

JUNE 2019

# The Fiscal Ship as a Teaching Tool

**Vivien Lee**

**Finn Schuele**

**Louise Sheiner**

HUTCHINS CENTER ON FISCAL AND MONETARY POLICY  
BROOKINGS INSTITUTION

**This guide is available online at:**

<https://www.brookings.edu/research/the-fiscal-ship-as-a-teaching-tool/>



Hutchins Center  
on Fiscal & Monetary Policy  
at BROOKINGS

The mission of the Hutchins Center on Fiscal and Monetary Policy is to improve the quality and efficacy of fiscal and monetary policies and public understanding of them.

## Introduction

The ratio of federal debt held by the public to the gross domestic product (GDP) is currently about 78 percent, twice as high as it was before the Great Recession and higher than at any time since the end of the Second World War. Given current tax and spending policies, Congressional Budget Office (CBO) projections suggest that the debt-to-GDP ratio will continue to rise over the coming decades. Economists don't agree on what level of debt is optimal, but our national debt cannot rise forever. Eventually we will have to make tough decisions to put the budget on a more sustainable path.

## What is the purpose of the game?

The Fiscal Ship, a joint venture of the [Hutchins Center on Fiscal and Monetary Policy](#) at the Brookings Institution and the [Serious Games Initiative](#) at the Wilson Center, emphasizes that budgeting is more than a spreadsheet with pluses and minuses.<sup>1</sup> The game begins by asking players to choose their goals for government—their values—and only after that, asks them to choose among more than 100 spending and tax options to achieve those goals and stabilize the ratio of debt to GDP at its current level. Players learn about the difficult trade-offs involved in putting the budget on a sustainable path, about the challenges they (and politicians) face in pursuing their goals for government while stabilizing the debt, and discover what little effect many popular proposals for saving money actually have. But they also learn that stabilizing the debt is possible. In addition, by reading through all the various policies and choosing among them, players learn about tax policy, health policy, safety net policy, defense policy, and many other aspects of fiscal policy. When designing and updating the game, the Hutchins Center staff have made great efforts to make the game fun and playable, while maintaining substance, objectivity, and timeliness.

## About the game

The [Fiscal Ship](#) ([www.fiscalship.org](http://www.fiscalship.org)) challenges you to put the federal budget on a sustainable course. Measured as a share of gross domestic product, the federal debt is higher than at any time since the end of World War II and projected to climb to unprecedented levels. America is looking at a permanent, growing mismatch between revenues and spending, and policymakers are faced with difficult decisions about how to reconcile important government priorities—including retirement and health benefits promised to the growing number of old folks—with the tax revenues that the current tax code will yield. Today's tax code won't yield enough revenue to pay for basic services of government plus the retirement and health benefits promised to the growing number of old folks. So your mission is to pick from a menu of tax and spending options to reduce the debt from projected levels over the next 25 years. Small changes to spending and taxes won't suffice. The choices are difficult, but the goal is achievable.

...

1. In addition to Hutchins Center and Wilson Center resources, we received grants from the Peter G. Peterson Foundation, the William and Flora Hewlett Foundation, and the Richard Lounsbery Foundation. The funders did not play any role or have any say over the substance of the game. We contracted with 1<sup>st</sup> Playable Productions of Troy, N.Y., to build the game.

But budget decisions aren't only about fiscal sustainability. They also shape the kind of country we live in. To win the game, you need to find a combination of policies that match your values and priorities AND set the budget on a sustainable course.

## Goals

We chose 11 governing goals, or priorities, that span the political spectrum to represent a variety of common values. The goals currently available in the game are:

- Reduce inequality
- Strengthen national defense
- Fight climate change
- Strengthen social safety net
- Tax cutter
- Shrink government
- Protect the elderly
- Invest in the future
- Fiscal hawk
- Rein in entitlements
- Donald Trump's priorities

