Research Digest

Jonathan Heathcote

The Goldilocks tax

An elegant economic model reveals the benefits of less progressive taxation

How progressive should taxes be? Economists have wrestled with this central question in public finance since the 19th century, when governments began to levy graduated-scale income taxes, which put more of the tax burden on richer households. A definitive answer emerges from research by a trio of economists, including Jonathan Heathcote, a senior research economist at the Federal Reserve Bank of Minneapolis.

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"Optimal Tax Progressivity: An Analytical Framework" (Minneapolis Fed Staff Report 496, online at minneapolisfed.org) investigates how the optimal tax schedule—one that has just the right amount of progressivity, maximizing welfare—compares with the U.S. tax system.

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Joining Heathcote in the research are Kjetil Storesletten, an economics professor at the University of Oslo (and formerly at the Minneapolis Fed), and New York University economist Giovanni L. Violante.

The authors construct a model economy containing the key determinants of ideal progressivity, including factors such as skill investment and private insurance against earnings shocks that have received little attention from other researchers. For all its richness, the model is transparent and easy to mine for insights into the forces that shape optimal progressivity.

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The results of their experiment show that a benevolent, utilitarian government would enact a less progressive tax system than the one currently in force in the United States. A flatter tax schedule would still offer people some protection against the vicissitudes of the labor market while boosting productivity and economic output.

The role of private insurance in lowering optimal marginal tax rates leads the investigators to propose a progressive tax on household consumption rather than earnings; such a tax would enhance welfare by better preserving incentives to work.

Progressive versus regressive

In designing tax systems, governments strive to strike a balance between the social benefits of progressivity and the economic downside—the distortions higher marginal tax rates introduce into labor markets.

Progressive taxes provide a measure of protection against income loss due to layoffs, disability or other misfortune; those whose income falls are taxed at lower rates. Progressivity is also a redistribution mechanism to offset differences in learning ability, work skills and other life circumstances that contribute to income inequality. But requiring high earners to pay proportionally more tax diminishes incentives to work more hours and to invest in skills that enhance productivity. Both effects reduce aggregate economic output.

Myriad factors influence optimal progressivity, the sweet spot that maximizes welfare. Heathcote, Storesletten and Violante construct a model—known as a dynamic general equilibrium model—to parse the subtle interplay of these factors. Some model elements, such as the elasticity of hours worked to the tax rate, are well understood by economists. Others, such as the responsiveness of skill investment to the progressivity of the tax system, the capacity of households to smooth income fluctuations and the role of desired public spending on tax progressivity, are less well understood. Integral to the model are mathematical rules describing consumers' expenditures, hours worked and earnings.

In the model economy, people at different skill (and income) levels choose how much to consume, work and invest in skills, given the prevailing tax schedule. These choices also depend on people's willingness to work and their learning ability. The resulting cross-sectional distribution of skill investment affects the relative scarcity of higher- and lower-skill workers and their respective contributions to economic output.

All types of workers experience periodic disruptions to earnings, in the model. There are two types of income shocks: predictable or temporary changes that households can smooth by drawing upon savings or

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participating in other forms of private risk sharing, or insurance; and persistent shocks—such as a prolonged layoff or illness—that can't be smoothed privately. Uninsurable shocks typically trigger adjustments to consumption—cutbacks or (in the case of a positive shock such as a pay raise) increases in household spending.

Progressive taxation serves as an additional buffer against these income fluctuations. "Part of what the government is trying to do through the tax system is to provide some insurance against idiosyncratic shocks," Heathcote said. But in the model, the government prefers to provide protection against shocks that affect household consumption rather than the transitory ones that can be insured against privately.

Most people don't consider government purchases—goods and services that are provided by the government—in their labor market decisions. But publicly provided goods factor into progressivity because the less people work and invest in skills that increase their earning power, the less revenue is raised to finance such goods. This hidden benefit of more regressive taxation is included in the model.

Not too hot, not too cold

Running the model yields a Goldilocks prescription for progressivity—a system in which marginal tax rates increase with income at just the right pace. The optimal average marginal tax rate is 24 percent, seven points lower than the one in place in the mid-2000s (since then the U.S. tax system has become more progressive). The economists estimate that such a reduction in progressivity would boost welfare by the equivalent of half a percent of lifetime consumption for the average household.

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The value of publicly provided goods is also a strong force muting progressivity in the simulation. By encouraging people to work more hours and invest in skills, a flatter tax schedule supports increased public spending. (Alternatively, in the model, if households put no stock in government-provided goods and services the optimal tax rate is very close to the mid-2000s schedule.)

One finding surprised the researchers: Progressivity does little to further the policy goal of reducing pretax wage inequality. Less skill investment increases the scarcity of higher-skill workers, raising their wages relative to lower-skilled workers and offsetting the direct income-leveling effect of a narrower range of skills.

Because private insurance partially protects against income shocks, Heathcote, Storesletten and Violante propose a novel change to the tax code—a progressive tax on consumption. Progressively taxing earnings reduces the incentive of a household that experiences a positive, temporary wage shock to work longer hours—make hay while the sun shines. A progressive consumption tax, on the other hand, would exempt savings, sparing the household from automatically moving into a higher tax bracket. Thus, people would retain their incentive to work more and set aside savings for a rainy day.

"The government wants to make sure that the taxes it levies don't interfere with the private insurance that's already operating in the background," Heathcote said. "It turns out that the way to provide some public insurance without distorting private insurance is to tax consumption, not earnings."

— Phil Davies