THE PROGRESSIVE CONSUMPTION TAX AS A POSITIONAL ARMS CONTROL AGREEMENT*

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MILITARY ARMS RACES ARE GARDEN-VARIETY social dilemmas. When two closely matched rival nations spends more on armaments, each must reduce valued domestic consumption of nonmilitary goods and services, yet neither gains the military advantage it sought. If suitable verification and enforcement tools exist, nations often find it mutually advantageous to sign agreements that limit their stocks of weapons.

Forces similar to those that spawn wasteful spending on armaments often distort the composition of domestic consumption spending. In this paper, I describe the conditions that give rise to such distortions and propose an unintrusive tax remedy for the associated welfare losses.

POSITIONAL ARMS RACES

In traditional economic models, individual utility depends only on absolute consumption. These models lie at the heart of claims that pursuit of individual self-interest promotes aggregate welfare. Recent years have seen renewed interest in economic models in which individual utility depends not only on absolute consumption, but also on relative consumption. In contrast to traditional models, these models identify a fundamental conflict between individual and social welfare.

The conflict arises because concerns about relative consumption are stronger in some domains than in others. The disparity stimulates positional arms races, or expenditure arms races focused on positional goods—those for which relative position matters most. The result is to divert resources from nonpositional goods, causing welfare losses.

To help fix ideas, consider two simple thought experiments. In each, you must choose between two worlds that are identical in every respect except one. The first choice is between world A, in which you will live in a neighborhood with 4000-square-foot houses and others will live in neighborhoods with 6000-square-foot houses; and world B, in which you will live in a neighborhood with 3000-square-foot houses, others in neighborhoods with 2000-square-foot houses. Once you choose, your position on the local housing scale will persist.

If only absolute consumption mattered, A would be clearly better. Yet most people say they would pick B, where their absolute house size is smaller but their relative house size is larger. Even those who say they would pick A seem to recognize why someone might be more satisfied with a 3000-square-foot house in B than with a substantially larger house in A.

In the second thought experiment, your choice is between world C, in which you would have four weeks a year of vacation time and others would have six weeks; and world D, in which you would have two weeks of vacation, others one week. This time most people pick C, choosing greater absolute vacation time at the expense of lower relative vacation time.

I use the term *positional good* to denote goods for which the link between context and evaluation is strongest and the term *nonpositional good* to denote those for which for which this link is weakest.[1] In terms of the two thought experiments, housing is thus a positional good, vacation time a nonpositional good. The point is not that absolute house size and relative vacation time are of no concern. Rather, it is that positional concerns weigh more heavily in the first domain than in the second.

THE CONFLICT BETWEEN INDIVIDUAL AND COLLECTIVE INTEREST

When the strength of positional concerns differs across domains, the resulting conflict between individual and social welfare is structurally identical to the one inherent in a military arms race. To illustrate, consider rival nations faced with deciding how to apportion available resources between domestic consumption and military armaments. Each country's valuations are typically more context-dependent in the armaments domain than in the domain of domestic consumption. After all, having lower domestic consumption than one's rival might entail psychological discomfort, but being less well armed could spell the end of politi-

cal independence. The familiar result is a mutual escalation of expenditure on armaments that does not enhance security for either nation. Because the extra spending comes at the expense of domestic consumption, its overall effect is to reduce welfare. Note that if each country's valuations were equally context-sensitive in the two domains, there would be no arms race, for in that case the attraction of having more arms than one's rival would be exactly offset by the penalties of having lower relative consumption.

For parallel reasons, the modal responses to the two thought experiments suggest an equilibrium in which people spend too much on positional goods and too little on nonpositional goods.[2] In contrast, conventional welfare theorems, which assume that individual valuations depend only on absolute consumption, imply optimal allocations of housing and leisure. Is this default assumption a reasonable one?

THE IMPORTANCE OF POSITIONAL CONCERNS

Recent work employing richly detailed panel data confirms the importance of positional concerns. This work documents a robust negative association between individual happiness measures and average neighborhood income, a link that does not appear to stem from selection effects.[3]

Concerns about local rank also affect labor force participation—in some studies by much more than such traditional factors as local wage and unemployment rates. Neumark and Postlewaite (1998) found, for example, that a woman whose sister's husband earned more than her own husband was 16 to 25 percent more likely than others to seek paid employment.[4]

Changes in the distribution of income provide another opportunity to test for the presence of positional concerns. The permanent income and life-cycle theories of consumption predict that consumption in every income category will rise in proportion to changes in income. Given observed income growth rates in the United States, the top 1 percent of earners should thus be spending about three times as much now as in 1979, the median earner only about 15 percent more.[5]

