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Do Assassinations Change History?

Do assassinations change history? It's a tangled question, given the many political, military, socioeconomic, and other forces at work. But a new study suggests that political assassinations can change the course of individual nations.

"We find that assassinations of autocrats produce substantial changes in the country's institutions, while assassinations of democrats do not," conclude authors **Benjamin Jones** and **Benjamin Olken** in **Hit Or Miss? The Effect of Assassinations on Institutions and War** (NBER Working Paper No. 13102). They also find that the killing of leaders intensifies small-scale conflicts but may hasten the end of large-scale ones. Their analysis demonstrates a violent means through which societies democratize, and more generally illustrates the important role of individual leaders in shaping institutions and conflict. The analysis further suggests the key role that random events — such as whether a bullet hits or misses its target — can play in shaping events.

One of the startling findings in this paper is how common assassinations are. The authors focus narrowly on nations' leaders — the most powerful individual within a given country. They don't include in their study "coup d'etats," where a group kills the head of state in order to seize power. Also, they only look at "serious" attempts on leaders' lives — incidents where the weapon was actually discharged. (Note: Guns are the most frequently used and effective weapons; bombs are also frequently used but are not very effective, the study finds.) Even with all those restrictions, there have been 298 serious assassination attempts on leaders worldwide since 1875, the authors calculate. Of those, only a fifth (59) succeeded.

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The number of political assassinations has risen to record levels in recent decades. A national leader has been assassinated in nearly two of every three years since 1950, according to the study. But that's mostly a factor of there being so many more independent countries than a century ago. Individually, leaders are safer than they were a century ago, the authors write. "At the peak in the 1910s, a given leader had a nearly 1 percent chance of being assassinated in a given year; today, the probability is below 0.3 percent."

Given the difficulty of separating cause and effect in history, one innovation of this paper is the development of a method for analyzing whether assassinations actually cause change. To do this, the authors compare successful assassinations with failed assassination attempts. Their key assumption is that, once the weapon is actually engaged (the gun fired, the bomb detonated), whether the attempt succeeds in killing the leader is driven largely by chance. To validate this assumption, the authors show that, once the weapon is discharged, death or survival is largely unrelated to features of the attack (other than weapon) or the situation of the country at the time of the attack. That being the case, they use failed attacks as a "control group" for successful attacks and ask whether national outcomes differ substantially depending on the result of the attack.

Their findings are striking: A country whose autocrat is assassinated is 13 percentage points more likely to move toward democracy in the following year than is a country where the assassination attempt on the autocrat failed, the authors calculate. Also, the successful assassination of an autocrat is 19 percentage points more likely than a failed attempt to lead to subsequent leadership changes being made through regular, institutional means. These effects are not

just short-term changes. They're still seen a decade or more later.

Assassinations also have an effect on conflict, at least in limited contexts. The researchers find that successful assassinations lead to an intensification of small-scale conflicts and, perhaps, hasten the end of large-scale conflicts. Of course, the authors note, these findings are based on the differences between failed and successful attempts. Thus, it's difficult to tell whether the observed phenomena are caused by successful assassinations, failed assassinations, or both.

To gain some insight into which type of outcome — success or failure — tends to matter, this study includes additional analysis using a method called propensity-score matching. Though less conclusive, that analysis backs up the commonsense notion that successful assassinations have a much bigger impact than failed ones. However, there are some signs that failed attempts trim the chances of a move toward democratization somewhat, perhaps because autocrats can crack down on opposition movements after a failed assassination attempt.

Besides providing evidence for certain theories of democratization, institutional change, and war, this study emphasizes how random events can lead to profound change. "Had Hitler lingered 13 minutes longer in a Munich beer hall in 1939, he would likely have been killed by a waiting bomb," the authors write. "Our tests provide evidence that small elements of randomness — the path of a bullet, the timing of an explosion, small shifts in a leader's schedule — can result in substantial changes in national outcomes."

They conclude: "Whether or not assassinations change 'the history of the world' in [British statesman Benjamin] Disraeli's words, they do appear to change the history of individual countries."

— Laurent Belsie

401(k) Plans, Lifetime Earnings, and Wealth at Retirement

In 1980, 92 percent of contributions to retirement saving plans in the United States were directed to traditional employer-controlled defined benefit pension plans. By 2000, 87 percent of such contributions went into to plans controlled by employees — either defined contribution plans or one of the many tax-deferred accounts that have been created in the last 30 years, including 401(k), 403(b), and section 457 plans, as well as Individual Retirement Accounts.

In 2000, per capita assets in these personal retirement plans for people retiring at age 65 averaged about $29,700. By 2020, they are projected to average nearly three times that amount in year-2000 dollars, and by 2040, $269,000 in year-2000 dollars. Most of the increase in the next two decades is the result of an ongoing rise in the percentage of their career for which retirement-age workers have been eligible for 401(k) plans, rather than the further diffusion of 401(k) plans.