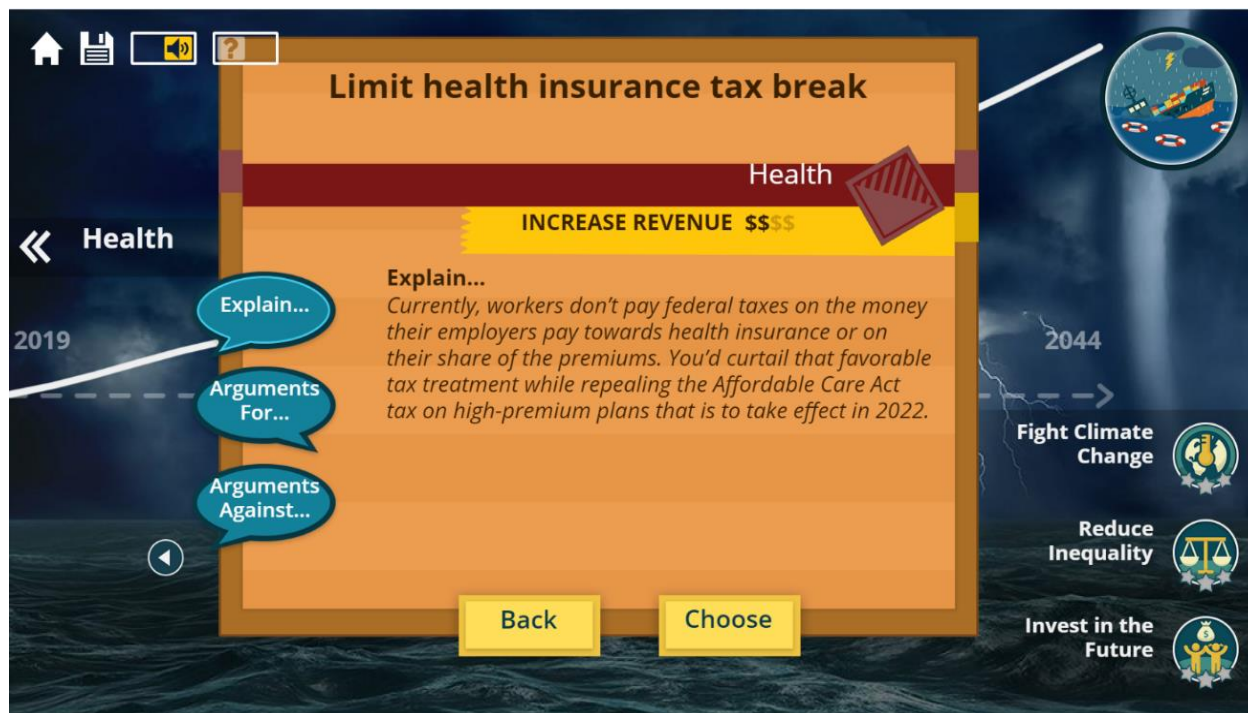
For each goal, we selected from the hundred-plus policy options available in the game those that we judged would move the country closer to or further from that goal, weighting it to reflect the fact that different policies affect the goals to varying degrees. A player gains credit towards their governing goals by selecting policies that move the country closer to that goal, and each policy can affect different goals. A carbon tax, for instance, gives players credit for the "fight climate change" goal, but loses credit for the "tax cutter" goal. (We plan to add a goal that represents Democratic presidential candidates' proposals as the 2020 election approaches.)

## Policies

The game includes over 100 policies that affect federal taxes or spending, selected by Hutchins Center staff with input from our [advisory committee](#). We try to include the policies most discussed by budget experts and policy wonks and those most frequently mentioned by presidential candidates and policy makers. We do not claim this is a comprehensive list; rather, we want to offer a wide range of options to both reduce and increase spending from projected levels, and to both raise and cut taxes. In the game, policies are grouped into broad categories like "Tax Credits and Deductions," "Energy and Environment," and "Defense and Foreign Affairs." We also try to keep the game current by maintaining a basket called "In the News" that contains the policies most widely discussed and debated at the time.

Each policy option in the game has a detailed policy card. These cards have a brief explanation of the policy, some arguments for it, and some arguments against. The explanation gives the player the necessary (but concise) background knowledge to understand what the policy actually does. And the pros and cons are intended to summarize the common arguments advocates or detractors might make for or against implementing the policy, while also pointing to the important economic considerations.

