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Time Inconsistency: Today's Actions = Tomorrow's Regrets

September 2011

Classroom Edition

An informative and accessible economic essay with a classroom application.

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*Prepared by the Economic Education Group of the
Federal Reserve Bank of St. Louis*



Time Inconsistency: Today's Actions = Tomorrow's Regrets September 2011

"A budget tells us what we can't afford, but it doesn't keep us from buying it."
—William Feather

Have you ever bought something you really couldn't afford? You simply swipe your credit card and leave the store with something shiny and new. That instant gratification overpowers any thought of the regret you'll have when you must start paying off your accumulated debt. Economists call this phenomenon *time inconsistency*. An individual with time-inconsistent preferences pursues happiness today even if it results in unhappiness tomorrow. Consequently, he will make decisions that do not maximize lifetime satisfaction (i.e., utility).¹ In "econ speak," a person with time-inconsistent preferences values the present more than the future. Accordingly, he will make decisions with a present bias, choosing what makes him happy in the moment. Thus, time inconsistency can be understood as the inability to consistently follow a good plan over one's lifetime.

Let's return to the shopping example. Even though you know that in the long-run you will have to work more hours and/or sacrifice other fun activities to pay your credit card bill (and the act of paying off that debt does not make you happy), showing off your new purchase maximizes your utility today.

Although this example describes time inconsistency using microeconomics, this concept also applies to macroeconomics. For example, just this summer, the government debated whether to raise the debt ceiling (the legal maximum amount the federal government can borrow) and how to implement policies to reduce future budget deficits. Ultimately, Congress voted to raise the debt ceiling without immediately reducing the deficit. This plan implies the government will neither have to cut spending on current programs nor raise taxes in the short run. The new law is most beneficial to policymakers today: They can continue to provide for their constituents just as before, thereby increasing their chances of re-election. In the long run, however, taxpayers will still have to repay the debt.² Thus, raising the debt ceiling will likely make politicians unhappy in the long run because of the political risks associated with increasing taxes and/or cutting government programs.

On the other hand, if Congress had voted to maintain the debt ceiling and reduce the budget deficit, the government would have had to cut current spending, raise taxes, or some combination of the two. Doing so would have made most politicians unhappy in the short run because cutting programs and/or raising taxes could risk their re-election and possibly hinder economic growth. In the long run, maintaining the debt ceiling could have resulted in more sustainable budgeting choices and programs in the future.

So how can individuals and governments maximize lifetime utility in the face of time inconsistency? Rather than making decisions with discretion—that is, selecting a course of action once a situation occurs—economists propose enacting credible rules—that is, mandating a predefined action/plan for a given situation. For our shopping example, a cash-only rule or a credit card with a lower spending limit may have prevented a splurge. In the case of the debt ceiling, a balanced-budget rule (as many state governments have) may have prevented the debt ceiling crisis. Using credible rules (e.g., enforcing a strict personal spending limit or a federal debt ceiling that cannot be raised) forces people to commit to certain actions. As a result, they will act in a more time-consistent manner: Their decisions today will take into account their future happiness.

—By E. Katarina Vermann, Research Analyst

¹ In contrast, a person with time-consistent preferences chooses what makes him happy today and tomorrow. These choices maximize lifetime utility (satisfaction).

² The government always has the option of defaulting on its future debt by monetizing the deficit (printing more money) and generating higher inflation. This option would also be suboptimal.

Articles on Time Inconsistency

[“Like There’s No Tomorrow: How Economists Think About Procrastination.”](#) by Ray Fisman. *SLATE*, Thursday, May 15, 2008.

This article discusses specific ways to overcome procrastination (a time-inconsistent behavior).

[“Time Inconsistency.”](#) by Greg Mankiw. *Random Observations for Students of Economics* (blog), Wednesday, April 19, 2006.

This blogpost discusses the time inconsistency of government policy and the need for fixed policy rules.

[“Rules vs. Discretion: The Wrong Choice Could Open the Floodgates.”](#) by Jason Buol and Mark Vaughan. Federal Reserve Bank of St. Louis *Regional Economist*, January 2003.

This article discusses (i) how discretionary policy can lead people to make poor choices in expectation of a government bailout and (ii) the need for policy rules to enable the outcome demanded by the public in the short run to be consistent with that desired in the long run.

Free Resources

Resource: “Political Negotiations Also Shaped by Human Psychology,” by Shankar Vedantam. *Morning Edition* news story (audio), July 28, 2011

Description: A psychological look at the debt-ceiling debate.

Published by: National Public Radio, *The Two-Way*, NPR’s News Blog

Location: www.npr.org/blogs/thetwo-way/2011/07/29/138802290/political-negotiations-also-shaped-by-human-psychology

Resource: Budget Hero

Description: An interactive game that allows the user to decide use of tax dollars based on the budget model and forecasts in the Congressional Budget Office “CBO’s 2011 Long-Term Budget Outlook.”

