

# Research Digest



Jonathan Heathcote



Hitoshi Tsujiyama

## Optimal income taxes

*Surprisingly, the current U.S. tax plan appears nearly optimal, if one assumes it accurately reflects Americans' taste for redistribution*

**E**conomics is rife with trade-offs. One of the most vexing for economists, policymakers and the public alike pertains to income taxes. Almost everyone favors some degree of taxation to provide essentials for those in need, but it's generally thought that too generous a safety net will discourage people from working to their full potential. So, what is the *best* possible income tax structure—one that generates the right quantity of good (support for the needy) for the least amount of bad (low work effort)?

In a January 2015 staff report, "Optimal Income Taxation: Mirrlees Meets Ramsey" (SR 507 online at

minneapolisfed.org), Minneapolis Fed economist Jonathan Heathcote and former Minneapolis Fed research analyst Hitoshi Tsujiyama, now of Goethe University Frankfurt, analyze this trade-off. They seek to determine, as they write, "What structure of income taxation maximizes the social benefits of redistribution while minimizing the social harm associated with distorting the allocation of labor input?" And their goal is quantitative. They hope to provide *numerical* guidance regarding the best structure for income taxes, not simply "this plan is better (or worse) than another."

Their strategy is to compare social

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welfare under the existing U.S. tax system with that generated by two other options:

- (1) The best possible policy combining a flat tax system (in which everyone pays the same tax rate, regardless of income) with universal, identical lump-sum transfers.
- (2) The optimal Mirrlees policy, referring to the theory of optimal taxation developed by Scottish economist, James Mirrlees. A Mirrlees design is aimed at the best income tax schedule, without imposing any restrictions on the shape of that schedule.<sup>1</sup>

The current U.S. system, note Heathcote and Tsujiyama, combines a progressive tax structure (tax rates are higher at higher income levels) with means-tested transfers (benefits given only after evaluating financial needs).<sup>2</sup>

## Necessary assumptions

Any effort to optimize requires specifying a desired goal. The economists assume that Americans’ desire for redistribution is reflected in the existing U.S. income tax structure—arrived at through extensive political give-and-take over

decades of U.S. history. The paper’s findings hinge on this assumption since, they emphasize, the shape of the optimal tax-and-transfer system depends on the system’s goal. An objective concerned with only the poorest members of society would be very progressive. Absent any desire to redistribute, the government wouldn’t tax at all, other than to finance roads, parks, schools, national defense and the like. “What is the taste for redistribution in the United States?” they ask. “We argue that the degree of progressivity built into the actual U.S. tax and transfer system is informative about the preferences of U.S. voters and policymakers.”

Using a model Heathcote recently developed with two other economists [see SR 496, described in “The Goldilocks tax,” September 2014 *Region*, at [minneapolisfed.org](http://minneapolisfed.org)], they mathematically derive that redistributive “taste” from the actual degree of tax progressivity built into the U.S. tax code. “*This empirically motivated social welfare function* will serve as our baseline objective function,” write Heathcote and Tsujiyama. That is to say, the benchmark against which alternatives 1 and 2 will be measured.

Two other steps are needed. First, the economists assume that people have some degree of private insurance—they are not totally reliant on government if misfortune falls. The tax-and-transfer system thus cushions risks that individuals can’t buffer using family or other resources. Second, the economists calibrate the economy’s distribution of labor productivity from U.S. data on labor earnings. If people earn more, the model assumes, it’s because they’re more productive.

## Building the model

Heathcote and Tsujiyama first establish their model’s economic environment (labor productivity, preferences about consumption and work effort, technology, insurance, government, the problem faced by family decision-makers). They then define mathematically the social planner’s three options—models that reflect (1) the current U.S. system, (2) the best flat-tax-plus-lump-sum-transfer proposal and (3) the fully optimal income tax given that actual labor productivity isn’t known to the planner.

The final step is to estimate quantitatively society’s preferences: the “taste” for redistribution. A utilitarian approach, where the tax planner puts equal weight on all households? A “veil of ignorance” (à la John Rawles) goal—the well-being of the least-well-off, since you could be

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that person? Or a simple “reap-what-you-sow,” laissez-faire target—to each according to his or her contribution? Again, the economists assume that U.S. redistribution preferences are reflected in the current system, so the two policy options are judged by the welfare gains or losses they achieve relative to what now exists.<sup>3</sup>

## Results

The bottom line is that neither alternative would be much of an improvement. The best flat-tax-plus-transfer plan would actually reduce social welfare slightly, by around 0.6 percentage points of consumption, the economists estimate. And the best Mirrlees solution would raise welfare by just 0.1 percentage points. “These findings suggest that proposals for dramatic tax reform should be viewed with caution,” conclude Heathcote and Tsujiyama.

The source of the welfare drop under flat-tax-plus-universal-transfer: Compared to the current system, low-productivity workers would work too little because they’d face relatively high tax rates and receive large transfers. For high-income workers, the flat tax rate would be too low (they could be taxed more heavily without an undue productivity impact), so “high-productivity workers end up consuming too much.”

As for the optimal Mirrlees plan, the economists acknowledge that it is

“perhaps surprising” that it generates only a small welfare gain. After all, they write, the current system “violates some established theoretical properties of optimal tax schedules,” including the recommended zero marginal tax rate for the highest and lowest income levels. They note, moreover, that the optimal Mirrlees policy would generate output gains and have an average marginal rate 2.4 percentage points lower than the current rate.

## Lessons for policy design

The economists draw several policy design lessons from their analysis. First, establishing the social welfare objective is crucial to the design of optimal tax policy; policy is shaped by the goal to be achieved. Second, the tax-and-transfer system should be designed to address only risks that can’t be insured privately. Third, a good estimate of the actual productivity distribution is important; a flat-tax-plus-transfer policy would be almost perfectly efficient if there were a “normal” productivity/earnings distribution—a bell curve—rather than one skewed to the high-income tail, as actually exists in the United States. And fourth, while truly optimal design is very intricate, a *nearly* optimal plan is far simpler, as represented by the versatile model developed by Heathcote and colleagues.

— Douglas Clement

## Endnotes

<sup>1</sup> In addition, Mirrlees emphasized that since tax authorities can never accurately know a person’s actual productivity level, an optimal plan should be “incentive compatible,” meaning that its rules are designed to make it in a worker’s self-interest to reveal his or her true work ability.

<sup>2</sup> Both the current system and the flat-tax-plus-transfer system are “Ramsey” tax plans, referring to British economist Frank Ramsey. The “Ramsey Meets Mirrlees” of the paper’s title refers to these two influential theorists.

<sup>3</sup> In additional exercises, Heathcote and Tsujiyama also analyze the alternative plans under different social welfare functions (utilitarian, laissez-faire and Rawlsian “veil of ignorance”). They examine results assuming no private insurance against risks, as well.

And in an extension of their baseline model, they add a productivity component meant to capture wage differences due to characteristics like age and education. This component, the economists assume, is privately uninsured but *known* by the social planner. If the planner therefore can alter tax rates to account for this component, the new plan will result in lower average marginal tax rates and can generate large welfare gains. These variations are all analyzed according to their impact on social welfare relative to the baseline model and assumptions, with a wide range of results.