In short, over the next 35 years the individual retirement savings of the average 65-year-old will rise sharply. Self-directed retirement assets will become more important than defined-benefit pension plans by 2010, even though traditional defined benefit pensions remain the most important source of retirement assets for federal, state, and local employees.

This analysis is based on projections detailed in two papers: **Rise of 401(K) Plans, Lifetime Earnings, and Wealth at Retirement** (NBER Working Paper No. 13091) and **New Estimates of the Future Path of 401(K) Assets** (NBER Working Paper No. 13083), by **James Poterba**, **Steven Venti**, and **David Wise**. The authors identify a number of factors that will be key determinants of future retirement assets, including the diffusion rate of 401(k) plans to employees who are not currently covered by such plans and the rates of return on stocks and bonds. The benchmark case in both studies assumes that past rates of 401(k) diffusion slow prospectively, that investments in corporate stock generate an average return 3 percentage points below their historical average return, that bonds generate their historical returns, and that retirement savers direct 40 percent of their contributions to bonds and 60 percent to stocks.

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The authors use the Survey of Income and Program Participation (SIPP) to estimate the eligibility for and participation in 401(k) plans for individuals in detailed age-earnings categories. The SIPP data suggest that in 1984, only 5.8 percent of 44-years-old had 401(k)-type accounts. Nineteen years later, in 2003, 44-year-olds had a participation rate of 44.3 percent.

In 1984, 55.5 percent of eligible families with heads aged 30–34 participated in a 401(k)-type plan. By 2003, the participation rate was 80.7 percent. Participation rates vary as a function of earnings. On average, 17.1 percent of those in the lowest earnings decile in 2003 participated in individual retirement savings plans; for the highest earnings decile, the average was 67.2 percent.

The authors combine the SIPP data with information from the Health and Retirement Study (HRS), which includes Social Security earnings records and makes it possible to estimate 401(k)-type contributions by age and earnings cohorts. The authors assume that the combined employer and employee contribution rate to these plans is 10 percent of earnings. They also recognize the possibility that individuals withdraw assets from the 401(k) system with a lump sum distribution when they change jobs. Both the contribution rate and the rate of "leakage" from the 401(k) system through such withdrawals play an important role in determining future accumulations in self-directed retirement plans.

— Linda Gorman

Tax Increases Reduce GDP

How do changes in the level of taxation affect the level of economic activity? The simple correlation between taxation and economic activity shows that, on average, when economic activity rises more rapidly, tax revenues also are rising more rapidly. But this correlation almost surely does not reflect a positive effect of tax increases on output. Rather, under our tax system, any positive shock to output raises tax revenues by increasing income.

In **The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks** (NBER Working Paper No. 13264), authors **Christina Romer** and **David Romer** observe that this difficulty is just one manifestation of a more general problem. Changes in taxes occur for many reasons. And, because the factors that give rise to tax changes often are correlated with other developments in the economy, disentangling the effects of the tax changes from the effects of these underlying factors is inherently difficult.

To address this problem, Romer and Romer use the narrative record — Presidential speeches, executive-branch documents, Congressional reports, and so on — to identify the size, timing, and principal motivation for all major tax policy actions in the post-World War II United States. This narrative analysis allows them to separate revenue changes resulting from legislation from changes occurring for other reasons. It also allows them to classify legislated changes according to their primary motivation.

"Tax changes have very large effects: an exogenous tax increase of 1 percent of GDP lowers real GDP by roughly 2 to 3 percent."

Romer and Romer find that despite the complexity of the legislative process, most significant tax changes have been motivated by one of four factors: counteracting other influences on the economy; paying for increases in government spending (or lowering taxes in conjunction with reductions in spending); addressing an inherited budget deficit; and promoting long-run growth. They observe that legislated tax changes taken to counteract other influences on the economy, or to pay for increases in government spending, are very likely to be correlated with other factors affecting the economy. As a result, these observations are likely to lead to biased estimates of the effect of tax changes.

Tax changes that are made to promote long-run growth, or to reduce an inherited budget deficit, in contrast, are undertaken for reasons essentially unrelated to other factors influencing output. Thus, examining the behavior of output following these relatively exogenous tax changes is likely to provide more reliable estimates of the output effects of tax changes. The results of this more reliable test indicate that tax changes have very large effects: an exogenous tax increase of 1 percent of GDP lowers real GDP by roughly 2 to 3 percent.

These output effects are highly persistent. The behavior of inflation and unemployment suggests that this persistence reflects long-lasting departures of output from its flexible-price level, not large effects of tax changes on the flexible-price level of output. Romer and Romer also find that the output effects of tax changes are much more closely tied to the actual changes in taxes than to news about future changes, and that investment falls sharply in response to exogenous tax increases. Indeed, the strong response of investment helps to explain why the output consequences of tax changes are so large.

