increase by 30 cents per gallon. As a result, consumers would never pay less than

² <http://www.gaspricewatch.com/usgastaxes.asp> (listing gas tax rates for federal government and all US states).

³ http://tonto.eia.doe.gov/dnav/pet/pet_pri_gnd_dcus_nus_w.htm (as of September 4, 2008).

approximately \$3.30 per gallon, since the extra tax would offset declines in price below \$3.30 per gallon. Whatever number is chosen as a target for the gasoline price floor, it should be subject to a cost of living adjustment each year, so as to preserve its real value.

B. The Levy

Although the goal would be to maintain a floor on the *retail* price of petroleum fuel, the actual calculation of the levy would be keyed to the world price of *crude* oil, for several reasons. First, crude oil prices are by far the largest component of petroleum fuel prices, in recent years accounting for as much as 58% of the retail price of gasoline.⁴ Second, the world price of crude oil is determined by global forces of supply and demand and appears largely impervious to manipulation by domestic refiners, distributors, or retailers. Third, we believe it is appropriate to set the levy based on an input at the beginning to the production process, so as to preserve the benefits of competition among downstream suppliers, including refiners, interstate pipeline companies, regional wholesalers, and retail service stations. Fourth, we assume the levy, like the current federal excise tax, would be collected at the point of distribution of petroleum products to wholesale distributors, so the levy could not be imposed at the point of final sale to consumers even if this were otherwise desirable.

The exact amount of the levy would be determined in accordance with a formula (which would be developed administratively) that seeks to determine the relationship between crude oil prices and pump prices. An example will illustrate. Suppose it is determined that the appropriate floor on retail prices is a national average of \$3.30 per gallon. Starting with this figure, we would strip out taxes, including both the existing

⁴ See Energy Information Agency, *A Primer on Gasoline Prices*, May, 2008, available at <http://www.eia.doe.gov/bookshelf/brochures/gasolinepricesprimer/index.html>.

federal excise tax (which would not change) and state and local taxes. Suppose this yields a national average pre-tax retail price of \$2.80 per gallon. Taking this figure, we would then subtract an estimate for refining, distribution, and marketing costs, including a normal profit on all these activities. This gives us the crude oil component price of gasoline. Assume this is \$1.90 per gallon, or about \$80 per barrel. Armed with this component price, we can now set the levy. If world oil prices fall, say to \$50 per barrel, then we would impose a levy of \$30 per barrel or \$0.71 per gallon. If world oil prices stay at \$80 per barrel or higher, there would be no levy.

Under this approach, refining, distribution, and marketing costs obviously have to be determined. The simplest method would simply calculate national average refining, distribution, and marketing costs during a test year in the recent past. In 2007, for example, the average amount of such costs was about \$0.76 per gallon.⁵ A more refined method would be to determine the national average “reasonable” costs of refining, distribution, and marketing. This could be done in a rulemaking proceeding using the kind of techniques that have been developed to fix maximum reasonable public utility charges. Even more refined would be to determine the “total service long-run incremental costs” for a hypothetical efficient provider of refining, distribution and marketing services, a technique followed by the Federal Communications Commission in pricing unbundled network elements for purposes of pricing competitive access in the telephone industry.⁶ Whichever method is chosen, the objective would not be to fix the

⁵ Calculation based on figures for 2007 average retail prices presented in Energy Information Agency, *A Primer on Gasoline Prices*, May, 2008, available at <http://www.eia.doe.gov/bookshelf/brochures/gasolinepricesprimer/index.html>.

⁶ See Ingo Vogelsang, Price Regulation of Access to Telecommunications Networks, 61 J. Econ. Lit. 830 (2003).

retail price of gasoline, but to estimate as accurately as possible the crude oil price component in the retail price of gasoline, and thereby to fix the appropriate levy (if any).

Because the levy would be calculated based on the price of crude oil in the prior month, the actual price paid by consumers would vary somewhat from region to region and station to station, depending on such factors as refining costs (above or below average), distribution costs (above or below average), the level of state and local gasoline taxes (above or below average), and whether the station is located in an area that must use more expensive reformulated gasoline under EPA Clean Air Act regulations.⁷

Basing the levy on crude oil prices would also allow the forces of competition to continue to discipline market participants at all links in the chain of distribution from production or importation of oil up to the retail gasoline station. Prices would further fluctuate somewhat with short-term changes in the price of oil relative to the benchmark price used in the previous month. By making the adjustments monthly, instead of daily, we reduce the administrative costs of the proposal while further ensuring that gasoline distributors have an incentive to cut prices if they achieve new efficiencies or face new competition -- or if the price of oil falls during the month.

We envision that our levy would be applied to all petroleum fuel products, not just gasoline sold to motorists. This would achieve the greatest impact, in terms of incentives for conservation and development of alternative fuels. Federal excise taxes currently apply to other fuels, including diesel fuel, aviation fuel, and motor boat fuel, and calculating the levy based on world crude oil prices makes extension to these fuels

⁷ The average retail price of gasoline varies by \$0.30-\$0.40 per gallon between high tax/ high cost areas (e.g., Los Angeles) and low tax/low cost areas (e.g., Houston), with most cities falling somewhere in between. See Statistical Abstracts of the U.S., Table 711, Retail Gasoline Prices—Selected Areas: 2004-2006. We would expect a similar spread to continue after introduction of our proposed levy.

administratively simple. Although the relationship between crude oil prices and final refined product prices may differ somewhat in different petroleum fuel markets, we think adopting the levy developed with reference to the retail gasoline market is probably good enough for use in all markets. If a more refined approach is desired, a different benchmark retail price and a different levy could be calculated for each product. Later in the paper, we will discuss the possibility of exempting or phasing in the extension to other petroleum fuel markets in order to reduce political opposition to the levy.

C. The Refund

Our levy would not be a “tax,” in the sense that it would not be designed to collect revenue, but to influence behavior. Indeed, the levy would fluctuate from month to month, and would often be zero, making it very undesirable as a source of government revenue. We propose that every dollar collected under the levy be refunded to taxpayers. There are several issues to be considered about how such a refund would be administered.

First, we believe the refund should be limited to individuals. Business entities, including corporations, partnerships, subchapter S corporations, and nonprofits, would not be eligible for the refund. This is based on the supposition that the levies paid by these entities would be passed along to individual taxpayers in the form of higher prices to consumers, lower wages to workers, or lower returns to investors. Thus, refunding these burdens to individuals is the right answer on the merits. It is also much easier to do. Devising a refund for businesses and nonprofit organizations would raise administrative questions of great complexity, given the vast differences in petroleum fuel consumption among firms, and the extent to which firms, as opposed to individuals in the firms, pay

for the fuel (think of a taxi company or pizza delivery services). Allowing organizations to claim refunds would also be subject to abuse, such as the creation of multiple corporations to claim refunds, which would be difficult to police.

Second, we believe the refund to individuals should be as broad-based as possible. Thus, we would not link the refund to either the income tax or the social security payroll tax.⁸ Either approach would deny the refund to some retirees and unemployed persons, many of whom purchase gas. Instead, we would make the refund available to all individuals as a refundable tax credit administered by the Internal Revenue Service. Those with taxable income would claim the refund as a credit against taxes owed, which they would claim on their household income tax returns. Those who do not have enough income to file an income tax return would be allowed to obtain a refundable credit using a special short form provided by the IRS for this purpose, and would receive a check directly from the IRS.

Third, the amount of the refund would be based on the total revenue collected under the levy divided by the total number of Americans of driving age. The “average” American therefore would receive a refund that would completely offset the additional charges she would pay in gasoline levies as well as the higher prices she would pay for goods and services that consume petroleum fuels and any reductions in her wages and investment returns from petroleum-consuming businesses. For those who consume at exactly the average level, the refundable levy would thus have no net effect. Those who consume less than the average would be rewarded with a net payment, since the refund they receive would be more than the amount they actually paid. Those who consume

⁸ Compare Gilbert E. Metcalf, A Green Employment Tax Swap: Using a Carbon Tax to Finance Payroll Tax Relief, Brookings Policy Brief (June 2007).

more than average would incur a net cost. The effect would be to redistribute from those who are energy inefficient to those who are energy efficient – with obvious incentive effects – but, again, the government itself would collect no net revenue.

Fourth, we would define “persons of driving age” for purposes of the refund to mean all persons claimed as a dependent on an individual tax return (or a short form application for a refundable credit) who are old enough to drive in their state of residence. This is admittedly overbroad, since it would award refunds to some persons who do not drive. But since one purpose of the levy is to discourage driving, the incentives here are not inappropriate. And even those who do not drive will experience higher prices passed along by businesses that purchase petroleum fuel products, and reduced wages and investment returns from petroleum-consuming businesses. We would not make any adjustment for miles driven or numbers of vehicles owned, since these adjustments would be difficult to audit and would undermine incentives to conserve. The limitation to those claimed as dependents assures against double-claiming, since no one can appear as a dependent on more than one tax return.