Published by: American Public Media, Minnesota Public Radio

Location: http://minnesota.publicradio.org/projects/2008/05/budget_hero/

Resource: “Q. & A. on the Debt Ceiling,” by Michael Cooper and Louise Story, *New York Times*, July 27, 2011

Description: Explains the implications of the debt ceiling and includes explanatory charts and the video “The History of the Debt Limit.”

Published by: *New York Times*

Location: www.nytimes.com/2011/07/28/us/politics/28default.html?ref=nationaldebtus

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Federal Reserve Bank of St. Louis *Liber8*:
“Time Inconsistency: Today’s Actions = Tomorrow’s Regrets”

After reading the noted article, answer the following questions.

1. According to economists, what does it mean to have a “present bias” when making decisions?

Examine the cost/benefit analysis in the table below then answer the questions.

Type of Spending	Present Benefit	Payment Method	Future Cost
Shopping spree	Goods/services now (instant gratification)	Borrowed money (credit card)	Purchase price plus accumulated interest
Government deficit spending	Goods/services now	Borrowed money	Purchase price plus accumulated interest

2. Explain how present bias and available credit (borrowed money) may lead to problems in the future.

3. How would limited access to credit change spending? How does the debt ceiling accomplish this?

4. How would a deficit-reduction plan, such as a balanced-budget rule that mandates government revenues equal expenditures, force Congress to consider the future as well as the present?

Teacher's Guide

Federal Reserve Bank of St. Louis *Liber8*: "Time Inconsistency: Today's Actions = Tomorrow's Regrets"

After reading the noted article, answer the following questions.

1. According to economists, what does it mean to have a "present bias" when making decisions?

Those with a present bias will choose what makes them happy in the moment because they value the present more than the future.

Examine the cost/benefit analysis in the table below then answer the questions.

Type of Spending	Present Benefit	Payment Method	Future Cost
Shopping spree	Goods/services now (instant gratification)	Borrowed money (credit card)	Purchase price plus accumulated interest
Government deficit spending	Goods/services now	Borrowed money	Purchase price plus accumulated interest

2. Explain how present bias and available credit (borrowed money) may lead to problems in the future.

Knowing that money is available now may result in the purchase of more goods and services than can be reasonably repaid in the future. Because of accumulated interest on the unpaid balance, the cost of today's purchases will exceed the purchase price; the cost will continue to accumulate until the bill is paid in full.

3. How would limited access to credit change spending? How does the debt ceiling accomplish this?

If credit were limited, spenders would be forced to limit their purchases of goods and services now. Less money would be borrowed and fewer goods and services purchased. The debt ceiling is the legal maximum amount the federal government can borrow. Once the debt ceiling is reached, Congress must raise it before the government can borrow any more. Thus, the debt ceiling is intended to limit spending.

4. How would a deficit-reduction plan, such as a balanced-budget rule that mandates government revenues equal expenditures, force Congress to consider the future as well as the present?

With a balanced-budget rule, Congress would be forced to reduce government spending, increase taxes, or both. There would be no (additional) accumulated debt to repay in the future.

Teacher note: Many economists dislike the idea of a balanced-budget rule because it would force governments to reduce government spending and/or raise taxes during recessions rather than provide economic stimulus.

For Further Discussion

Read the following to your students and lead a discussion using the questions provided.

When thinking about personal finances, it is helpful to look at total household debt as a percentage of income. It would not be wise for someone with a low income to take out a \$200,000 mortgage, but a person with a higher income may be able to handle that level of debt with ease. So looking at debt in relationship to income is important. As a household's income grows, it can feasibly handle higher levels of debt. Likewise, as a country's economy grows, it can feasibly handle higher levels of debt. As long as the economy grows at least as fast as the debt, the debt-to-income ratio will not increase. One measure of national income is gross domestic product (GDP), the market value of all final goods and services produced within a country's borders in a year. [The graph](#) shows the total government debt expressed as a percent of GDP.

The gray bars in the graph indicate economic recessions. What is the relationship between recessions and the federal debt as a percent of GDP?

The federal debt as a percent of GDP tends to rise during recessions.

Why might government debt increase during recessions?

During recessions, more people may qualify for government assistance programs such as unemployment benefits and food stamps. Also, the government may boost spending or cut taxes as part of an economic stimulus plan. (The stimulus is intended to create jobs and boost the economy.) Because unemployment often rises during recessions, less revenue from income tax and payroll tax revenues is collected.

What happened in the 1940s to cause debt to rise to such high levels?

World War II

What was the 2010 debt as a percent of GDP? What is the recent trend?

