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War finance and the baby boom[☆]

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ABSTRACT

In this paper, I extend the Barro–Becker model of endogenous fertility to incorporate specific fiscal policies and use it to study the effects of the fiscal policy changes following WWII on fertility in the United States. The US government went through large changes in fiscal policy after the beginning of WWII. The marginal income tax rate for an average American jumped from 4% on average before 1940 to approximately 25% during the war and stayed around 20% afterwards. The government debt–GDP ratio jumped from approximately 30% on average before WWII to 108% in 1946 and then dropped gradually in the following two decades to about 30% again at the end of 1960s. I find that the dramatic increase in the marginal income tax rate was an important cause of the postwar baby boom in the US because it lowered the after-tax wage and thus the opportunity cost of child-rearing. I also find that the differential change in taxes by income was an important reason why the baby boom was more pronounced among richer households (as documented by Jones and Tertilt, 2008). Furthermore, I argue that the government's debt policy may also matter for understanding fertility choices because government debt implies a tax burden on children in the future and thus affects their utility, which is a key determinant of current fertility choice in the Barro–Becker model. The results of a computational experiment show that the US government's postwar debt policy also contributed to the baby boom, but its quantitative importance is relatively small.

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1. Introduction

The United States experienced a massive baby boom following the Second World War (WWII). As documented by Jones and Tertilt (2008), the completed fertility rate was 2.4 for the cohort of women born in 1911–1915 (who completed most of their fertility by the 1940s), and it increased to 3.2 for the cohort of women born in 1931–1935 (who completed most of their fertility by the 1960s).¹ Meanwhile, the US government went through large changes in fiscal policy (see Fig. 2). The marginal income tax rate was 4% before 1940 for an average American, and it went above 20% during the war and kept around 20% since then. On the other hand, the government debt–GDP ratio jumped from approximately 30% on average

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¹ See Fig. 1. A similar pattern is observed in the data for total fertility rate, which is also plotted in Fig. 1. In this paper, I focus on the baby boom measured by cohort fertility since this measurement better matches the fertility definition in my model.

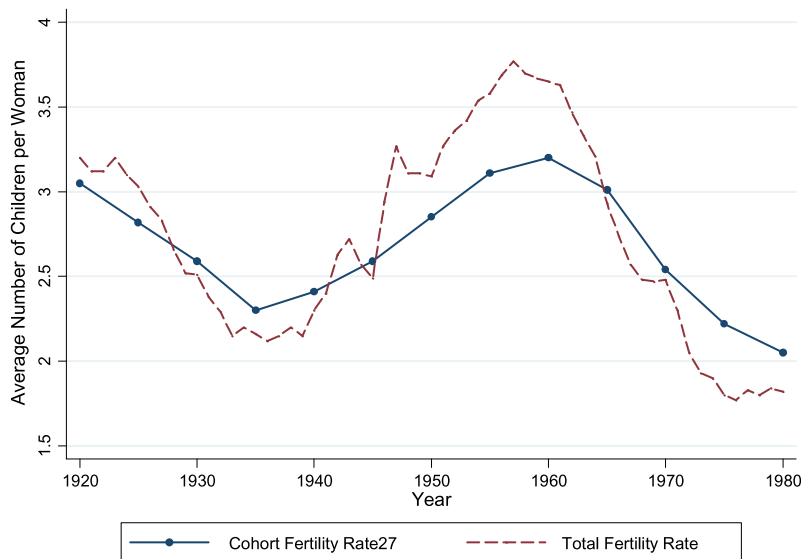


Fig. 1. The baby boom in the US. Note: cohort fertility rate 27 is completed fertility rate by cohort (shifted to right by 27 years from birth year). Data source: completed fertility rate is from Jones and Tertilt (2008), total fertility rate is from Chesnais (1992).

before WWII to 108% in 1946, and then dropped gradually in the following two decades to about 30% again at the end of 1960s.²

What impact do these fiscal policy changes have on fertility? Is there a role for fiscal policy in accounting for the postwar baby boom in the US? I answer these questions in this paper.

I argue that a rise in the marginal labor income tax rate can increase fertility by reducing the opportunity cost of child-rearing, that is the after-tax wage (when the cost of child-rearing involves parental time). The government's debt policy also affects fertility choice as government debt implies a tax burden on children in the future and thus affects their lifetime utility, which is an important determinant of current fertility choice in the Barro–Becker model (in which the children's utility is included in the parents' utility function).

To formalize the above-described mechanisms, I develop an extended Barro–Becker model of endogenous fertility in which specific fiscal policies are incorporated. In the model, there are three periods: childhood, middle age, and old age. Only the middle-age agents are endowed with one unit of time which can be used to either rear children or work. The middle-age agents have Barro–Becker type altruism toward their children (the children's utility is included in the parents' utility function) (Barro and Becker, 1989; Becker and Barro, 1988). After they receive an ability shock at the beginning of the middle age, the agents maximize their lifetime utility by choosing fertility, middle-age consumption, and saving for their old age. In the benchmark model, the children and old-age agents make no economic decisions. On the production side, I assume a standard Cobb–Douglas production technology for simplicity. On the government side, the model contains utility-increasing government expenditures, which are financed by government debt and labor income taxes.

To assess the extent to which the fiscal policy changes can account for the postwar baby boom in the US, I conduct the following quantitative exercise. First, I calibrate the model such that the initial stationary equilibrium matches some key moments of the US economy prior to the baby boom. Second, I shock the economy by introducing the fiscal policy changes that mimic what happened during the baby boom period in the US, and then compute the transition path along which the economy eventually converges to a new stationary equilibrium. I find that the model can generate a baby boom along the transition path, which in magnitude is over a third of that observed in the data. I also run computational experiments to decompose the effects of different fiscal policy changes on fertility, and find that the baby boom in the model was mainly due to the increase in the marginal income tax rate. The US government's postwar debt policy also contributed to the baby boom, but its quantitative importance was relatively smaller.

² The drop in the debt level was partly due to the fact that the US government then favored debt reduction to tax cut. Some supporting evidence for the government's preference toward debt reduction can be found in the following letter written by President Harry S. Truman to the House of Representatives:

"... My fundamental objection to the bill is that it would not strengthen, but instead would weaken, the United States.

...

... the bill would reduce Government revenues to such an extent as to make likely a deficit in Government finances, at a time when responsible conduct of the financial affairs of this Nation requires a substantial surplus in order to reduce our large public debt..."

[President Harry S. Truman, April 1, 1948, Truman's Veto of the Income Tax Reduction Bill]

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