Finally, we believe our standby levy would not require new bureaucratic agencies or significantly more government employees. The federal petroleum fuel excise tax is currently collected at transfer racks where refined petroleum products are offloaded from pipelines and vessels to wholesale delivery trucks.⁹ This arrangement could also be adopted for the standby levy. The dollars collected would be substantially larger, but the number of collections and the routine for assuring proper payment need not change.

⁹ See 26 CFR 48.4081 [check for correct citation]. The legal incidence of the tax is imposed on the statutory “producer,” that is, the federally licensed wholesaler distributor, not the end user. See *Gurley v. Rhoden*, 421 U.S. 200, 205 (1975).

The refund, meanwhile, should be processed by the IRS. Most households would claim it as a credit against income taxes. Very little additional information would have to be provided, essentially just the number of claimed dependents who are old enough to drive multiplied by the allowable credit. For those who do not have enough income to file an income tax return, a highly simplified post-card type filing could be used, analogous to what low income households use to claim the Earned Income Tax Credit. Processing these filings would marginally increase the burden on the IRS. Perhaps the most significant new administrative task would be the need for the IRS to compute the amount of the credit, and make this information available early enough in the calendar year to assure that it can be used in filing annual returns. To facilitate this process, perhaps the IRS could compute the refund based on what is collected through the end of October instead of the end of December.

II. Advantages of the Standby Refundable Levy

Policy analysts frequently advocate substantial increases in the federal gasoline tax as a way of discouraging the consumption of gasoline, and thereby reducing various social costs associated with its use, including environmental harms, political vulnerability to unstable foreign governments, and other externalities such as accident costs. An ideal Pigouvian tax would be set at a level equal to the marginal social costs associated with petroleum fuel consumption, and would thus internalize those costs to consumers, creating incentives for more socially efficient consumption decisions.

Our proposal does not seek perfectly to track these social costs, and thus is a second best solution. Nevertheless, our proposal shares many important benefits of a Pigouvian

tax. When gas prices fall below the threshold, the levy forces consumers to internalize these costs. Like a Pigouvian tax, our proposal seeks to change behavior through changes in prices, rather than by having the government impose regulatory mandates or pick and choose which alternatives to subsidize.

Yet, our standby levy has two major advantages relative to a Pigouvian tax. First, and most importantly, a standby levy that is revenue neutral has some prospect of being adopted by the political system. A Pigouvian tax that would be added onto the current market price of gasoline stands virtually no chance of being enacted, at least for now. Second, our proposal aims to achieve a stable floor on the price of gasoline, thereby sending an unambiguous signal that behavioral changes must be permanent rather than transient. A true Pigouvian tax obviously is not designed to offset reductions in the market price, and thus lets the net price of gasoline fluctuate. In addition, the tax itself might fluctuate up and down, as evidence about the magnitude of the social costs changes over time.¹⁰

A. The Standby Levy as a Second-Best Pigouvian Tax

Our standby levy, like a Pigouvian tax, would reduce consumption of petroleum fuels relative to the levels that would prevail absent the levy. Indeed, the levy would function like a classic Pigouvian tax when petroleum fuel prices fall below the threshold (although, of course, the level of tax would not be perfectly calibrated to the social harm).

Before reviewing the advantages of using a standby levy to discourage consumption of gasoline, it is important to consider how much of an impact our proposal would have

¹⁰ Indeed, the marginal social harm would change with the overall level of gasoline consumption. As a result, as Louis Kaplow and Steven Shavell have observed, the optimal corrective tax is probably not linear. See Louis Kaplow & Steven Shavell, On the Superiority of Corrective Taxes to Quantity Regulation, 4 Am. L. & Econ. Rev. 1 2002

in reducing consumption. One critical variable is the assumed difference between the future price of gasoline with and without the levy. We have assumed that the price with the standby levy would be \$3.30 per gallon going forward. It is impossible to predict the future price of gasoline without the levy. For purposes of illustration, however, let us consider what would happen if the price falls in the near future to \$2.00 per gallon, in response to rising supplies and falling demand created by the current price spike. This yields an assumed spread of \$1.20 per gallon between the price with and without the levy.

A second critical variable is the price elasticity of demand for gasoline. Here, the economics literature reports that the price elasticity varies greatly based on the time horizon. One widely reported estimate is that the first year demand elasticity is $-.11$, the five year elasticity rises to $-.49$, and the ten year elasticity is $-.82$.¹¹ These figures mean that for any given increase in a unit measure of price, the quantity demanded will *decrease* by something less than a full unit measure of quantity, with the fraction rising from $.11$ in one year to $.82$ over a ten year horizon. Since our proposal is to adopt a permanent floor on the price of gasoline, we believe it is fair to use the ten year estimate of price elasticity as a gauge of the long run impact of our proposal.

Putting these illustrative assumptions together, the standby levy would increase gasoline prices by about 39% relative to what they would be without the levy, and this would reduce consumption over a ten year period by about 32%.¹² This translates into a

¹¹ See James M. Poterba, *Tax Policy to Combat Global Warming: On Designing a Carbon Tax*, NBER Working Paper No. 3649, March 1991 at 16.

¹² If the levy would raise the price from \$2.00 per gallon to \$3.30 per gallon this is an increase of 39%. A price elasticity of $-.82$ means this would translate into a reduction in quantity purchased of about 32%.

reduction of 48 *billion* gallons of gasoline per year, relative to current consumption levels.¹³ That is 424 gallons per household per year. This is a huge impact. And this is just the reduction in gasoline consumption. If the levy applies more broadly to jet fuel, diesel fuel, and motor boat fuel, the reduction in consumption would be even larger.

1. Three Familiar Reasons to Reduce Consumption of Petroleum Fuels

a. Environment

Global warming has been called the most serious environmental issue of our age. Emissions of CO₂ are significant contributors to the greenhouse effect that scientists believe is at least partially responsible for the gradual rise in global temperatures we are currently experiencing. Combustion of gasoline by motor vehicles, in turn, is a major source of CO₂ emissions. Motor vehicle emissions in the United States alone account for approximately 6 percent of all global emissions of CO₂.¹⁴ As the Supreme Court has noted, “Considering just emissions from the transportation sector, which represent less than one-third of this country’s total carbon dioxide emissions, the United States would still rank as the third-largest emitter of carbon dioxide in the world, outpaced only by the European Union and China.”¹⁵ There is no known technology for reducing CO₂ emissions by motor vehicles other than burning less carbon based fuel. This can be

¹³ Calculated from data provided by Statistical Abstracts of the U.S., Table 874, Petroleum Industry—Summary: 1980 to 2005. In 2005, just over 3 billion barrels of motor gasoline were produced by American refineries, and about 590 million barrels of motor gasoline were imported. (We have assumed that the same percentage of refinery output that goes to gasoline also applies to imports of refined petroleum products.) A reduction of 32% from 2005 production and imports together (3,590 million barrels) yields a reduction of about 1,150 million barrels, or 48 billion gallons. There were 113 million households in 2005. *Id.* at Table 58, Households, Families, Subfamilies, and Married Couples: 1980 to 2006.

¹⁴ *Massachusetts v. EPA*, 127 S.Ct. 1438, 1457 (2007).

¹⁵ *Id.*

achieved either by improved fuel efficiency, driving fewer miles, or switching to some alternative source of fuel like electricity generated by means other than carbon fuels.

Our proposed standby levy would have a major impact on emissions of CO₂ in the United States. By placing a floor under the price of petroleum fuels, it would encourage consumers to drive less, join carpools, work from home, relocate to areas better served by public transportation, and purchase more fuel efficient cars. It would encourage vehicle manufacturers to launch crash programs redesigning their fleets to achieve greater fuel economy and eventually to run on sources of power other than gasoline, whether it be hydrogen, solar, or rechargeable batteries. It would encourage businesses to reduce transportation costs in countless ways, many beyond our current imagination.

Anticipating these trends, producers of alternative fuels would redouble their efforts to develop new sources of power that are not subject to the levy and that presumably do not generate equivalent greenhouse gases. The ultimate impact would be impossible to predict with any precision. If our rough calculus above is close to correct, the United States could achieve a 32 per cent reduction in the emission of CO₂ attributable to gasoline combustion after ten years. This would be equivalent to a 2 percent reduction in *global* CO₂ emissions – a major environmental achievement by any measure. It would, for example, make it much easier for the United States to participate in post-Kyoto conventions designed to achieve a general international commitment to reduce emissions of greenhouse gases.