In contrast, models that incorporate positional concerns predict that sharply increased spending by top earners will exert indirect upward pressure on spending by the median earner. When top earners build larger houses, for example, they shift

the frame of reference that defines what others slightly below them on the income scale consider an acceptable or desirable house. And, when those people respond by building bigger houses, they in turn shift the frame of reference for those just below them, and so on, all the way down. Thus the median size of a newly constructed house, which stood at less than 1600 square feet in 1980, had risen to over 2400 square feet by 2007—more than twice the increase predicted by traditional theories.[6]

Additional evidence supports the view that expenditure cascades in housing and other areas are at least in part a consequence of increased income inequality. For example, U.S. counties with the largest growth in earnings inequality also experienced the largest growth in personal bankruptcy rates, divorce rates, and average commute times.[7] Total hours worked, both across countries and over time within countries, are also positively associated with higher earnings inequality.[8] Models that incorporate positional concerns predict these links.[9] Traditional models do not.

TAXES AND POSITIONAL EXTERNALITIES

Firms pollute not because they take pleasure in doing so but because clean production methods are generally more costly than dirty ones. Just as effluent taxes have proved an effective means of curbing excessive pollution, consumption taxes may be an efficient way of limiting the costs of positional externalities.

In a world of complete information and perfect government, the solution would be to set a different tax rate for every good in accordance with the strength of the positional externalities it generates. But although researchers have begun to estimate the differences in the extent to which context influences demands for specific categories of goods,[10] existing knowledge is far too fragmentary to support such an ambitious approach.

Even if we knew much more about these magnitudes, however, it would be politically costly to establish a separate tax rate for every good. Lobbyists would inundate legislators with studies purporting to show why their particular client's product or service was nonpositional and therefore entitled to tax-exempt status.

I have argued elsewhere that a simpler, more promising, approach would be to abandon the current progressive income tax in favor of a more

steeply progressive general consumption tax.[11] This approach rests on the observation that positional concerns are stronger for luxuries than necessities. There are obvious pitfalls in trying to identify specific goods as luxuries. But given that luxury is an inherently context-dependent phenomenon, it is uncontroversial to say that the marginal expenditures of those who spend most are most likely to be spent on luxuries. A steeply progressive consumption tax is thus a luxury tax that sidesteps the need to identify specific goods as luxuries.

Implementing a progressive consumption tax would be straightforward. Taxpayers would report their incomes to the tax authorities just as they do now. They would also report how much they had saved during the year, much as they do now in order to exempt money deposited in retirement accounts. People would then pay tax on their "taxable consumption," which is just the difference between their income and their annual savings, less a standard deduction. Rates at the margin would rise with taxable consumption. If the tax were revenue neutral, marginal rates at the top would be significantly higher than current marginal tax rates on income. If policymakers were looking to generate additional revenue, marginal rates would have to be higher still.

Proposals to generate additional income tax revenue by raising top marginal rates invariably summon concern about possible negative effects on the incentive to save and invest. Under a progressive consumption tax, by contrast, people's incentives would be to save and invest more, even if top marginal tax rates on consumption were extremely high.

To illustrate how the tax would change spending incentives, consider a taxpayer whose marginal rate under the current income tax is 0.33 and whose marginal rate under a progressive consumption tax would be r_c. Under each tax regime, suppose that this taxpayer forgoes an extra dollar of consumption for the length of time it takes for money in a savings account to double in value. How much extra future consumption will his sacrifice support in each case? Under the current income tax, his dollar of forgone consumption generates a bank deposit of $1, which becomes $2 on the date in question. When he withdraws the $2, he must pay $0.33 in income tax on his $1 of interest income. So $1 of forgone consumption today translates into $1.67 of future consumption under the current income tax.

Under the consumption tax, by contrast, forgoing $1 of consumption today would result in a $$r_c$ reduction in current tax liability, and so would support a current bank deposit of $$(1 + r_c)$. At withdrawal time, this deposit will have grown to $$(2 + 2r_c)$. To find C_F, the amount of future consumption this deposit will support, we solve $C_F + r_c C_F = $(2 + 2r_c)$ for $C_F = 2. Giving up $1 of current consumption thus supports only $1.67 of future consumption under the current income tax, but $2 under the progressive consumption tax.

A progressive consumption tax would also alter other important relative prices that affect savings. In particular, it would lower the marginal costs of self-insuring against lost earning power and of leaving bequests. Although traditional consumption theories suggest that people consume most or all of their earnings before they die, many in fact leave estates whose magnitudes are far larger than could reasonably be attributed to uncertainty regarding the time of death. People are reluctant to spend down their assets for multiple reasons, but two in particular stand out. One is to hedge against the possibility that becoming disabled would rob them of their earning power. Another is to leave bequests to heirs and charities. Moral hazard and adverse selection make private savings more attractive than commercial insurance as a hedge against lost earning power. A steeply progressive consumption tax would lower the cost of self-insuring. And it would also lower the cost of leaving bequests.