For example, for the “Limit health insurance tax break” policy, pictured below, the card explains the policy as follows:



The pro (“Arguments For...”) is: “The tax break for health insurance premiums encourages people to spend more on health care than they otherwise would, and to favor health insurance over wage increases. This is driving up U.S. health care spending and costing the government a lot of revenue. It is also unfair to those without employer-provided health insurance and is another way the tax code favors upper-bracket taxpayers (who face higher tax rates and thus benefit most from tax breaks like this one). Plus, if employers cut back on health benefits, cash wages will rise in response.”

The con (“Arguments Against...”) is: “Let me get this straight—you want to make health insurance more expensive for ordinary workers? You say employers will compensate by raising cash wages, but that happens more often in economic textbooks than in the American workplace. And the notion that a little more skin in the game will prod people to make wise health-insurance choices... well, that’s another fantasy. This is going to lead fewer employers to offer health insurance, and that’s not going to make anyone better off.”

## Using the Fiscal Ship in the classroom

The Council for Economic Education has put together a [lesson plan](#) to use with the Fiscal Ship, and Appendix 2 gives a short instruction manual on how to play the game. The game can be played on computers, tablets, and mobile devices. Here are some of our own tips based on our years of experience playing the game with students (of all levels) in a group setting.

## How should I introduce the game in the classroom?

- Start by giving the context/importance of the game. Talk about the federal debt today and what will happen to the federal debt in the future without any policy changes. The Hutchins Center has slides that can be used in such an introductory lecture. (The slides are included as Appendix 1.)
- Let students think about their own values and discuss why they hold them. Ask them to consider what their goals for the federal government are, given those values. Ask them which of the Fiscal Ship's governing goals are consistent with their own values and their goals for government.
- Then have the students play the game (we recommend starting in small groups or pairs, so there's opportunity for discussion and friendly debate).

## How should students play?<sup>2</sup>

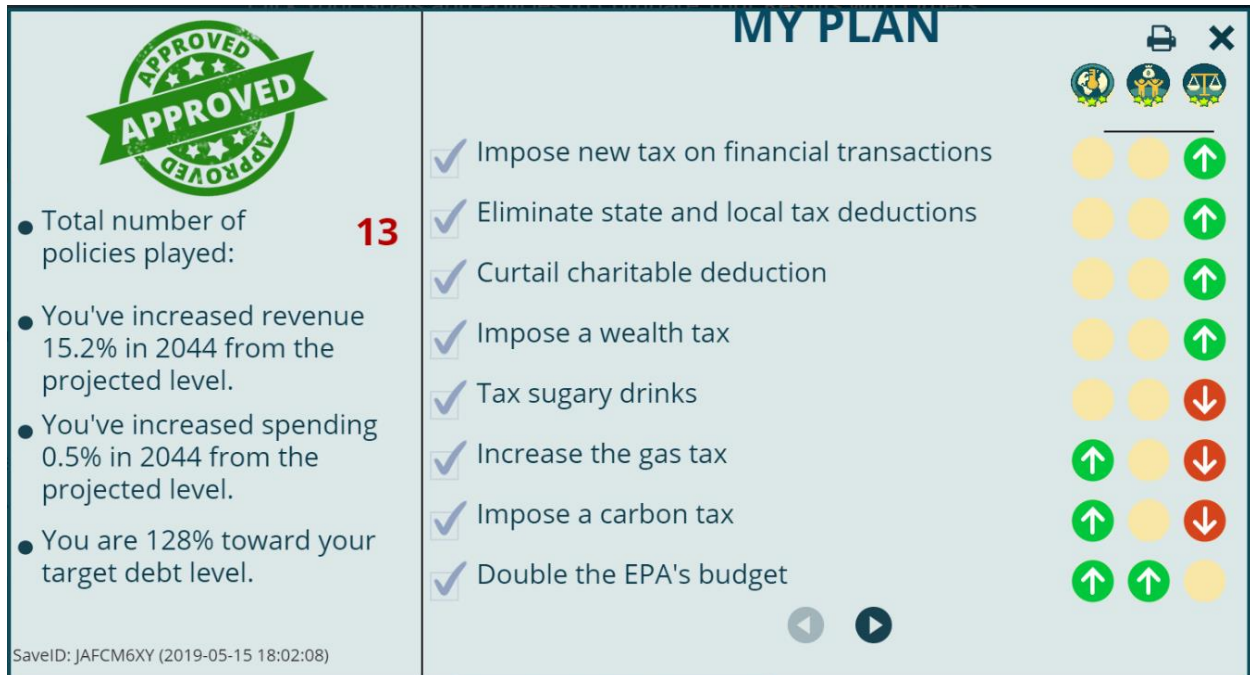
- You might have groups of three to four students with different values work together to come up with a compromise plan.
- You could assign a different predetermined profile, like a businessperson or a retiree, to each group, and have students begin with a discussion of the profiles and whether they agree or disagree with the values they represent before playing the game. We've included some profiles in Appendix 3.
- You could assign the same profile to each group, and have the teams "race" to see who can win the game the fastest. This would introduce an element of competition and fun, but would also likely lead to less discussion of different values, and how prioritizing different values or objectives for government can lead to different policy and budget tradeoffs.
- You could have students roleplay as individuals with different values (e.g. a conservative, older businessperson and a liberal millennial), and ask them to compromise on a set of values and a plan that will win the game.