Climate change is, however, only the beginning of the environmental story associated with the combustion of petroleum fuels. Internal combustion engines also emit carbon monoxide, particulate matter, nitrogen oxides, and hydrocarbons. Nitrogen

oxides and hydrocarbons combine with volatile organic compounds in the presence of sunlight to produce ground level ozone. Carbon monoxide, particulates, and ozone each present serious human health risks. One study by researchers at the Yale School of Forestry and Environmental Studies, for example, concluded that reducing ozone pollution by 35 percent would save 4,000 deaths annually in the United States.¹⁶ Tailpipe emission controls on new automobiles in place since 1977 have produced substantial improvements in ambient air concentrations of carbon monoxide and particulates, and to a lesser degree nitrogen dioxide.¹⁷ But ozone has been more resistant to improvement, in large part because reductions in per-vehicle emissions of hydrocarbons have been offset by a steady increase in the number of miles driven in the United States.¹⁸

The proposed fallback levy, by imposing a floor on the price of gasoline, would achieve significant additional improvements in air quality associated with motor vehicle pollution. It would do this for two reasons. First, the amount of combustion of motor fuel would fall. Given higher expected future prices of gasoline, consumers would increasingly switch to cars that burn less fuel and would alter their behavior in countless ways to cut back on the number of miles they drive. Second, the higher prices of gasoline would create an incentive for more rapid turnover of the existing vehicle fleet, as consumers shift from older, less efficient models, to newer, more efficient models. Older

¹⁶ Study Links Smog Increase, Urban Deaths,
<http://www.cnn.com/2004/HEALTH/11/16/smog.study.reut.index.html>.

¹⁷ Statistical Abstracts of the U.S., Table 359, National Ambient Air Pollutant Concentrations by Type of Pollutant: 1990 to 2005.

¹⁸ See Cars are getting cleaner, but people are driving more, offsetting progress in ozone pollution control, www.epa.gov/oms/04-ozone.htm.

models are disproportionately responsible for emitting the hydrocarbons that produce ozone, as well as other pollutants.¹⁹ In a fairly short time, we would see measurable improvements in air quality, and a decline in respiratory diseases and other health effects of auto pollution.²⁰

b. National Security

Reducing our consumption of petroleum fuel would also make our nation more secure. Much has changed since the end of World War II, when the United States was almost completely self-sufficient in energy, producing all the oil, coal, and other fuels it needed to power the world's largest economy. The United States still has ample coal supplies. But today, over *two-thirds* of the domestic demand for petroleum products is supplied by imports.²¹ It would be one thing if these imports were supplied by stable democracies that can be counted on to remain reliable trading partners with the United States. In reality, the picture is quite disturbing. After Canada and Mexico, the largest sources of U.S. oil imports are Saudi Arabia (519 million barrels per year), Venezuela (416 million barrels per year), Nigeria (381 million barrels per year), Iraq (202 million barrels per year), Angola (187 million barrels per year), and Algeria (130 million barrels per year).²² These are countries either led by dictators, experiencing war or significant internal discord, or overtly hostile to the interests of the United States. Nor does the

¹⁹ See A large amount of hydrocarbon pollution comes from relatively few cars with “dirty” exhaust, www.epa/oms/04-onzone.htm.

²⁰ While some benefits of our proposal would affect the current generation, some would be of greater benefit to future generations. For a discussion of the appropriate discount rate to use in evaluating these intergenerational benefits, see David Weisbach & Cass R. Sunstein, *Climate Change and Discounting the Future: A Guide for the Perplexed*, Reg-Markets Center Working Paper 08-19 (August 2008).

²¹ Statistical Abstracts of the U.S., Table 902, Crude Oil and Refined Products – Summary: 1980 to 2006.

²² Statistical Abstracts of the U.S., Table 901, Crude Oil Imports Into the U.S. by Country of Origin: 1980 to 2006.

strategic petroleum reserve suffice to replace any major disruption in imports. The reserve has 689 million barrels of oil – not even enough to offset one year’s supply from Saudi Arabia and Venezuela.²³

We do not suggest that the proposed standby levy would achieve “energy independence” for the United States, nor do we think this would be desirable. What it would do, however, is reverse a steady progression of increased reliance on imported oil, in which countries hostile to the United States perceive that we are increasingly dependent on them. This has emboldened these countries to take actions contrary to our national interests. A decline in domestic consumption would change this dynamic at the margins, as the United State switched from increasing dependence to greater independence. For example, an American threat to embargo oil imports from these countries would become much more credible.

Environmental and national security goals are not always in sync. For example, a broad-based carbon tax that would discourage the use of both petroleum and coal would have beneficial environmental consequences, but would likely work against our desire for more energy independence, given our vast reserves of domestic coal. In the case of our standby petroleum fuel levy, however, there is no tension between these objectives. Reduced consumption of gasoline and related fuels would be good for the environment, and would also promote energy independence.

c. Urban Sprawl and Congestion

Motor vehicles are also the source of a third important externality. Inexpensive motor vehicle transportation has facilitated suburban and exurban sprawl. In a vicious

²³ Statistical Abstracts of the U.S., Table 902, Crude Oil and Refined Products – Summary: 1980 to 2006.

cycle, this pattern of growth has further encouraged the use of motor vehicles, since alternative modes of transportation, such as walking, bicycling, or public transportation, are impossible or inconvenient. Urban sprawl has a number of undesirable social consequences, including longer commutes, greater segregation of people by race and class, gradual destruction of agricultural lands and woodlands, larger homes that consume more energy and have larger carbon footprints, and so forth. Putting a floor on the price of gasoline at current high levels would begin to reverse the process of sprawl. People would begin to demand housing closer to employment centers and public transportation. Over time, cities would become more dense.

Inexpensive motor vehicle transportation is also responsible for increasing traffic congestion, leading to time wasted in traffic jams and more accidents.²⁴ According to one study, the cost of congestion-induced accidents alone would justify a Pigouvian tax of \$220 billion annually.²⁵ The full measure of externalities associated with sprawl and congestion are unquestionably much higher.

Admittedly, our standby levy is an imperfect type of tax to capture these external costs, since consumers may seek to reduce expenditures on gasoline by purchasing more fuel efficient cars, rather than relocating closer to urban centers or taking public transportation. But clearly some substitution away from driving will occur, and this will help reduce the external costs associated with sprawl and congestion.

2. Advantages of Using Price Signals to Influence Behavior

²⁴ Insurance data strongly suggest that increased congestion translates into higher accident rates, more personal property damage, and more personal injuries. Aaron S. Edlin and Pinar Karaca Mandic, *The Accident Externality from Driving*, 114 J. Pol Econ. 931 (2006).

²⁵ *Id.* at 951.

There are a number of ways to discourage gasoline consumption – and thus to attain the environmental, national security, and congestion-reducing benefits discussed above. For example, the government can require all cars to attain higher gas mileage (so called “CAFÉ standards”), mandate the use of particular technologies in the manufacture of automobiles, subsidize the use of particular alternative fuels like ethanol, create special lanes on highways for carpooling, introduce congestion pricing, or even bar people from driving in some circumstances. A great advantage of our proposal is that it does not require the government to choose a particular approach at the expense of others, something the government is not well suited to do.

a. Information and Incentive Problems Faced by Government

Through technological innovation, we may ultimately wean ourselves from our dependence on petroleum fuels without any sacrifice in our standard of living. There obviously are a host of possibilities, and there is a great deal of uncertainty about which to pursue. Should cars be powered by hydrogen, natural gas, or electricity?²⁶ Electricity, in turn, could be generated by solar power, wind, clean coal, nuclear power, geothermal power, waste, and any number of other sources. Consumers may also rely more on carpooling and mass transit, bicycling, walking, and telecommuting. We obviously don’t know which new technology will turn out to be most cost effective and user friendly, and which changes in lifestyle will be most attractive. Different responses will appeal to different people.

As a result, government officials are not well positioned to make predictions about which specific technologies or practices will prove most successful. They do not

²⁶ See, e.g., Clifford Krauss, Surge in Natural Gas Cars Has Utah Driving Cheaply, N.Y. Times, Aug. 30, 2008, at A1.

have the expertise to assess whether solar or wind energy is more promising, or whether consumers will prefer electric cars to hybrids or high efficiency diesels – or, more precisely, which types of consumers would prefer which product.