A separate channel through which such a tax would limit current consumption is by directly constraining the expenditures of high-income individuals who now consume most or all of their after-tax incomes. So, for multiple reasons, a progressive consumption tax can be expected to stimulate higher savings.

If the tax affected spending directly for the reasons given, it would also affect spending indirectly. Each individual's spending, after all, constitutes part of the frame of reference that influences what others spend. And, given the apparent importance of context, the indirect effects of a progressive consumption tax promise to be considerably larger than the direct effects.

Thus, for example, if people at the top save more and spend less on mansions, that will shift the frame of reference that influences the housing expenditures of those just below the top. So they, too, will spend less on housing, and so on all the way down the income ladder.

By all available evidence, that would be a good thing. The aggregate household savings rate in the United States was negative during both 2005 and 2006. Americans spent more than they earned during full calendar years for the first time since the Great Depression. Liberals and conservatives alike agree that our failure to save has had damaging macroeconomic consequences, that we would all be better off if we all spent less and saved and invested more. But no individual has the power to alter the aggregate savings rates.[12]

The advantage of the tax approach in both the environmental and consumption domains is its flexibility. In the environmental domain, firms for which pollution reduction is most expensive may find it in their interest to continue to pollute even after the imposition of an effluent tax. Similarly, those families for whom consumption reductions would be especially difficult may respond to higher tax rates by expending additional effort in order to maintain their previous spending levels. But in both the environmental and consumption domains, the relevant externalities depend more on overall activity levels than on the activity levels of particular individuals or firms. And, just as the imposition of effluent charges mitigates pollution damage by leading most firms to curtail pollution, a progressive consumption tax would mitigate the costs of positional externalities by increasing the incentive to save.

Of course, both the United Kingdom and the United States already have progressive tax systems. Absent more detailed knowledge about the strength of positional concerns, what reason is there to believe that current levels of progressivity haven't already neutralized the ill effects of those concerns?

Despite the gaps in current knowledge about positional concerns, recent experience provides some insight into how switching to a steeply progressive consumption tax might affect social welfare. Compared to the current income tax, such a tax would reduce high-end consumption and increase public spending. Private spending reductions would be concentrated in the categories that affluent consumers consider least urgent. Political imperfections notwithstanding, governments would spend much of the resulting tax revenue on the public services that voters value most. The practical question is thus whether the social welfare loss from cutting the least urgent high-end private consumption categories would outweigh the welfare gain from increasing the most highly valued

public services. To be sure, it is possible to imagine a society so poor in private consumption and so rich in public consumption that such a switch would reduce welfare. But what about societies with high levels of income inequality, like the United States and the United Kingdom in recent years?

In the absence of detailed empirical evidence, a plausible conjecture is that the first expenditures that high-end consumers would reduce in response to a steeply progressive consumption tax are the same ones they have recently been increasing in response to their growing incomes. In the United States, some of the most spectacular increases in high-end consumption in recent years have occurred in housing and the events families use to mark special occasions. By all accounts, such expenditures are hyper-positional.

To celebrate his daughter's recent birthday, for example, David H. Brooks, the CEO of a company that supplies body armor to the American military in Iraq, invited 150 of her closest friends to the Rainbow Room atop Rockefeller Center in Manhattan, where they were serenaded by 50 Cent, Don Henley, Stevie Nicks, and other luminaries in a celebration reported to have cost $10 million. Facing high marginal tax rates on consumption, Brooks and other similarly situated parents would surely spend less on coming-of-age parties for their children. If they did, the standards that define a special occasion in their circle would shift accordingly. Could anyone argue with a straight face that these changes would constitute a significant welfare loss for the children involved?

The situation is similar with respect to high-end housing expenditures. Consider a family that spends $10 million a year and is deciding whether to add a $2 million wing to its mansion. If the top marginal tax rate on consumption were 100 percent, the project would cost $4 million. The additional tax payment would reduce the federal deficit by $2 million. Alternatively, the family could scale back, building only a $1 million addition. Then it would pay $1 million in additional tax and could deposit $2 million in savings. The federal deficit would fall by $1 million, and the additional savings would stimulate investment, promoting growth. Either way, no real sacrifice would be required of the wealthy family, because when all build larger houses, the result is merely to redefine what constitutes acceptable housing.

