Vital Statistics:
Births, Deaths, Immigration, and Political Change

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Abstract

The purpose of this study is to measure as accurately as possible the rate of electoral replacement in the United States for the postwar period of 1950-2000. For these estimates I rely on the decennial censuses for the period and official statistics on births, deaths, and naturalization. I then consider three types of consequences: The first is changes in party alignments and macropartisanship. This is an example of a political value that remains quite constant over individual's life course. Any change in overall sentiment would therefore depend principally on generational replacement. The second is voting turnout, which exhibits the opposite pattern. Changes in turnout vary systematically as people age, and generational replacement has had remarkably little effect on turnout patterns. The third is public opinion on abortion. Abortion attitudes are distinctive, perhaps unique, among political and religious values in the United States. The cultural transmission of abortion values is so strong that the attitudes of incoming generations mirror those of the oldest cohorts. The balance of attitudes on abortion is resistant to either aging effects or generational replacement.

Does the physical replacement of the electorate serve to accelerate or to brake the rate of political change? It might seem the latter. After all, an American who reaches voting age can now expect to live to 78 and thus to be eligible to vote in 15 presidential elections. In a period in which 17 percent of the electorate is 65 or older, one imagines that a long-lived electorate would numerically dwarf the number of citizens who become newly age-eligible to vote in presidential elections. From this perspective, the gradual, even glacial, pace of the replacement of voters would suggest that the physical continuity of voters would restrain political change unless individual conversions of political beliefs and partisanship are widespread. However, if the opposite is true and the replacement rate is higher than supposed, an alternate question arises: how are political cultures and long-term partisan alignments sustained if the individuals holding the dominant political views are being rapidly replaced?

The purpose of this study is to measure as accurately as possible the rate of electoral replacement in the United States for the postwar period of 1950-2000. For these estimates I rely on the six decennial censuses for the period and official statistics on births, deaths, and naturalization. I then assess the consequences of electoral replacement for partisan realignments, voting turnout, and a culturally grounded attitude, abortion.

The genesis of this project is David Butler's and Donald Stokes' landmark study, *Political Change in Britain* (1969). Butler and Stokes examined the sources of electoral change across the three British elections of 1959, 1963, and 1966. They were impressed by the role of individual conversion in electoral shifts (p. 293)

> The most notable feature of the shifts in individual preference is their sheer volume. Our evidence indicates that the movements of party strength between successive elections may involve a turnover of something like a third of the electorate. Indeed in the three intervals of change that we have examined in the 1960s, there were never more than seven-tenths of the public positively supporting the same party at two successive points of time; the fraction remaining steadfast through several successive intervals of change was even smaller. Such figures indicate how widely the sources of change are dispersed through the electorate. Electoral change is due not to a limited group of 'floating' voters but to a very broad segment of British electors.

With the advantage of panel surveys of the same respondents over time, Butler and Stokes decomposed individual voting shifts across two elections into five patterns: straight conversion between the two major parties, circulation of supporters of minor parties, differential turnout, the entry of newly eligible voters in the second election, and the death of voters between the elections. Särlvik and Crewe (1983) extended this analysis for all of the British elections from 1959-1979. Boyd (1985) replicated these sources of electoral change for the American elections of 1960-1980.

The rate of the physical replacement of the American electorate was higher during the 1960-80 period that I had initially supposed. About five percent of the electorate died in the four-year interval between elections, and about 10 percent of the electorate were

newly age-eligible between successive elections. The 26th Amendment added an additional 8 percent of the electorate in 1972. Without considering the additional effects of naturalization, I concluded (p. 523), "The combined effect of these actuarial cycles is to change the composition of the electorate very rapidly. Less than half of the 1980 electorate was eligible to vote in 1968." The rate of physical replacement in the UK was also high during this period.

Actuarial change does not always have commensurate political consequences. In the U.S. conversion between the major parties accounted for about 75 percent of the net inter-election vote shifts from 1960 to 1980, compared to less than 10 percent for electoral replacement. The high rate of physical replacement of the electorate had notably small consequences for inter-election vote shifts in the U.S. In Britain, conversion between the major parties played a far smaller role in inter-election vote shifts, and physical replacement more than in the U.S.