In addition to these information problems, government officials also may not have the right incentives. If a suboptimal technology is backed by a powerful interest group, government officials may nevertheless feel pressured to support it. The experience with ethanol is not encouraging in this regard. It is a familiar point that ethanol's appeal may derive more from its support among farm state senators than from its merits. Ethanol is expensive, requires a great deal of energy to produce (once the energy needs of farmers and delivery vehicles are considered²⁷), and there is widespread concern that it is driving up food prices.

b. Consumer Incentives

Our refundable levy avoids these problems, since the key decisions are made by consumers and producers, instead of by the government. By setting a floor on the price of gasoline, the levy encourages consumers to reduce their consumption of gasoline, but it leaves the choice to individuals about how to do it. Some will move closer to work, others will telecommute or car pool, while still others will experiment with new technologies. Indeed, we know that consumers respond to the price of gasoline, since we have seen a number of significant changes in behavior since gas prices began rising precipitously in the last year, including greater use of mass transit and steep declines in the demand for SUVs. Yet there does not have to be a one-size-fits-all solution, and

²⁷ Because ethanol is water soluble it cannot be transported by pipeline, which uses water to separate batches of product. Consequently, ethanol must be transported by truck or rail.

indeed the mix of costs and benefits associated with different technological innovations will appeal differently to different people, and they will gravitate to the ones they prefer.

c. Producer Incentives

Our levy will have useful effects on producers as well. Auto manufacturers, for instance, will focus their energies on fuel efficient cars, knowing that the levy will keep gas prices from falling below a minimum level. One of the significant challenges manufacturers face is that they must design products well in advance of bringing them to market, and uncertainties about the price of fuel leave them unsure about whether to focus on gas-guzzling SUVs or hybrids. Our levy will set a stable floor under prices, allowing the auto industry to focus on fuel efficiency.

At the same time, producers of alternative energy will feel more secure investing the research and development that is needed for breakthrough innovations. It is a familiar point that, over the past decades, investors have periodically focused on developing alternative energy, but their investments have repeatedly been wiped out as oil prices have declined. Our standby levy reassures investors that this will not happen again. The result will be a vibrant and competitive market, in which different technologies are developed and different approaches compete to reduce our dependence on gasoline.

d. A Market-Based Approach

Unlike credits for ethanol, wind, solar power, hybrid cars, and other targeted subsidies, our refundable levy does not require the government to make judgments about which types of conservation or alternative energy to support. The only decision the government makes is where to set the price floor, and this judgment requires much less information. Indeed, the conventional wisdom among environmental economists is that

gasoline taxes are preferable to direct regulation when the information needed to set the tax is easier to get than the information needed to decide among competing technologies.²⁸

We also avoid the line-drawing problems associated with targeted subsidies and regulations. With CAFÉ standards, we need to know what a car is, as opposed to a truck, and it is a familiar point that this line has been gamed in regrettable ways. Our proposal also avoids the question of whether to grandfather older technologies. It will apply to a gallon of gas, regardless of who is buying it or what sort of car they will use to consume it. As a result, our proposal does not create perverse incentives to keep old and less energy efficient technologies, a problem that arises when regulations are enacted prospectively with broad grandfathering. There are also fewer temptations to cater to well connected interest groups at the expense of the policy merits.

One potential concern is that a petroleum fuel tax (and, indeed, any tax) will reduce consumer purchasing power, and thus will slow the economy. But our proposal will not have this effect as long as the revenue collected is refunded. There will be some redistribution from gas-inefficient taxpayers to gas-efficient taxpayers, but net purchasing power should not be affected. A further concern is that transportation is an essential precondition of creating or consuming wealth, and thus that the economy will slow down because the threshold to engaging in economic activity will rise. This could be an issue in the short run, but over the long term people will adjust, whether by moving closer to work, carpooling, buying more gas efficient cars, etc. Our proposal will help the economy adjust to a future of scarce petroleum.

²⁸ See generally Kaplow & Shavell, *supra* note 10 (corrective taxes “harness firms’ information about control costs, making possible a result in which the level of the externality is optimal (or more nearly so)”).

Our proposal shares the flexibility of a cap and trade program, but is easier to administer. A cap and trade program, in most versions, would set a limit on the total tons of greenhouse gases that can be generated, and would create a market in which generators of greenhouse gases bid for the right to emit CO₂ and similar gases. The virtue of a cap and trade program is that generators can make their own choices about whether and how to achieve emissions reductions, just as under a petroleum fuels tax or under our standby levy they would decide whether and how to reduce emissions by conserving on carbon fuels. But it is difficult to see how a cap and trade program could be applied to consumer decisions to purchase petroleum fuels without generating enormous and annoying transaction costs. Any cap and trade is therefore likely to be limited to major generators of greenhouse gases like power plants, yet it is not clear that placing all the burden of carbon reduction on power plants is sufficient to achieve climate change objectives. Moreover, such a program does little to address the other social costs that a gasoline tax or standby levy helps reduce, including the foreign policy objective of increased energy independence. To be sure, our proposal does not share one advantage of a cap and trade proposal: it does not set a hard limit on gas consumption, as a cap and trade program would. Even so, the simplicity of our proposal and its political advantages are very significant assets.

B. Advantages of a Standby Levy Over a Pigouvian Tax

The proposed standby levy has distinct advantages over a Pigouvian tax. Most importantly, it has a much better chance of being adopted. Our standby levy also would provide a more permanent price signal than a Pigouvian tax. Since our proposed levy

would be fully refundable, moreover, it would impose only minimal distortions on the distribution of income and on work and savings decisions.

1. Political Advantages of a Standby Levy

Economists have long argued that Pigouvian taxes are superior to command and control strategies – by which we include both regulatory controls and targeted subsidies – for all the reasons we have adduced above. Yet devising successful public policy requires drawing on the insights not just of economists but also political scientists. Pigouvian taxes may be superior to command and control strategies on economic grounds. But Pigouvian taxes have been adopted by Congress only rarely for dealing with widespread environmental and national security problems.²⁹ Command and control is overwhelmingly favored by politicians, presumably because it is much easier to sell to voters.

There is no mystery why command and control strategies succeed politically while Pigouvian taxes fail. The costs of these regulations are not explicitly tied to the regulatory mandate or subsidy, but instead are quietly passed on by manufacturers in the form of higher prices or lower wages and investment returns, while the subsidies are financed by reductions in other government expenditures, higher general tax rates, or new borrowing. Pigouvian taxes, in contrast, promise to impose immediate and visible costs on voters. A new tax, on gasoline for example, is highly visible and inflicts immediate pressure on the voter's pocketbook. Given a choice between hiding costs and making

²⁹ See Thomas A. Barthold, *Issues in the Design of Environmental Excise Taxes*, 8 J. Econ. Persp. 133 (1994) (noting that taxes have been used for regulatory purposes only very rarely in American environmental law).

them highly visible, it is hardly surprising that politicians have shunned Pigouvian taxes like the plague.

A standby gasoline levy alters this political calculus: It would be adopted at a time when crude oil prices are sufficiently high that the levy would have no immediate impact on retail petroleum prices. The pain associated with the program, if any, would be deferred to some indefinite time in the future. So the standby levy, unlike the Pigouvian tax, would not drain voter pocketbooks beyond what they are already experiencing. In short, the standby levy, like command and control, promises gain without salient pain.

This perception is not solely a function of psychological biases. A rational voter would expect a Pigouvian tax to be costlier than the standby levy. The Pigouvian tax will impose higher costs with a probability of 1 as soon as the law takes effect. The standby levy will impose costs on the voter with a probability less than 1, and if it does impose higher costs, this will happen at some uncertain time in the future. Moreover, any higher costs imposed in the future will be of uncertain duration – the levy may kick in and out as oil prices fluctuate. So the rational voter will necessarily discount the costs of a proposed standby levy relative to a Pigouvian tax, perhaps by a significant amount.

What is more, under our proposal all funds raised by the levy would be refunded to voters. This refund, of course, could also be linked to a conventional Pigouvian tax. But the typical argument for a carbon tax proposes using the revenues for subsidies for mass transit, renewable energy sources, and the like. Many voters may quite rationally conclude that this is a losing proposition for them. Money would be taken out of the voter's pocket and allocated according to a political process that may generate outcomes the voter regards as having less utility than what the voter would do with the money. A

credible promise to return the money in the form of a tax credit should elicit a more favorable response.