What about the welfare impact of the public services made possible by additional revenue

from a steeply progressive consumption tax? The legislator's obligation is to spend every tax dollar in the way that best serves the public interest. Public choice theorists are quick to point out that legislators often fail to meet this obligation. But even allowing for the fact that some of the extra revenue would be spent wastefully, much of the rest would pay for useful things. In the United States, for example, budget deficits led the Bush administration to cut the Energy Department's program for helping lock down loose nuclear materials in the former Soviet Union. These materials are currently "guarded" in poorly armored facilities by soldiers who drink heavily and are paid only intermittently. Terrorists who acquired these materials could easily smuggle them into this country because we do not inspect most of the cargo containers that enter the nation's ports. A progressive consumption tax would make such outcomes less likely.

My point in describing these examples is that limited empirical knowledge does not always prevent us from drawing reasonable inferences about the likely welfare effects of specific tax policy changes. Most economists would agree that the welfare cost to wealthy families of having smaller mansions and less expensive coming-of-age parties would be smaller than their benefit from having improved security. If so, the benefit of improved security to the non-wealthy would be pure gravy.

These observations call into question the prevailing assumption that tax policy confronts us with an agonizing tradeoff between equity and efficiency. If positional externalities influence spending patterns in the ways suggested by available evidence, higher marginal tax rates on top earners would appear justified not only on grounds of equity, but also on grounds of narrow economic efficiency.

CONCLUDING REMARKS

If higher tax rates on top earners would mean not only a more equitable economy but also a more efficient one, why do many economists continue to push for changes in the opposite direction? One possibility is that even though they recognize that many people care about relative position as an empirical matter, they believe that such concerns are simply not a legitimate basis for public policy. They might be concerned, for example, that to implement policies for curtailing positional externalities could encourage people to give freer reign

to destructive emotions such as envy and resentment. Or, they might be concerned that recognizing positional externalities as legitimate public policy concerns might provoke attempts to implement sweeping new economic and social regulations. Both concerns merit careful attention.

As for the first, society does in fact have a strong interest in maintaining traditional efforts to keep envy and other destructive emotions in check. After all, as John Rawls and others have argued persuasively, absolute equality is neither an attainable nor even a desirable social goal. It is easy to imagine that if society were to abandon its efforts to discourage envy, ruthless intolerance of even the most minor forms of inequality might emerge.

Envy, however, is not the central issue. Positional externalities would continue to impose large and tangible economic costs even if everyone were completely free of envy. Context influences our assessment of material living standards for the same kinds of practical reasons that context influences our assessments of temperature and distance. When context matters, there is simply no presumption that individual spending decisions give rise to the greatest good for all. To acknowledge the obvious importance of context is in no way to encourage people to give free reign to feelings of envy.

It is also easy to see why some might fear that treating positional externalities on a par with other externalities might provoke a wave of intrusive economic and social regulation. After all, positional externalities are widespread, and our early experience with environmental regulation provides ample grounds for concern about government interventions that do more harm than good. Yet we have no reason to believe that acknowledging the legitimacy of positional externalities would doom us to protracted prescriptive regulation. With the lessons of environmental regulation fresh in memory, the same pitfalls might be avoided entirely.

The progressive income tax, which is already part of our existing policy arsenal, provides an instrument for attacking positional externalities in the same way that we now attack environmental externalities with effluent charges. A progressive consumption tax would be an even better instrument for this purpose. We already confront the question of how steeply progressive our tax system should be. On the available evidence, increasing its progressivity relative to the current structure would

change expenditure patterns in ways that would result in greater well-being for consumers across the entire income scale. Yet the current policy debate is driven by an intellectual framework that continues to insist, contrary to all evidence, that relative consumption does not matter.

Notes

[1] The late Fred Hirsch (1976) coined these terms.

[2] For a formal demonstration of this result, see Frank (1985b).

[3] Luttmer (2004).

[4] Neumark and Postlewaite (1998).

[5] http://www.inequality.org

[6] http://www.census.gov/ and Smith and Smith (2007).

[7] Frank and Levine, 2006.

[8] Bowles and Park (2005).

[9] These models also predict the observed negative relationship between income inequality and average happiness levels. See Alesina et al. (2001).

[10] See, for example, Solnick and Hemenway (1998, 2005); Alpizar et al. (2005); and Kerwin et al. (2007).

[11] See Frank (1999, 2007). Other authors have also discussed tax remedies for positional externalities. See, for example, Boskin and Sheshinski (1978); Ng (1987); Ireland (1998); and Layard (2005).

[12] By increasing the savings rate, progressive consumption tax would increase future incomes and, beyond some point, future consumption. Families would eventually have to meet a higher consumption than they do now, but they would also have the higher incomes necessary to meet that standard.

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