

Inflation's Impact on American Households

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Discussants: Adrien Auclert, Deborah J. Lucas

Jonathan Parker opened the discussion by raising concerns about the nature of the paper's counterfactuals. He noted that inflation is zero sum; thus, from an accounting perspective, the government must still find a way to raise the money it would have raised anyway. As such, he suggested that the counterfactual costs for households should be measured relative to some other realistic way that the government could raise the same amount of revenue. He proposed that this might be conducted using the progressivity of the current tax system (i.e., if everyone's taxes were just increased by whatever percent necessary to raise the same revenue). This counterfactual, he explained, might lead to the conclusion that inflation is regressive—a very different message from that of the paper.

Laurence J. Kotlikoff thanked Parker for the comment and agreed with the importance of accounting for countervailing fiscal policy in the counterfactual. However, he stated there is no way to know how these adjustments would be made. He added that while the current counterfactual, namely implicitly assuming an offsetting increase in government discretionary spending in response to inflation-based net taxation, may be imperfect, they find it useful for conveying problems with the fiscal system, which often escapes scrutiny due to its complicated and state-specific nature.

Alan Auerbach reinforced Kotlikoff's response. He added that even taking the progressivity of the countervailing fiscal policy as given, it would be challenging to incorporate because it would require accounting for future generations who are not currently in the calculations.

Ricardo Reis commented on the assumption of perfect foresight: In the paper, inflation is a permanent shock that everyone immediately realizes and agrees on. However, in the last couple of years, the data show much disagreement on expected inflation. In particular, at the start of 2021, young people thought the inflation shock would be transitory, while older people thought it would be persistent. This should make a significant impact in terms of how people across different cohorts adjust to inflation. Furthermore, commenting on the paper's thought experiment about a change in the inflation target, he noted that evidence suggests that rich households seem to incorporate news about a rising inflation target faster than poor households. He concluded that heterogeneity in how expectations change with bouts of inflation or changes in the inflation target could be just as important as the heterogeneity across asset positions.

Building on Reis's comments, Valerie Ramey noted that non-economists often think that transitory inflation means transitory increases in the price level. Thus, even if a person's expectations are correct about the transitory nature of inflation, they might not realize the impact on the price level.

Responding to comments by the discussants, Laurence J. Kotlikoff clarified that the paper's purpose was strictly to illuminate inflation non-neutralities in the fiscal system. For this, considering a permanent, fully anticipated increase in inflation seems most appropriate.

As for the model's inner workings, he conceded that the model might seem like a black box. But he laid out during the meeting and in a subsequent exchange seven different ways to check that the Fiscal Analyzer's (TFA) calculations are precisely correct. First and foremost, each household respondent's lifetime present value budget constraint is exactly satisfied along each survival path. Second, along each survivor path, the annual flow of saving equals that year's change in net wealth. Third, households' living standard per person (calculated in light of the household's demographic composition and economies in shared living) is perfectly smooth during years when the household is not cash constrained. Fourth, when a cash-flow constraint stops binding, the household's living standard jumps onto a higher smooth path. Fifth, household net wealth is zero at the end of each cash-constrained interval. And, sixth, life insurance, when positive, provides survivors with precisely enough resources to maintain their living standard.

He explained that the TFA solves a problem involving hundreds of state variables, specifically, year and survivor-state specific values of regular and retirement account assets. TFA's algorithm overcomes the curse of dimensionality via iterative dynamic programming. Specifically, the algorithm features three dynamic programs that iterate with one another to convergence, which typically takes less than one second. Convergence is defined by mutually consistent survivor-path-specific paths of annual discretionary spending -- that smooth consumption over the path subject to annual cash-flow constraints, survivor-path-specific paths of annual net taxes, and survivor-specific annual non-negative life insurance holdings -- that ensure no reduction in survivors' living standards. Mutual/internal consistency is essential since, for each survival path, the spending path depends on the path of net tax paths and life insurance premium paths and each of the latter two paths depend on the other two paths. The algorithm also uses a proprietary method of sparse grids to overcome another major hurdle -- doing backward induction over non-differentiable policy functions.

In 1999, Kotlikoff's company, Economic Security Planning, Inc. (ESP), received a method's patent - US 6611807B1 -- for its MaxiFi Planner algorithm, which is the company's principle financial planning tool. TFA was developed starting roughly a decade ago as a research version of MaxiFi Planner. Since MaxiFi Planner has run flawlessly for tens of thousands of ESP-client households, TFA's algorithm has been thoroughly tested. In particular, there have been no convergence problems, which would suggest multiple solutions. He expressed gratitude to the Federal Reserve, the Sloan Foundation, the National Institute of Aging, Boston University, and ESP for their support in building TFA. He also pointed out that this old, but still breakthrough technology can be tested by any economist by simply requesting a free license to MaxiFi Planner.

Kotlikoff then addressed the desire for a unified framework of fiscal and financial costs of inflation expressed by the discussants. He explained that this was their initial goal, but they realized the interaction between the fiscal and financial costs was very episode-specific, depending on factors such as the extent to which inflation was anticipated and how quickly wages responded.

Finally, Kotlikoff pointed out that TFA has been and is being used to address other fundamental economic issues, such as inequality in remaining lifetime spending, the level and distribution of lifetime marginal net taxes on labor supply and saving, the size and distribution of cash-flow constraints, the taxation of marriage, the gains from lifetime Social Security benefit optimization, and the study of

fundamental tax reform. TFA includes roughly 100 federal and state fiscal policies. As such it represents, in Kotlikoff's view, a veritable Webb telescope for assessing the fiscal system.

Alan Auerbach further addressed calls for a unified framework of fiscal and financial costs. He noted that Adrien Auclert's discussion provided a very helpful example that resulted in an expression where, after taking a derivative, the fiscal and financial effects are additive. He explained that, unfortunately, this does not work for discrete changes and that there is a complicated interaction between fiscal and financial effects.

Auerbach additionally responded to comments from Deborah Lucas's discussion regarding the impact of risk adjustment on progressivity. Assuming constant relative risk aversion and the same risk profile versus average effect for people of different income groups, the ratio of utility loss to the mean loss should be the same for the two groups. In the paper, they find a higher coefficient of variation for the highest income group than for the lowest income group. Thus, he thought incorporating the missing risk adjustment would support their progressivity finding rather than work against it. He acknowledged, however, that they need to worry about extreme values that might result in near-zero consumption at the bottom of the income distribution.