Although the *rational* voter would come to this conclusion, psychological heuristics would make our levy even more appealing compared with a Pigouvian tax. Most notably, under the familiar endowment effect, a higher value is placed on impending losses than on foregone gains.³⁰ A Pigouvian tax is plausibly viewed as a loss – money is taken from the voter’s pocket and transferred to the government. A standby levy would more likely be perceived as a foregone gain. The standby levy does not take money from voter’s pocket. The voter continues to pay the same price for gasoline as before. What the voter gives up under the levy is the *potential future gain* from falling world oil prices. Studies of the endowment effect suggest that voters will be much less concerned about this than an immediate price rise.³¹

We also expect the levy to attract support from organized interest groups, perhaps from some interesting quarters. The auto industry, for example, might welcome the commitment to a permanent floor on gasoline prices. American auto companies have been whipsawed by shifts in consumer demand – from large gas-guzzling cars in the 1960s, to more efficient compact cars in the 1970s, back again to large vehicles like SUVs in the 1980s and 1990s, and now once again toward hybrids and other fuel efficient cars. European and Japanese manufacturers have faced a much more stable consumer demand for fuel efficient vehicles, given the high gasoline taxes imposed in their home

³⁰ Daniel Kahneman, Paul Slovic, and Amos Tversky, *Judgment Under Uncertainty: Heuristics and Biases*; Richard Thaler.

³¹ See Elizabeth Hoffman & Matthew L. Spitzer, *Willingness to Pay vs. Willingness to Accept: Legal and Economic Implications*, 71 Wash. U. L. Q. 59 (1993) (summarizing studies); [better or more up to date cite].

markets. American companies (and their unions) would very likely welcome a policy commitment that would stabilize American consumer demand in support of higher fuel efficiency. This would allow American companies to redesign their fleets without constantly hedging against future demand for gas guzzlers. Certainly, if offered a choice between the standby levy and higher CAFÉ standards, we would expect American manufacturers to prefer the levy, since it would afford greater flexibility in redesigning the vehicle fleet and would allow for production of a broad mix of vehicle types to meet different types of consumer needs.

Of course, we would also expect interest group opposition. The airline industry and travel industry would likely oppose the levy, since it would increase the cost of flying and at the margin would discourage some travel. Interstate trucking firms would likely oppose the levy, since their expected costs of doing business in the future would increase, and it is unclear that they would be able to pass along all these costs to consumers. Similar points can be made about recreational boat manufacturers, parcel delivery services, taxi companies, and so forth.

One possible response is to adopt selective exemptions or phase-in provisions. We do not recommend this as a policy matter, since it would undermine the cost internalization functions of the levy. But it might be necessary in order to overcome interest group opposition. For example, diesel fuel, jet fuel and motor boat fuel are all separate products subject to different levels of excise tax under current law.³² One way to mute opposition from the trucking industry, for example, would be to exempt diesel

³² See 26 U.S.C. § 4081 [check precise cite].

fuel, or to adopt a fractional levy or a phase-in for diesel fuel.³³ Similar points can be made about jet and motor boat fuel. Special refunds could be provided for taxi companies or parcel delivery companies that consume large quantities of gasoline, although it would be administratively costly to devise such special provisions.

2. Permanent Price Stability

The standby levy also has the advantage that it would impose a stable floor on gasoline prices. A Pigouvian tax, at least in its classic form, would fluctuate based on changing estimates of the social costs that the tax is designed to internalize.³⁴ Creating a stable signal about the future price of gasoline, at least on the downward side, would play an important role in encouraging consumers, product manufacturers, and alternative fuel suppliers to make major investments that would reduce the consumption of petroleum fuels.

Investment is a very widespread phenomenon. Motor vehicle manufacturers obviously make investments when they decide to build a new model of car, and alternative fuel suppliers make investments when they decide to build windmill farms. But consumers also make investments when they decide where to live, what kind of car to buy, whether to sign up their children for a traveling soccer team, and so forth. All of these decisions entail irretrievable commitments of resources. For potential investors who are uncertain about the future price of gasoline, the rational strategy may be to wait

³³ This could encourage a shift from gasoline to diesel fueled cars, but that would not be bad from an environmental viewpoint. New generation auto diesel engines burn diesel fuel with most of the sulfur removed, and get high mileage, rivaling that of hybrids. Diesel cars are currently selling poorly, primarily because of the high price of diesel fuel relative to gasoline and concerns about fuel availability.

³⁴ This is admittedly a feature of a Pigouvian tax that could be modified in order to capture the advantages of price stability.

before committing to a potentially energy-saving investment.³⁵ Creating a stable floor under the price of gasoline would cause many of these potential investors to take the plunge – now, rather than waiting for further clarification about the movement of prices in the future.

C. Tailoring Effects on Income Distribution and Work and Savings Decisions

Another advantage of the refundable levy is that it need not be regressive – a common concern about gasoline taxes. It is true, of course, that low income taxpayers spend a higher percentage of their income on gasoline than high income taxpayers, so that, correspondingly, they would spend a higher percentage of their income on a gas tax. As a result, if we look only at the revenue-collection side of our proposal in isolation, it is regressive.

1. Undoing Regressive Impact of Levy With Uniform Rebate

This regressive effect would be effectively eliminated by our proposed refund, provided it is properly designed. If we divide the total amount collected through the levy by the number of tax filers who are eligible to drive – so that the rebate is distributed uniformly throughout the population – the levy and rebate, in combination, should have essentially no effect on the overall distribution of income. Indeed, those who consume the average amount of gasoline will incur no net cost, regardless of their income level. The program thus treats these average consumers of gasoline the same way, whether their incomes are high or low. Likewise, those who consume more than average will pay a

³⁵ For general discussion and citations to the literature, see Avinash K. Dixit and Robert S. Pindyck, *Investment Under Uncertainty* (1994). A dissenting view, focused on oil markets, is found in Philip K. Verlager, Jr., *Adjusting to Volatile Energy Prices* (1993). Verlager focuses on the effect of price uncertainty on the decision to develop oil reserves. Our concern of course is the effect of price uncertainty on investment in energy conservation measures.

net tax, while those who consume less will receive a net transfer – again, regardless of their income level.

Of course, if low-income people are systematically more or less inclined to be energy efficient, then there could be some effect on distribution, even with a uniformly distributed rebate. However, we doubt that income and energy efficiency are systematically correlated in this way. On one hand, the gas levy might loom larger for low income people, so that they might be more inclined to change their behavior (i.e., because the prospect of a net gain in the refundable levy program is more meaningful to them, given the diminishing marginal utility of money). On the other hand, low income people might have less flexibility to change their behavior, and less ability to experiment with new technologies to help them conserve, so that they will be the net losers. Our guess is that each of these effects will operate in some cases, such that a systematic income-based pattern is unlikely.

2. Greater Progressivity Through Phase-Out of the Refund

While our proposal aims to cancel out the regressive effect of the levy – so that the program as a whole has essentially no impact on the distribution of income – it is possible, of course, to use this proposal to redistribute income. For example, the rebate could be subject to a phase-out, so that people with incomes above a certain level would not be eligible, while the rest of the population would receive a correspondingly larger rebate.

We recommend against a phase-out because it would add to the proposal's complexity. In addition, as Dan Shaviro has noted, phase outs of different credits can interact in unexpected ways to create very steep marginal effective tax rates at the phase-

out level. If the gas rebate phases out at the same place as various health, education, and childcare credits, then each dollar of income at the phase-out level causes the taxpayer not only to pay the regular income tax, but also to lose these credits, which combine to create a very steep marginal effective tax rate. More generally, the goal of this proposal is to encourage conservation and innovation, not to redistribute income and, as Louis Kaplow has observed, it generally less distortive to redistribute income through the income tax than through regimes with other goals.³⁶

The best argument for a phase-out is a political one, since it keeps opponents of the measure from complaining that multi-millionaires will receive as high a rebate as everyone else. But there obviously also is a political case against a phase-out, since it will inspire opposition among high-income taxpayers.

3. Adjustment for Geographical Density

While we have proposed a rebate that is uniform, an adjustment for population density can be considered. The argument for such an adjustment is that people who live in rural areas have no choice but to drive longer distances each day without the option of mass transit, and thus should bear a lower burden for this nondiscretionary driving than people who live in a city. To implement this variation on the credit, its size can vary with the zip code of the claimant.³⁷

In our view, the policy merits do not justify a density-based adjustment, but politics may require it. Such an adjustment adds to the program's complexity, and it also reduces the incentive to conserve gasoline by living in denser population areas.

³⁶ Kaplow

³⁷ By analogy, the permissible rent in federally subsidized housing also varies by zip code.

However, including such a feature may be crucial to winning the support of Senators from predominantly rural states, and this would be a reasonable compromise to secure passage, especially if it is transitional and sunsets after a period of time. In our view, a refundable levy with a density adjustment is considerably better than the status quo.

4. Modest Impact on Work and Savings Decisions

While the refundable levy creates incentives to conserve gasoline and to develop alternative sources of energy, it generally will not undercut taxpayer incentives to work or save. Taxpayers who consume the average amount of gasoline will not incur any out of pocket cost, as noted above, so they will not experience an income effect (and thus will not have a reduced ability to save, for instance). They might experience a substitution effect, so that taxpayers whose decision to work is at the margin may decide not to do so because of transportation costs. Yet this scenario seems unlikely, since such taxpayers are likely, over time, to adjust to the levy by finding more gas-efficient ways to commute.