If a high rate of electoral replacement has different consequences for short-term, inter-election shifts in the U.S. and Britain, our attention is drawn to some important demographic questions: How variable are rates of births, deaths, and naturalization in the United States in the last century? How long does it typically take in the United States to replace the electorate by half, for example? I begin with graphs with the patterns of birth and death rates.

U.S. Birth Rates

(Figure 1 About Here)

Figure 1 (right side Y axis) displays the fertility rate per 1,000 women aged 15-44 over the 20th century. From a stable rate of over 125 live births per 1,000, the fertility rate dropped steadily from 1922 to about 1931. The rate remained stable at about 80 during the Great Depression, and then began to increase again from about 1941 through 1956, the period we now term the postwar baby boom generation. At the height of the baby boom, the fertility rate was as high as in the early 20th century. Another steep decline in fertility rates followed the baby boom years from about 1957 to 1977, when the fertility rates again stabilized at about 60, half the peak rates of the early 20th century and the postwar baby boom period. Fertility rates have been remarkably volatile across the 20th century.

These patterns mean that high proportions of newly age-eligible voters entered the electorate from about 1921-1942, followed by declining proportions from 1943 to 1952. The proportions of new voters remained low until about 1961, when the baby boom generation began to enter the electorate in high numbers. This quadrennial increase in new voters continued until about 1977 when the proportion of new voters again began to fall, reaching a low and stable rate in 1996. This rate will likely remain low through 2018 at least.

Death Rates

In contrast to the volatility of U.S. fertility rates, the life expectancy of the electorate has increased steadily across the 20th century. As Figure 2 shows, the life expectancy for a 20 year old person increased from 63 in 1900 to 71 in 1950 and to 78 in 2003. Thus, a person coming of voting age in 2000 has a life expectancy that is 15 years longer newly age-eligible citizens in 1900 and seven years longer than in 1950. A current newly age-eligible citizen can expect to vote in almost four more presidential elections than his or her counterpart in 1900.

One might imagine that this increasing longevity would significantly lower the rate of electoral replacement. However, the increasing proportion of the electorate who are in their retirement years puts them literally at mortal risk. About four to five percent of the electorate die between presidential elections.

(Figure 2 Goes About Here)

Immigration, Emigration, and Naturalization

A third set of data on electoral replacement are the adults who become naturalized citizens between national elections. Changing immigration and naturalization laws have determined the number and national origin of those who are permitted to immigrate legally and who later gain the status of naturalized citizens. The 1924 National Origins Act and the Nationality Act of 1952 both limited the number of legal immigrants and favored those of European Origin. As Table 1 shows, the number of legal immigrants and naturalizations dropped sharply in the 1930s and even more after the 1952 Act. The Immigration and Nationality Act Amendments of 1965 abolished the national origins quota system. The Immigration Reform and Control Act of 1986 created a process to grant amnesty to illegal immigrants residing in the U.S., and the Immigration Act of 1990 adjusted admissions and employment-based entry categories. (See the many publications of the Migration Information Institute at the University of Minnesota.)

(Table 1 Goes About Here)

As we shall shortly see, these immigration policies have created two distinctive demographic profiles among naturalized citizens. By 1950, naturalized citizens were not only predominately European in origin, they were also older than their native-born counterparts. Naturalized citizens in the 1950, 1960, and 1970 censuses were about 14 years older on average than native-born citizens. About half (3.8 million) of all of the naturalized citizens in 1950 died by 1970. This death rate was so high that the total number of naturalized citizens declined by 21 percent from 1950 to 1970, even with the addition of newly naturalized citizens. In contrast, those naturalized after 1950 are not only more ethnically diverse and increasingly Hispanic in origin, they also more similar native-born adults in their age distribution. For a closer examination of new immigrants, see Passel (2007).

A final piece of the electoral replacement puzzle are citizens who permanently emigrate. This number can only be estimated, but the Bureau of the Census presumes it is small, perhaps 48,000 annually (Fernandez 1995). Since we cannot estimate accurately the age distribution of those who emigrate, I have combined my estimates of those who die with those who emigrate between decennial censuses or presidential elections.