Romer and Romer also examine the behavior of output following changes in other measures of taxes. Using broader measures of tax changes, such as the change in cyclically adjusted revenues or all legislated tax changes, the estimated output effects are substantially smaller

than those obtained using the new measure of exogenous tax changes. This leads the researchers to conclude that failing to account for the reasons for tax changes can lead to substantially biased estimates of the macroeconomic effects of fiscal actions.

When they consider the two types of exogenous tax changes separately, Romer and Romer find suggestive evidence that tax increases to reduce an inherited budget deficit have much smaller output costs than other tax increases. This is consistent with the idea that deficit-driven tax increases may have important expansionary effects through expectations and long-term interest rates, or through confidence.

Romer and Romer find interesting changes in the motivations for tax changes over time. Countercyclical changes were frequent from the mid-1960s to the mid-1970s, but were unheard of before that time and from the mid-1970s until 2001. Tax changes motivated by spending changes were commonplace in the 1950s, 1960s, and 1970s, but have virtually disappeared since then. Tax increases to address inherited deficits were common from the late 1970s to the early 1990s, but rare before and after this period. Only tax changes motivated by long-run considerations have been a constant feature of the fiscal landscape since World War II.

This analysis might be extended to investigate the importance of the characteristics of tax changes for their macroeconomic effects. There are strong reasons to expect the effects of a tax change on output to depend on such features as its perceived permanence, its impact on marginal tax rates, and how it affects the tax treatment of investment. Romer and Romer plan to extend their analysis to see if the output consequences of tax changes depend not only on their size, but also on these other characteristics.

— Les Picker

Does Globalization Weaken Monetary Policy?

Today there is a growing unease, even among some proponents of globalization, that the increasingly free flow of goods and capital around the globe may be eroding the ability of central banks to accomplish one of their most vital tasks: controlling inflation within their national borders. But in **Globalization and Monetary Control** (NBER Working Paper No. 13329), NBER Research Associate **Michael Woodford** concludes that, although globalization certainly poses new challenges, central banks large and small still retain considerable power to keep inflation in check.

After constructing many hypothetical situations and subjecting each to a complex array of technical analyses, Woodford consistently finds that central banks can continue to pull a variety of policy levers that will prevent inflation from ravaging their economies. "I find it difficult to construct scenarios under which globalization would interfere in any substantial way with the ability of domestic monetary policy to maintain control over the dynamics of domestic inflation," he writes, noting that the banks' power remains substantial even when one considers "extreme theoretical possibilities" that assume much greater levels of integration than exist today.

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Woodford also rejects the argument put forth by some of his colleagues that central banks remain relevant in the new order, but that their ability to tamp down inflation is increasingly restricted to situations in which they act in concert. He notes that this assumption, left unchallenged, could be used as a "strong argument" for developing formal agreements among central banks to coordinate policy, or to go so far as to pursue global monetary union. But he believes there is no need for such radical changes when there is no indication that central banks have been rendered impotent as individual economic actors, and a considerable amount of evidence to the contrary.

In each situation Woodford examines, standard macroeconomic calculations show that a central bank intervention should be able to control domestic inflationary pressures, despite increasingly large global flows of capital and goods. For example, Woodford notes that there is a common conception, or *misconception*, that in globalized financial markets, any inflation caused by excess "liquidity" — basically a situation in which there is an overabundance of money in search of investments — will be determined solely by global, not national, forces. Therefore, so the thinking goes, individual central banks will be powerless to do anything about it, particularly in the case of small countries that "supply a small portion of global liquidity."

But Woodford disagrees. He notes, for example, that while the

inflationary pressure may come from across the border, the central bank — regardless of a country's size — can use its ability to adjust domestic interest rates within its border to counteract the effect. It need not retreat from its path toward economic integration.

Similarly, Woodford shows that *domestic* savings and investment rates — and, most important, the monetary policies that influence them — remain significant determinants of inflation and are not subordinate to *global* savings and investment rates. And, he refutes the notion that as international trade in goods and services increases, domestic economies inevitably will face inflation whenever world demand exceeds world production capacity. Woodford's analysis shows that domestic policies to combat domestic inflation "swamp the effects of world inflation."

"Even in the case of a very small open economy, monetary policy does not cease to be effective for domestic inflation control as a result of globalization," he said. Woodford acknowledges that global economic integration is not irrelevant to the conduct of domestic monetary policy. For example, he notes that in an open economy, policymakers must now decide whether they should take action to stabilize "an index of domestic prices only or an index of prices of all goods consumed in the domestic economy."