Taxpayers whose gas consumption is at the extreme – either very high or very low – will experience income effects. Those who receive a very high (or low) net rebate may have reduced (or increased) incentives to work and increased (or reduced) ability to save, but these will still be relatively small effects, and they will affect only a subset of the citizenry.

Of course, our proposal could be revised to increase taxpayer incentives to work or save. For instance, like the earned income tax credit, the rebate could be confined to those who work, and thus would increase incentives to be in the work force. Yet this step would alter the distributional impact of the proposal to the detriment of unemployed and retired people, something we do not favor.

This modification, though, is an example of a broader goal advocated by some commentators. They favor using revenue raised through a gas tax to replace revenue from the least efficient parts of our tax system, so that a gas tax would offer not only the benefit of correcting an externality, but the added advantage of reducing deadweight loss from taxation.

Yet we are reluctant to pursue this “double dividend,” as it is known in the literature,³⁸ for four reasons. First, as previously noted, the revenue stream generated by the levy would be very unpredictable, because it would fluctuate with the price of oil. This would make it difficult if not impossible to substitute this revenue for that generated by some other tax.

Second, if we used the revenue from our refundable levy to repeal the least efficient parts of our tax system, we are likely to change the distribution of the tax system, since some of the least efficient tax rules especially burden high income people (e.g., the corporate tax, the maximum marginal rate for individuals, etc.).

Third, if we keep the distributional impact constant, there is room to question whether we could, actually, reduce deadweight loss. This would happen only if the prospect of paying a gas tax does not discourage labor to the same extent as the prospect of paying income tax or a broad-based consumption tax, and it’s not clear to us why that would be.³⁹

³⁸ See, e.g., Wallace E. Oates, *Green Taxes: Can We Protect the Environment and Improve the Tax System at the Same Time?*, [J. So. Econ. 915 (1994)]; William K. Jaeger, *Environmental Taxation and the Double Dividend*, *Internet Encyclopedia of Ecological Economics*.

³⁹ Kaplow. For instance, this could be the case if gasoline were an especially close complement to leisure, so that taxing gasoline indirectly taxed leisure, but it’s not clear that this would be the case since gasoline is, of course, also used by many to commute to work.

Fourth, for reasons of political accountability, we should preserve a clear link between the revenue collected by the refundable levy and the rebate that it funds. Otherwise, if the levy is enacted in a compromise that pairs it with a tax cut elsewhere in the system – for instance, a reduction in marginal tax rates – and the two parts of the tax system are not inherently linked, it will be easier for Congress to reverse the tax cut (e.g., by raising marginal rates not long thereafter) while keeping the revenue from the levy. This will be more difficult if the levy funds something that is explicitly labeled “the standby levy refund.” We discuss concerns about repeal, and how to address them, in greater detail below.

III. Limitations of the Standby Levy

While our proposal has significant advantages, it is important to acknowledge four limitations as well, which are discussed in this Part. Two derive from the concern that the proposal will be undone, in whole or in part: the first is the risk that some or all of the proposal will be repealed, and the second is the concern that gas producers will raise prices to a level just above the threshold, depriving consumers of the refund. The other limitations derive from the narrowness of the proposal – the fact that it does not correct for the relevant externalities when gas prices are above the threshold (or, for that matter, perfectly correct for them even when gas prices decline), and the fact that it does not cover some substitutes for gasoline that give rise to similar negative externalities.

A. Risk of Repeal

As noted above, a critical advantage of the standby levy is its promise of stability. By maintaining a floor on petroleum fuel prices, the levy creates a powerful incentive for

consumers and producers to modify behavior, as discussed above. But the levy will not have these beneficial effects if people expect that, once oil prices begin to fall, Congress will repeal the levy in order to give constituents the benefits of lower gasoline prices.⁴⁰

The risk here is not insubstantial.⁴¹ Repeal of the levy could be characterized as a “tax cut,” and if world oil prices have fallen, repeal would result in an immediate financial benefit to consumers in the form of lower gas prices. To be sure, this benefit would be an illusion, or perhaps more accurately would be transitory, since under our proposal the cut in gas prices would be matched by a loss of refundable tax credits. But one can easily imagine political entrepreneurs seeking to exploit the appearance that they are the agents of instant relief for consumers. Gasoline prices are highly visible – they stare you in the face every time you fill up at the pump – making them perhaps the most salient cost that consumers incur. Moreover, consumers must pay this cost on a recurring basis. The refundable tax credit, in contrast, would appear only once a year, when income taxes are due in April. And for many taxpayers it would be only an accounting entry, offsetting taxes they would otherwise owe, rendering the credit less salient. Hence, it is not unlikely that politicians would be tempted to exploit these asymmetries in perception by agitating for repeal once world oil prices fall far enough to trigger the levy.

Can we provide an institutional mechanism signaling that repeal is less likely? One would be to adopt a supermajority requirement for any future repeal of the

⁴⁰ Of course, if the levy is as likely to *rise* as it is to fall, then risk neutral consumers and producers will disregard the change-in-law risk. See Daniel N. Shaviro. Yet we believe repeal will be considered more likely, for the reasons advanced in text. In response, we suggest various institutional constraints on repeal. If these are expected to be effective, then producers and consumers will predict that, if anything, the levy will increase, a prediction that will increase the levy’s current impact.

⁴¹ For a discussion of the risks of backsliding from commitments made to combat climate change, see Richard J. Lazarus, *Ulysses, the Sirens of Politics, and Climate Change: Binding the Present to Liberate the Future* (unpub. Ms. 2008).

levy. For example, the House of Representatives has from time to time adopted rules requiring a three-fifths majority of those voting to pass an increase in income tax rates.⁴² Similarly, Congress could adopt rules of procedure requiring a supermajority vote to repeal the standby gasoline levy.⁴³ This would not guarantee supermajority entrenchment, since Congress could also repeal the supermajority requirement by majority vote. But any move to repeal the supermajority requirement would require the separate approval of the Rules Committee and an affirmative vote in support of a special rule, which would draw attention to the action and provide an additional fault line on which opposition could rally. This would provide some additional measure of assurance that repeal would be unlikely.

Also, the government could consider entering into specific contractual guarantees, perhaps with the auto industry, assuring that the levy will not be repealed. This would raise the specter of major breach of contract damages judgments in the event of repeal, which would also deter Congress from considering repeal in response to falling prices.⁴⁴

A further concern is the risk that the funds collected through the levy will not be rebated, but will be diverted to other pet projects of Congress. The uncertain magnitude of the revenues generated by the levy would militate against this. Also, once the levy is in place, any diversion would require cutting or eliminating refunds that taxpayers would

⁴² See, e.g., H.R. Res. 5, 105th Cong. § 106(a) (1997).

⁴³ There has been some controversy about the constitutionality of self-imposed supermajority rules. But the better view, we think, is that they are constitutional, on the understanding that such rules can always be repealed by a majority vote. Compare John O. McGinnis & Michael Rappaport, *The Rights of Legislators and the Wrongs of Interpretation: A further Defense of the Constitutionality of Legislative Supermajority Rules*, 47 *Duke L. J.* 327 (1997), with Jed Rubinfeld, *Rights of Passage: Majority Rule in Congress*, 46 *Duke L. J.* 73 (1996).

⁴⁴ See *United States v. Winstar Corp.*, 518 U.S. 839 (1996) (United States can be sued in Claims Court for breach of regulatory promise); *Mobile Oil Exploration v. United States*, 530 U.S. 604 (2000) (same).

expect to receive when oil prices fall. The typical household would compare the benefits of the refund they receive to the benefits from the program Congress proposes to fund, and would likely conclude that they would rather have the cash. This of course is a diffuse sentiment, which might be difficult to organize in opposition to a concentrated interest arguing for a diversion to some pet project, like ethanol subsidies.

Again, one way of helping to insure against diversion would be to adopt a supermajority requirement for any amendment of the taxable refund portion of the proposal. Alternatively, the government could attempt to “lock box” the levy revenues. For example, Congress could form a wholly owned governmental entity to segregate these revenues from the rest of the budget. The entity’s only asset would be this revenue stream, and its sole responsibility would be to work with the IRS to refund the revenue to taxpayers.