...

2. Appendix 2 offers introductory guidance on how to play the Fiscal Ship. The game is fairly self-explanatory, however, and most students get the hang of it very quickly.

What are some game features that will help facilitate continued discussion after students play?

Clicking “View my plan” on the bottom left corner of the screen will open a panel with more details on a player’s plan: how many and which policies were played, and by how much they increased revenue and decreased spending. It also indicates whether each policy choice moved students closer to or further from (or was neutral toward) meeting each their governing goals. Here’s an example of the plan view screen:



You can use this screen to:

- Ask students what stood out to them as having an especially large impact on the budget, and what stood out as having a smaller impact. Was there anything about this that surprised them?
- Look at whether students were able to achieve their governing goals AND balance the budget. Ask what tough choices they had to make and where they had to compromise. Were there policies they wish they could have played, but couldn’t because the effect on the budget was just too large? Were there policies they played that they wished they didn’t have to use?

The “My budget solution” screen (reachable by hitting “Finalize/Submit” or “Finish game”) is also a useful resource for classroom discussions. Clicking “View your results on other goals” on the right-hand side of the “My budget solution” screen will open a panel showing you how well you did on achieving the other governing goals in the game beyond those you selected. It looks like this:



You can use this screen to discuss how students’ plans do at achieving other governing goals. You could, for instance, ask students how they defend their plan despite NOT satisfying these other goals. Are there other goals they wish they could also have achieved?

Finally, clicking on any of the governing goal icons at center (the three circles with stars underneath them) will open a panel with some summary demographics on who else chose that goal. Clicking on the information icon next to “Biggest Revenue Raisers” will reveal similar information on who played those policies.



Here are a couple of other interesting things to talk about after you are done playing the game:

- Discussion of policies and goals they would like to see: Are students' preferred policies included in the game? Do they think these are the right goals for government?
- What other potential solutions are there outside of those considered in the game, such as changes to regulations that could affect GDP (for example, policies that increase competition, help make labor markets more fluid, tariffs, and education reforms)?

What are some topics to discuss with more advanced students?

- Optimal debt to GDP ratio: How high should the debt to GDP ratio be? The ideal ratio is unclear. Having higher debt means that more of the budget goes towards paying interest on debt, and that we would be vulnerable to sudden increases in borrowing costs. On the other hand, having debt is not necessarily a bad thing. A lot of what the government spends money on are investments—infrastructure, education, and health care—and these will have returns in the future that can help pay off the debt.
- Interest rates: Given that interest rates are currently low, it is less urgent to address large debt, and, indeed, a good time to invest ([Elmendorf and Sheiner 2017](#)). But what if something happens in the economy that makes interest rates spike? Would large debt would make us more vulnerable, and how much should we worry about that?
- Dynamic scoring and policy interactions: As we note below, the game does not incorporate so-called “dynamic scoring.” This means that the game does not account for changes in our nation’s output that might result from policies like increasing education, improving our infrastructure, or cutting marginal tax rates. This can spark an interesting discussion: What are the factors that you would consider if you were to calculate a dynamic score for a given policy? How would a certain policy interact with other policy options? (For more information on dynamic scoring and policy interactions, see “What are some of the game’s limitations?” under the Methodology section of this paper.)

What are other ways in which I can use the game?