But while globalization certainly should prompt adjustments in policies and approaches, Woodford does not believe it should be cause for alarm. And, he sharply disagrees with economists who argue that globalization means the "old models" of monetary policy no longer apply. Moreover, he believes policymakers should not be allowed to evade responsibility for controlling domestic inflation by blaming "implacable global market forces" that are beyond their control.

"It is true that, in a globalized economy, foreign developments will be among the sources of economic disturbances to which it will be appropriate for a central bank to respond," Woodford states. "But there is little reason to fear that the capacity of national central banks to stabilize domestic inflation ... will be weakened by increasing openness of national economies. Thus it will continue to be appropriate to hold national central banks responsible for domestic inflation outcomes."

— Matthew Davis

Stocks Rise Around Earnings Announcements

It has long been observed that when firms announce their quarterly earnings, as they are required to do, considerable price volatility and increases in trading volume are evident. In addition, on days around earnings announcements, stock prices usually rise. In **The Earnings Announcement Premium and Trading Volume** (NBER Working Paper No. 13090), **Owen Lamont** and **Andrea Frazzini** explore why these phenomena occur. They hypothesize that the predictable rise in stock prices is driven by the predictable rise in volume generated by earnings announcements. They go on to show that the premium is strongly correlated with the concentration of trading activity around previous earnings announcements, and that stocks with high volume around earnings announcements in particular subsequently have both high premiums and high imputed buying by individual investors. This suggests that, at least for some stocks, prices are boosted around announcement dates by demand from individual buyers.

"On days around earnings announcements, stock prices usually rise."

In general, of course, stocks tend to rise on high volume and to decline on low volume, but Lamont and Frazzini say that whether this happens because of the interpretation of the announcements or because of irrational or random traders is uncertain. What may well be in play is that certain earnings announcements simply "grab attention," with the result that individual investors are motivated to buy in.

The researchers focus on this "attention-grabbing" hypothesis, because stocks that make news — whether good, bad, or neutral — have both high volume and high net buying by individuals. Lamont and Frazzini note that arbitrageurs might be expected to eliminate this anomaly, but this would require substantially increased trading activity, which is costly. In addition, the highly idiosyncratic volatility around earnings announcements could deter traders who, for whatever reason, cannot sufficiently diversify. If idiosyncratic risk is somehow preventing arbitrage activity, then in this limited sense the premium may be viewed as a reward for bearing risk. Lamont and Frazzini see evidence that arbitrageurs in fact do trade to eliminate the premium. Prior to the announcement, there are high, imputed buys from large investors. This suggests that arbitrageurs are trading on the anomaly, but simply have not yet eliminated it. Whatever the case, because earnings announce-

ments occur frequently and regularly and generate substantial volume, they provide a good opportunity for testing whether volume drives returns, and especially whether predictable volume generates predictable returns.

Lamont and Frazzini correlate earnings announcement dates, as compiled by Compustat, with data on all common stocks recorded by the Center for Research in Security Prices between January 1972 and December 2004. (Data are incomplete for some stocks in some years.) Lamont and Frazzini consider monthly data and expected announcement months in order to have wide windows on buying activity. This also means that issues related to the timing of the announcements or changes in liquidity around the announcement dates are unlikely to be of significance in the analysis.

The researchers demonstrate that the strategy of buying every stock expected to announce within the coming month and shorting every stock not expected to announce yields a return of over 60 basis points per month. The announcement premium is thus substantial, particularly among large cap securities, lasts about four weeks, and is evident in samples going back to 1927. At the same time, stocks with the largest predicted volume increases in announcement months, as forecast by a high concentration of past trading activity around earning announcements, tend to have higher subsequent premiums. These stocks also tend to have the highest imputed buying around announcement dates by small investors.

Lamont and Frazzini add that the evidence increasingly shows that individual investors seem to make uninformed trading decisions. In line with the attention-grabbing hypothesis, whereby individual investors are likely to buy stocks that seize their attention on the strength of earnings announcements, small-investor buys (as proxied by small buyer-initiated trades) soar on announcement day. This is especially so for securities where most of the past trading activity was concentrated around announcements. One explanation for these phenomena is that some securities attract small attention-constrained investors around earnings announcement dates. Since such investors rarely sell short, the predictable rise in volume boosts prices around announcement dates, thus generating a seasonal component in the stock's expected return.

These results fit with the broader research on the connection between trading activity and prices. Elements such as liquidity, information flow, heterogeneous beliefs, and short sale constraints arguably are all important in understanding this connection. Lamont and Frazzini's findings impose an additional requirement on any theory attempting to connect volume and prices. Any hypothesis, the researchers assert, must now explain why highly predictable volume leads to highly predictable returns. Their likely explanation is uninformed or irrational demand by individual investors, coupled with imperfect arbitrage by informed traders.

— Matt Nesvisky

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