B. Avoiding a Windfall to Producers

1. The Risk That Producers Will Capture the Refund

There is a risk not only that Congress will take the refund away from consumers, but also that gasoline producers will do so – at least if the levy is not structured with care – by not allowing gas prices to fall below the threshold. This concern arises, for instance, if the levy is structured so that it automatically increases to make up for *any* difference between the retail price of gasoline and \$3.30 per gallon. With a structure of this sort, consumers will not be motivated to comparison shop, since they will never pay less than \$3.30 per gallon. A gas station that charges \$3.25 per gallon with a five cent gas tax is no more appealing to consumers than one that charges \$3.30 per gallon. As a result, producers have little incentive to let pre-levy prices fall – and collectively they are likely

to coordinate prices at just above \$3.30 per gallon – so the government has no revenue to refund to consumers.⁴⁵

Of course, even if producers prop up prices in this way, the behavioral effects that we intend to create are preserved. Consumers still have the incentive to conserve and experiment with new technologies, and producers can rely on the stability of gas prices in making investment decisions. Nevertheless, our goal of allowing consumers to enjoy the economic benefits of price declines – through the refund, if not directly – would be undercut. This scenario is a variation of the familiar reality that the statutory incidence of a tax or refund may not be the same as its economic incidence. The concern here is that the incidence of the refund ultimately would lie with producers instead of consumers.

The challenge of institutional design is to address this concern – ensuring that producers have incentive to cut costs and to let the market price fall – while still assuring the price stability that is needed to encourage conservation and innovation. In response, we have included two elements in our proposal to thread this institutional needle. First, we would base the levy on crude oil prices instead of local retail prices. Second, we would recalculate the levy only once a month, instead of continuously. Each of these points is discussed in turn.

2. Basing Levy on Global Crude Price Instead of Retail Price

As noted above, computing the levy based on the world price of crude oil, as opposed to the retail price at the pump, preserves the benefits of competition among downstream suppliers, including refiners, interstate pipeline companies, and retail service stations. Only fluctuations in crude prices affect the size of the levy – and not the actions

⁴⁵ Indeed, the price floor has the unintended effect of *facilitating* such implicit coordination by providing gas stations with a focal point, so that each knows the price at the pump is supposed to be \$3.30 – there’s no need for a meeting in a smoke-filled room to decide on this level. Cites on focal points.

of refiners or service stations. For example, if a gas station tries to add five cents to the price per gallon as a way to increase its profits, this step will not reduce the size of the levy, which has already been set based on crude prices. Since retail price gouging will not be offset by a decline in the levy, it increases the net price paid by consumers, giving them a strong incentive to comparison shop. Consumers will prefer to buy at service stations that do not attempt to raise prices in this way, and these stations will attract a higher sales volume to offset their lower profit margin. Thus, refiners and distributors will not be able to pad their profits in a way that the levy will render invisible to consumers, as long as the levy is based on crude prices.⁴⁶

Of course, there is still the risk that producers of *crude oil* will have a diminished incentive to let prices fall. Thus, OPEC will have less incentive to allow crude prices to decline if lower prices will not lead to a higher sales volume in the U.S. Nevertheless, OPEC is subject to two important constraints. First, although it has significant influence over gas prices, it does not have perfect control because some members defect, and other suppliers are not in the cartel. Second, assuming that the rest of the world does not adopt our proposal, consumers *outside* the United States will benefit from declines in price below the threshold. As a result, producers will have an incentive to let the price fall for these consumers in order to sell more oil. It would be difficult for OPEC to maintain the price in the United States, while letting it fall everywhere else. The global nature of the

⁴⁶ The analysis changes somewhat if the formula for computing the levy makes assumptions about refining and distribution prices. If these assumptions will be updated periodically, then refiners and producers could hope that, in padding their prices in one period, they could induce a smaller levy in the next period, leading to the same net price to consumers, but a larger share for themselves. Yet as long as the formula's assumptions are not updated, and are based instead on historical experience that predates enactment of the levy, this problem will not arise. Even if the assumptions are updated, then the fact that the levy is recomputed monthly instead of continuously should constrain producer price gouging, as discussed below.

market for oil, then, gives some comfort that OPEC will not be able to take our proposed refund away from US consumers.

3. A Levy That is Adjusted Monthly Instead of Continuously

The second way we ensure price stability while keeping producers from capturing the refund is by adjusting the levy only once a month, and not each time prices change. For example, in setting the levy for the month of February, we would ask what the average pre-levy price of gas was on a particular date in January (e.g., January 28). We would base the levy on this date alone. Then the levy would remain fixed for the entire month, even as the underlying price of gasoline fluctuated.⁴⁷

For example, let's say the price of gasoline on January 28 is \$3.10, which is 20 cents below our target threshold of \$3.30 per gallon. The levy for the month of February would thus be 20 cents, and it would continue to be 20 cents for the whole month, even though the pre-levy price of gasoline will likely diverge from \$3.10. On February 4, if the pre-levy price of gasoline falls to \$2.95, the levy continues to be only 20 cents – and not the 35 cents needed to bring the net price back to our threshold of \$3.30 – so consumers pay a net price of only \$3.15.

On February 15, if the pre-levy price rises to \$3.40, then the levy remains at 20 cents for the month of February. Even though the pre-levy price is actually *higher* than the \$3.30 threshold price, the levy remains in effect at 20 cents per gallon, so consumers pay a net price of \$3.60. Of course, a new levy will be calculated for the month of March, based on the average price on a designated date in February, so any shortfall

⁴⁷ It might also be possible to require that the levy be posted at the pump separately from the retail price, so that consumers can directly observe the pre-levy price of gasoline. This would entail a redesign of gasoline pumps, however, which might be more costly than the benefit in terms of additional information.

below the \$3.30 price will ultimately be corrected. But in the short run the net price that consumers pay is allowed to float.

One advantage of adjusting the levy monthly, instead of continuously, is that the program is easier to administer. Continuous recomputations aren't necessary, and collection is easier because auditors need to know only how many gallons were sold in a given month, and not *exactly when* each gallon was sold. In contrast, if instead the levy changed every day, or even every hour, auditors would need to know what the levy was at the moment when each gallon was sold in order to compute the correct total levy to be collected by each wholesaler. Wholesalers, in turn, would have incentive to attribute sales to points when the price was high, and the levy was correspondingly low.

This is not to say that a monthly adjustment is completely free of administrability issues. For instance, if producers know in advance which day of the month is the measuring date for next month's levy, they have incentive to raise the price on that day. To head off this abuse, the date should be chosen at random, and after the fact. Just as state lotteries have publicly broadcast sessions in which ping pong balls with numbers are drawn at random from a basket, a similar process can be used to designate the relevant day of the month.

Another important advantage of adjusting the levy monthly instead of continuously, and thus of allowing short-run post-levy price fluctuation, is that consumers have strong incentives to comparison shop. Since they keep the full amount of any price decline in between monthly adjustments, they will favor gas stations that let the price fall. As a result, gas stations should not be able to cancel out the levy by

keeping pre-levy prices artificially high. This means there actually will be revenue from the levy to refund to consumers.

The great virtue of this approach is that it squares an important circle. Not only does it give consumers incentives to monitor and claim pre-levy price declines, but it also preserves consumer and producer incentives to conserve and to invest in alternative energy. At first blush, this may not seem to be the case, since the price will be allowed to fall below \$3.30 (i.e., between monthly adjustments to the levy). Yet the essential point is that these fluctuations can be *in either direction*. After the levy is set for the month, the pre-levy price of gas can go *up* as well as *down*, and there's no reason to expect a systematic bias one way or the other.

So when producers and consumers make long-term decisions about which cars to buy or which alternative energy projects to support, they know that the post-levy price will *generally* be at least \$3.30 on average – since each month the levy will be adjusted to bring the price back to \$3.30, at least initially – and they know that the price for the rest of the month can vary, but this variation will be random instead of systematic. They can't *count* on a lower post-levy price, and are equally likely to pay a *higher* post-levy price than \$3.30.⁴⁸ As a result, a system based on monthly adjustments has the important

⁴⁸ While the expected price should be at least \$3.30 – and expected price is the one that counts most for our purposes – it is of course true that, ex post, the average price could be lower, at least for some periods. We don't think this is a problem but, if it is, the levy can be computed with the average price not just for a *single day* in the prior month, but for the *whole* month. For example, in computing the levy for February, we can look not to the price on a single day in January, but to the average price in *all of* January. If the average price in January is \$3.05, the levy would thus be 25 cents for the entire month of February (and the net price would fluctuate with the pre-levy price). Then in the end of February, we would use the average pre-levy price in February to compute the levy for March. If based in this way on this average price, the levy will be more accurate in cancelling out price fluctuations from the prior month. Yet too much accuracy may not be an advantage here. Consumers might become somewhat less motivated to comparison shop, if they know that the levy in the next month will perfectly reflect (and offset) any savings they reaped through comparison shopping. Of course, consumers would still have *some* incentive to comparison shop, if only because the levy will be based on the experience of the *average* consumer, so they can still save money by doing better than average. But their incentive will be weaker, and so producers,

virtue of creating strong incentives to conserve and invest in alternative energy, while also preventing gas stations from, in effect, taking away the consumer's rebate.