- Assign homework where you focus on a few policies, examine the pros and cons, and evaluate those policies. You can also ask students to come up with suggestions for new policies and write the description, pros, and cons for those policies. For more advanced students, you could ask them how they would go about estimating the impact of those policies on the budget.
- You could host a debate between two groups of students advocating for their particular plan.
- You could focus on a group of policies (e.g. Social Security, Medicare, and Medicaid) to highlight a particular policy issue.



## Methodology

### Where do the 25-year baseline projections come from?

We construct our baseline—that is, a projection for the debt assuming no changes in tax or spending laws—by beginning with the most recent CBO 10-year estimates for revenues, outlays, and deficits, assuming current laws. We then extend each component of the budget at the growth rates assumed in the most recent longer-term CBO outlook.

### How are the budgetary impacts of policies calculated?

Most of our policy scores are from the Congressional Budget Office (CBO), presidential budgets, government agencies, or other think tanks. Wherever possible, we begin with cost estimates from CBO, the Office of Management and Budget, the Social Security Administration, or the Urban Institute-Brookings Institution Tax Policy Center. Usually, these scores are only available for the first 10 years. To make sure that policy scores do not become outdated, we calculate the policy impacts as a share of revenues, discretionary or mandatory spending, or GDP, and multiply that share with CBO's updated amounts of the appropriate category.

To calculate the impacts in the later years, we take the last year the score is available and extend it by what we think is an appropriate growth rate from CBO's long-term outlook, which projects various parts of the budget out 30 years. For instance, we may extend a policy changing income tax rates with the rate of change in CBO's projections of revenue from individual income taxes; for an immigration reform policy, we may extend with the rate of discretionary spending. On other policies, we may extend by a combination of rates.

### Do you keep the game up to date?

Yes. We update the game whenever CBO releases new budget projections, or if it publishes a report revising its numbers. We also monitor policy proposals and updated policy cost estimates from CBO, other think tanks, and policy makers or candidates, and are constantly adding new policies, updating existing policies, and removing outdated ones.

### What are some of the game's limitations?

One of the big limitations of the game is that our policy scores don't incorporate all potential effects. We use static scores, rather than dynamic scores. Dynamic scoring incorporates policy impacts on economic growth, whereas static scores do not. For instance, one may argue that investing in education or cutting corporate taxes will spur economic growth, and dynamic scoring would account for this. But dynamic scoring is very difficult to do, is somewhat subjective, and leaves room for political bias. CBO and the Joint Committee on Taxation are now required to estimate these effects on very large pieces of legislation, but many policies do not have a dynamic score. Creating a dynamic score for the 100-plus policies in the game would be an immense challenge, so we stick to static scores.

Another limitation of our game is that we do not calculate how policy impacts may differ based on the other policies that are also chosen—that is, how policies interact with one another. For instance, changing income tax brackets will change the budgetary impact of any tax deduction, relative to the tax deduction without an income tax bracket change. For policies where the interaction effect is large, we do not let

users play the two policies simultaneously. If a user tried to implement both a 15% flat tax and eliminate the state and local tax deduction, they would encounter the following screen:



But for policies where the interaction effect is smaller, we allow users to play them simultaneously. This way, players can explore and learn about more policy options, and the game won't mislead players into thinking that many policies cannot be implemented together.

## Do the scores incorporate behavioral effects?

Our scores partially incorporate behavioral responses. Some direct behavioral effects—like people changing the way they file taxes or use health services because of a policy change—are generally included in the score. For example, were a carbon tax implemented, people would probably reduce the amount of carbon that they emit. This would reduce the amount of tax revenue relative to if people did not react, and this behavioral response is incorporated in the scores. However, other behavioral effects that affect macro variables like the size of the labor force or productivity, and thus spending and tax revenues, are not considered. For instance, improving child care could increase labor force participation, which would increase GDP and thus tax revenues, partially offsetting the cost of the child care improvement. This effect is not considered in the score.

## Our experience

Since its launch in April 2016, the Fiscal Ship has had over half a million players. Google recorded around 22,800 users in April 2019, and we regularly welcome thousands of new players every month. The majority are between the ages 18 and 34, though many players are older. The most frequently picked goals have over time been: invest in the future, fight climate change, and reduce inequality. Some of the most popular policies chosen to win the game include the carbon tax, discouraging companies from moving

overseas, ending tax breaks for fossil fuels, and enacting immigration reform. On average, users who are on the page for more than just a few seconds spend about 15 minutes playing the game. Most play the game on Windows, Macintosh, or Chrome OS (about 70%), but many others play on an iOS or Android device (about 30%).