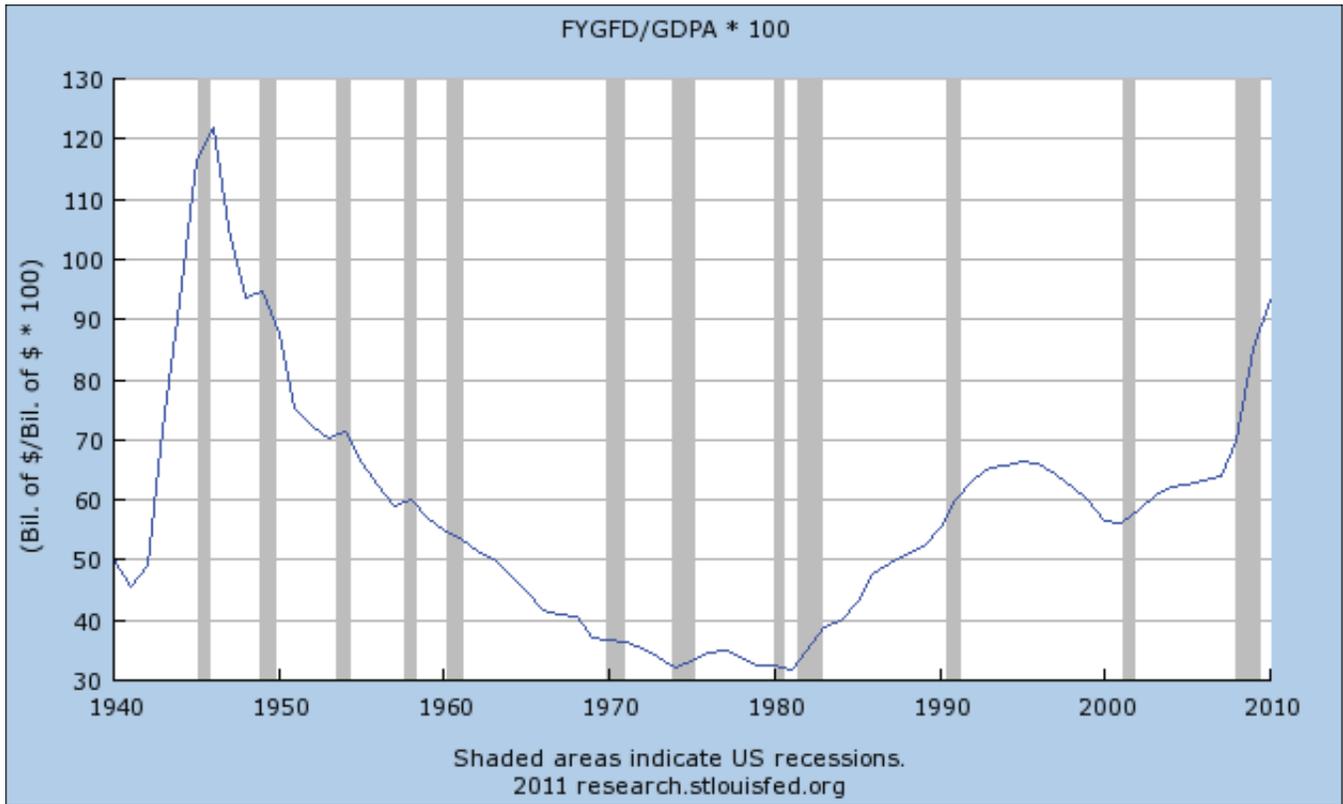
In 2010, debt as a percent of GDP was 93 percent. The recent trend shows a dramatic increase since 2001, when total debt equaled 56 percent of GDP.

Economists are concerned about the level of national debt not only because it must be paid by future generations, but also because research indicates there is a negative correlation between debt-to-GDP ratios and average economic growth. Countries with low debt-to-GDP ratios tend to have the highest rates of economic growth.¹ How would slower future growth as a result of debt make repaying the debt more difficult?

Slower economic growth means that national income (GDP) would rise at a slower rate. If incomes grow at a slower pace, so will the tax revenues generated by that income. Unless the debt were to grow at a slower pace also, the debt-to-GDP ratio would rise over time.

¹ Kliesen, Kevin L. and Thornton, Daniel L. "The Federal Debt: Too Little Revenue or Too Much Spending?" Federal Reserve Bank of St. Louis *Economic Synopses*, No. 20, July 7, 2011; <http://research.stlouisfed.org/publications/es/11/ES1120.pdf>.

Total Federal Debt as a Percent of GDP



NOTE: The graph uses gross, or total, government debt rather than publicly held debt. The difference is intragovernmental holdings. For the currency-to-the-penny debt total, see www.treasurydirect.gov/NP/BPDLogin?application=np. FYGFD, fiscal year gross federal debt; GDPA, gross domestic product (annual).