4. Alternative Constraints on Producer Price Gouging

Obviously, there are other ways to deal with this problem. We offer three more responses, which we consider plausible but less desirable than the two we have recommended.

a. Price Regulation

One possibility is to charge the IRS with policing the retail price, by analogy to their responsibility for transfer pricing. The IRS can use data from outside the United States where the levy doesn't apply (e.g., Canada) to demonstrate what the price per gallon ought to be, and then they can assess gas station owners whose prices are significantly higher with interest, penalties, and additional gas tax. Yet this mission will be hard for the IRS discharge successfully, just as transfer pricing is a perennial challenge. For example, gas stations will argue that their higher prices are justified by superior service. Vertically integrated firms will claim high production and shipping costs, so that they will spread their rents out across all phases of production, and the like. While the existence of this regime ought to deter the most flagrant abuses, it will be administratively costly and at times ineffective.

b. Random Levy Holidays for Some Consumers

An alternative that relies on market pressure on producers, instead of on regulation, is to exempt some consumers from the levy. These exempted buyers

correspondingly, may feel less pressure to let the price fall. For this reason, we recommend focusing on a single day, instead of on the average for the entire preceding month.

obviously have incentive to shop for the best pre-levy price, and thus will be a source of pressure on producers to keep pre-levy prices honest.

Yet the problem with exempting some consumers is that these consumers no longer have incentive to conserve. This problem is mitigated to an extent if, instead of exempting a class of consumers for all time, the government offers temporary “levy holidays” at random to some segment of the population.⁴⁹ Whoever happens to be exempt, then, can buy a certain number of gallons of gas without paying the levy (perhaps through a special card that is mailed to them and that is in effect for a short period of time).⁵⁰ Yet this approach still reduces consumer incentives to conserve somewhat (since, in making long term decisions, they know that they will be subject, on average, to some number of levy holidays). It also introduces complexity and possibilities for fraud (e.g., through counterfeited holiday cards, etc.).⁵¹

c. A Partial Levy

Instead of exempting *some* consumers from the *entire* levy, another option is to exempt *all* consumers from a *portion* of the levy. As Donald Susswein has suggested, the levy does not have to offset the *entire* gas price decline below the threshold, but can

⁴⁹ In deputizing private actors, our proposal has something in common with a proposal by Michael Kramer, in which the government buys some, but not all, patents based on auction prices set by private bidders. See Michael Kramer, Patent Buyouts, QJE 2001. (proposing an auction in which private buyers bid for the drug. Usually, the government then buys the rights to the drug at the auction-set price. But with some probability the bidder ends up with the drug, in order to keep the bidders interested.)

⁵⁰ Another possibility would be to randomize the exempted customers after the fact. That is, the customer doesn't know until later whether her levy will be exempted. This weakens but also spreads the price-shopping incentive. We are indebted to Scott Hemphill for this suggestion.

⁵¹ Instead of deputizing consumers to police the market price, we could also deputize some number of Maverick producers, offering some inducement if they are willing to drop their prices (e.g., they don't have to collect a levy from anyone for a period of time). See Michal S. Gal, COMPETITION POLICY FOR SMALL MARKET ECONOMIES 188 (2003). Yet the incentives of these producers are ambiguous, since they would be trading off an increase in short term profits (the government reward) against a decrease in long term profits. Consumers have more direct incentives, so we focus on deputizing them instead.

offset only a fraction of it.⁵² For example, the levy could be ½ cent for each cent by which the price falls below our threshold of \$3.30. If the price falls to \$3.20, the levy will be five cents, so the price at the pump would be \$3.25.

The question, of course, is whether producers will allow the price to fall to \$3.20. The fact that consumers can claim some of the price decline gives consumers an incentive to comparison shop, and to favor producers who cut their pre-levy prices. Yet obviously the incentive is only partial, since consumers don't benefit from the entire decline. Whether this partial incentive is enough – whether it ultimately will induce producers to cut their pre-levy prices – depends, ultimately, on how competitive the market for gasoline is in a particular locality.

Even if this approach is sufficient to keep producers from appropriating the levy – and it may not be – it has the further disadvantage of weakening the main incentive effects we aim to create through a levy: The levy obviously provides less price support, and thus less incentive for consumers to conserve and less incentive for investors to support innovation. Instead of ensuring an average price of \$3.30 per gallon, a levy that offsets only *half* of price declines could allow prices to decline significantly below this level.

C. Proposal Is Not Sufficiently Comprehensive

Not only is our proposal potentially fragile – in the sense that political or market forces might undo it, in whole or in part – but it also is less comprehensive than an ideal Pigouvian carbon tax.

1. Tax is Too Low at Current and Higher Gas Prices

⁵² Donald B. Susswein, *Will a Floor on Energy Prices Produce Windfall Profits?*, 120 TAX NOTES 591 (2008).

Obviously, the standby levy imposes no out-of-pocket cost on consumers when gas prices are above the threshold. Yet the externalities that justify a tax, including environmental harms national security risks, and congestion costs, are still there. Ideally, the level of a Pigouvian tax is supposed to reflect the marginal cost of these externalities, but our proposal obviously is not structured in that way. Indeed, the tax fluctuates – not with the level of the externality – but with the level of gas prices.

As we have indicated, we would favor a gas tax that is uniform and at an adequate level. We agree that such a tax would have valuable incentive effects, since it would internalize the relevant externalities even when gas prices are above the threshold. Such a tax could also be paired with a refund of the sort we have described. And, of course, if the tax is structured in this way, producers would have incentive to offer the lowest price, so that the problem described above, of producers in effect taking the refund, would not arise.

Yet as we have said, we do not believe that a more conventional gas tax is politically viable in the United States, at least for now. For the reasons we outlined above, our proposal is more plausible politically, and it does offer significant benefits, if not all the benefits, that a conventional gas tax would provide.

Our proposal also may serve to pave the way for a more conventional gas tax. If the public becomes accustomed to a refundable levy that is contingent on gas price levels, they may ultimately come to accept one that is not. Indeed, if the government can use this program to prove its commitment to preserving the refund, they can address an important voter concern – that politicians will claim the revenue for pet projects – and so a refundable levy that applies at all price levels may become an easier political sell.

2. Gasoline Only Instead of Broad-Based Carbon Tax

Finally, there is a second way in which our proposal is too narrow: it applies only to petroleum fuels, but not to substitutes that also contribute to environmental harms and national security risks. For example, natural gas and coal contribute to environmental harms, although domestic supplies are more plentiful so the national security analysis is different.

An obvious risk of omitting substitutes is that, at the margin, we might encourage people to substitute one harm, covered by the levy, for another that is not. For instance, if our levy doesn't apply to jet fuel (e.g., if it is exempted for political reasons), it will encourage some to substitute flying for driving, an effect that could be counterproductive.

Nevertheless, we have limited our proposal to petroleum fuels for three reasons. First, there already is a federal excise tax on petroleum fuels, and our proposal can simply be added to the existing administrative structure, rendering it more administrable. Second, the interest group opposition to our proposal will be narrower if it is crafted more narrowly. If natural gas is included, for instance, a new set of interest groups will have strong incentive to oppose it. Finally, the incrementalist philosophy we invoked above, in discussing the fact that the levy does not apply above the price threshold, is relevant here as well. It is always possible to begin with petroleum fuel – an extremely important part of the problem, as discussed above – and to broaden the measure over time, as it proves to be workable and gains political acceptance.

IV. Conclusion

This Article has developed an alternative to a Pigouvian carbon tax that offers many advantages of an ideal corrective tax, but is more politically feasible. Our standby levy takes effect only if the price of petroleum fuel falls significantly below today's historically high levels, and is fully refundable to consumers.

This standby levy signals to consumers, auto manufacturers, and investors in alternative energy technology that petroleum fuel prices will not appreciably decline in the future. They will respond in a host of ways that, over time, will dramatically reduce America's consumption of oil. The levy offers a powerful incentive for innovation, but with an appropriately limited role for government. Unlike the hodge-podge of subsidies and credits currently under consideration, the standby levy does not depend on government to determine which technologies will succeed.

The levy offers these advantages without imposing any *new* out-of-pocket costs on taxpayers beyond what they are already spending; indeed, if world oil prices never decline, the standby levy is never activated. The contingent nature of the levy, coupled with its full refundability, gives it a much greater chance of being enacted. In this sense, our proposal represents an attempt to capitalize on a political opportunity arising from the current spike in world oil prices, which may not last. We should seize this opportunity.