### What do players learn from the game?

Many people have misperceptions about what the government spends the most money on. People tend to blame the national debt on spending they don't like, or programs that they hear about in the news. A Morning Consult/Politico [poll](#) from early 2017 revealed that many people believe that foreign aid, national defense, and the Affordable Care Act (ACA) contribute a great deal to the national debt. In reality, the federal government spends a lot more on Medicaid, Medicare, and Social Security than on foreign aid and the ACA. The game helps to correct some of these misperceptions, exposes players to a variety of potential policies, and gets players to think about budget policy with more nuance.



The Hutchins Center has hosted several events where group of students (high school, undergrad, graduate) played the Fiscal Ship. Besides expressing surprise about the budgetary impacts of certain policies, several students also said that the game made them think about policies with a different framework, and even changed their position on some policies. For instance, one student said that he had been in favor of increasing the Social Security eligibility age because life expectancies have been rising on average, but he hadn't considered that the policy would disproportionately affect those with shorter life expectancies—i.e. lower-income workers. Playing the game and seeing the impact shifted his position on that. At the end of these events, students often conclude that it was difficult to win the game, and if they succeeded, wondered if those plans they'd crafted were politically feasible.



---

## APPENDIX 1. THE BROADER CONTEXT FOR THIS GAME

The U.S. is in the midst of a demographic transition. Per the Social Security Administration, in 1950, there were 14 people 65 or older for every 100 people between 18-64; by 2030, it will be 36 people 65 and older per 100 aged 18-64. This shift reflects mostly the decline in fertility following the baby boom, as well as continual increases in life expectancy over time. Importantly, although the shift coincides with the retirement of the baby boom generation, the change is expected to be long-lasting, because the fertility rate is projected to stay low for the foreseeable future.

Aging poses a challenge because so much of the federal budget is allocated to Social Security and Medicare, programs that are targeted to the elderly. As aging increases the share of the population over 65, demand for these benefits increases faster than the tax revenues available to pay for them. Rising health costs also present a budgetary challenge. These factors combined mean that Social Security and the health programs increase projected federal spending, and also crowd out other government priorities.

The embedded image below contains a slideshow that may be useful for you to introduce the game. Click the image to launch the slideshow, which you can use/edit as your own resource.



---

# Sailing the Fiscal Ship

*Updated May 2019*

The Fiscal Ship is a product of the [Hutchins Center on Fiscal and Monetary Policy](#) at the Brookings Institution and the [Serious Games Initiative](#) at the Wilson Center. We received grants from the Peter G. Peterson Foundation, the William and Flora Hewlett Foundation, and the Richard Lounsbery Foundation. The funders did not play any role or have any say over the substance of the game. We contracted with 1<sup>st</sup> Playable Productions of Troy, N.Y., to build the game.

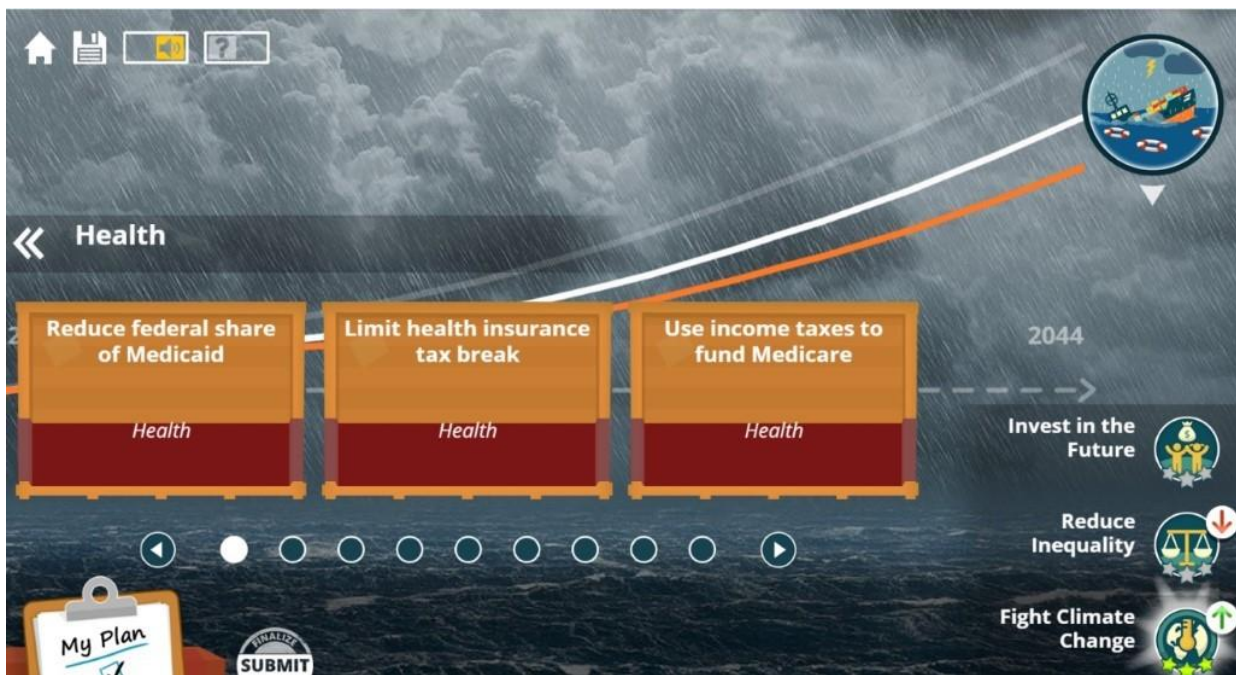


## APPENDIX 2. HOW TO PLAY

The game is easy to play, but here are a few tips that might be useful in introducing it to students or playing it for the first time yourself.

When players first start the game, they choose up to three governing goals, which represent the player's priorities for government, such as fighting climate change, shrinking government, and reducing inequality. To win the game, players must choose from over 100 policies that work towards advancing their governing goals while ensuring that the debt to GDP ratio in 25 years is no higher than it is today.

Players can track their progress on the debt with the debt-to-GDP line in the background. The projection today is the faint white line, and the projection with the player's chosen policies is the solid white line. If a player hovers over a policy card, an orange line will appear, which shows that policy's impact on top of the player's previously chosen policies. To win, the end of the player's line must hit or go below the faint horizontal line marking the debt-to-GDP ratio today. For example, in the picture below, the orange line shows the debt-to-GDP if the player were to pick "Limit health insurance tax break" on top of the previous policies that they have selected (the white line). Players can track their progress towards their governing goals at the bottom-right corner. To win, they must receive three stars for each badge.



---

## APPENDIX 3. PLAYER PROFILES

### Profile #1

Name: Finn | Age: 25 | Job: College Student

#### Governing Goal #1: Invest in the Future

“Invest now for rewards later”  
“Improve our roads and airports”  
“Invest in innovation”

#### Governing Goal #2: Reduce Inequality

“What about the 99%?”  
“We’re too rich to accept poverty”  
“Share the wealth”

#### Governing Goal #3: Fight Climate Change

“Save the planet”  
“Reduce our carbon footprint”  
“Stop global warming”

**What is a governing goal?** Governing goals represent the player’s priorities for government. While there are many other issues or values that may be important to players, we chose three goals to represent **Finn’s** profile:

- **Invest in the Future:** You believe in planting seeds today that will be harvested in years to come. You want policies to increase, above what’s currently projected, government and private investment in children and young adults and in education, infrastructure and research that will pay off in the future. (To reach fiscal sustainability, you’ll have to pay for these somehow.)
- **Reduce Inequality:** The disparity between Americans who have the most and the least income is growing, mirrored by disparities in education, health, and family structure. You want to narrow the widening gaps in incomes and wellbeing at the top and the bottom.
- **Fight Climate Change:** You want to use government policies to promote a cleaner, healthier environment, reduce greenhouse gas emissions and avoid the damage that could be caused by global climate change.

## Profile #2

Name: Sage | Age: 40 | Job: Business Owner

### Governing Goal #1: Shrink Government

“Government is best which governs least”

“End tax and spend!”

“Smaller government = smarter government”

### Governing Goal #2: Tax Cutter

“Keep more of what you earn”

“Tax cuts spur growth”

“Will work harder for lower taxes”

### Governing Goal #3: Rein in Entitlements

“We all need to tighten our belts”

“Good health care shouldn’t cost so much”

“Promote greater self-sufficiency”

**What is a governing goal?** Governing goals represent the player’s priorities for government. While there are many other issues or values that may be important to players, we chose three goals to represent Sage’s profile:

- **Shrink Government:** You believe that we’re better off with a leaner federal government, shifting responsibilities to the private, non-profit and state and local sectors. Spending on general government operations and federal programs (other than health and retirement benefits) is projected under current policy to decline over the next decade. You’d reduce it more.
- **Tax Cutter:** You believe lower taxes will boost economic growth and want to allow Americans to keep more of what they earn. Your goal is to substantially reduce federal tax revenues as a share of the economy. (To reach fiscal sustainability, you’ll have to cut spending, too.)
- **Rein in Entitlements:** Spending on retirement, health and other government benefits, much of that for the elderly, account for two-thirds of non-interest spending today and threaten to squeeze out spending on everything else—from equipping soldiers with modern gear to repairing old bridges to pursuing cures for cancer. You want to restrain this spending to make room for other priorities.



## Profile #3

Name: Jeff | Age: 70 | Job: Feng Shui Consultant

### Governing Goal #1: Protect the Elderly

“Honor our senior citizens”

“Keep our promises”

“Retire with security and dignity”

### Governing Goal #2: Strengthen the Social Safety Net

“Protect the vulnerable”

“A society is only as strong as its weakest link”

“A helping hand to those in need”

### Governing Goal #3: Fight Climate Change

“Save the planet”

“Reduce our carbon footprint”

“Stop global warming”

**What is a governing goal?** Governing goals represent the player’s priorities for government. While there are many other issues or values that may be important to players, we chose three goals to represent **Jeff’s** profile:

- **Protect the Elderly:** Under current policy, about 60% of the increase in federal spending over the next decade will go to Social Security, Medicare, Medicaid and other major health programs, much of that for the growing number of people who will be over age 65. You want to protect benefits for senior citizens.
- **Strengthen Social Safety Net:** You believe it’s important for the federal government to give a hand up to those in poverty and protect those at risk of falling down the income ladder when times are tough. You want to expand and protect programs that protect the vulnerable.
- **Fight Climate Change:** You want to use government policies to promote a cleaner, healthier environment, reduce greenhouse gas emissions and avoid the damage that could be caused by global climate change.

## Profile #4

Name: Vivien | Age: 62 | Job: Radish Farmer

### Governing Goal #1: Protect the Elderly

“Honor our senior citizens”

“Keep our promises”

“Retire with security and dignity”

### Governing Goal #2: Strengthen National Defense

“Peace through strength”

“Protect our global leadership”

“Support our troops”

### Governing Goal #3: Shrink Government

“Government is best which governs least”

“End tax and spend!”

“Smaller government = smarter government”

**What is a governing goal?** Governing goals represent the player’s priorities for government. While there are many other issues or values that may be important to players, we chose three goals to represent **Vivien’s** profile:

- **Protect the Elderly:** Under current policy, about 60% of the increase in federal spending over the next decade will go to Social Security, Medicare, Medicaid and other major health programs, much of that for the growing number of people who will be over age 65. You want to protect benefits for senior citizens.
- **Strengthen National Defense:** Projections of current policies show defense spending, measured as a share of the economy, falling over the next decade and then plateauing. You’d bolster the U.S. military by providing it with more personnel and more arms. (To reach fiscal sustainability, you’ll have to pay for these somehow.)

**Shrink Government:** You believe that we’re better off with a leaner federal government, shifting responsibilities to the private, non-profit and state and local sectors. Spending on general government operations and federal programs (other than health and retirement benefits) is projected under current policy to decline over the next decade. You’d reduce it more.



Hutchins Center  
on Fiscal & Monetary Policy  
at BROOKINGS

The mission of the Hutchins Center on Fiscal and Monetary Policy is to improve the quality and efficacy of fiscal and monetary policies and public understanding of them.

Questions about the research? Email [communications@brookings.edu](mailto:communications@brookings.edu).  
Be sure to include the title of this paper in your inquiry.