The Replacement of the Electorate, 1950 – 2000

Figure 3 illustrates the estimation process for the rate of electoral replacement, using the IPUM samples of the decennial censuses from 1950, 1980, and 2000 as examples. I present the age distributions of the three census years, organized by birth years, omitting naturalized citizens at this stage.[1] Note, for example, the number of native-born citizens born in 1900 in each census. They numbered about1.6 million in 1950 but only 700,000 in 1980. About 900,000 had died between 1950 and 1980. By 2000, fewer than 40,000 remained. Summing all of the estimated deaths for each birth year gives total number of native-born citizens who died between any two censuses.

(Figure 3 Goes About Here)

This estimation process also illustrates why one must separate native-born from naturalized citizens. If one does not, the number of citizens who were naturalized between the two census periods would offset the same number who died, yielding a systematic underestimate of deaths.

Of course, one could estimate the number of deaths between censuses directly, without resort to organizing the age distributions by birth years. The advantage of Figure 3 is only that it reveals how much of the electoral turnover is due to the deaths of our very oldest citizens. The following equation provides the same answer, using the 1950 and 1960 censuses as an example:

(Number of native-born adult citizens who died or emigrated between 1950 and 1960) =
(number of native born citizens in 1950) −
(number of native born citizens in 1960) +
(number of newly voting age adults between 1951 and 1960)[2]

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[1] The censuses record the age of individuals as of March 1. I have assumed that half of the17 year olds (or 20 year olds before 1972) will have birthdays before the November elections and become age-eligible to vote. This assumption means that the youngest birth year among voting age adults in each census is reduced by about a quarter, compared to the next oldest birth year. For this reason, in Figure 3 we observe a systematic drop-off in the number of the youngest birth year in each census. This assumption has no overall effect on estimates of electoral replacement.

[2] For the purposes of this calculation, I am assuming that very few citizens who are newly-naturalized in any decade die before the end of the decade. The Bureau of Immigration and Naturalization does not publish the birth years or age distributions of the newly naturalized, making it difficult to estimate the size of this small number. Also and remarkably, the Bureau of the Census did not ask whether citizens were native-born or naturalized in1960. I have estimated the calculations for 1960 using a straight line interpolation from 1950 to 1970.

Having shown why we must separate native-born and naturalized citizens in our tables, I now turn to Table 2, which is the heart of this paper. Part A provides the number and age distribution of adult citizens in each of the decennial censuses in millions. One sees, for example, that naturalized citizens are on average about 14 years older than native-born citizens in the 1950-1970 period.

(Table 2 Goes About Here)

Part B shows the growth in the electorate from both newly age-eligible native-born citizens and those who are newly naturalized. Those newly naturalized after 1980 (7.8 million) constitute a significant proportion of the total growth between 1980 and 2000.

Part C presents the number of citizens who die or emigrate between census years. The percentage varies from a low of 10.4% from 1950-1960 to a high of 12.7% from 1960-1970.[3] Dividing these percentages by 2.5 yields an estimate that about five percent of the electorate die between presidential elections. Part C also shows that typically twice as many newly eligible voters join the electorate in a decade as die. Thus, new voters typically contribute twice as much to electoral replacement as deaths. The ratio for 1980 includes the one-time addition of 18-20 year olds in 1972 and over-estimates the usual ratio.

Part D summarizes the rate of electoral replacement over this 50-year period. One sees, for example, that 63% of the 1980 electorate had become newly eligible since 1950 and that 38% of the 1950 electorate had died by 1980. Eighty-nine percent of the 2000 electorate became newly eligible after 1950, and 78% of the 1950 electorate had died by 2000.

Whether these rates of electoral replacement are small or large is partly a matter of perspective. Yet, these rates focus our attention on the question with which I began: What is the contribution of electoral replacement to changing enduring or culturally-grounded patterns of political beliefs and behavior? I consider three types of consequences: The first is changes in party alignments and macropartisanship. This is an example of a political value that remains quite constant over individual's life course. Any change in overall sentiment would therefore depend principally on generational replacement. The second is voting turnout, which exhibits the opposite pattern. Changes in turnout vary systematically as people age, and generational replacement has had remarkably little effect on turnout patterns. The third is public opinion on abortion. Abortion attitudes are distinctive, perhaps unique, among political and religious values in the United States. The cultural transmission of abortion values is so strong that the attitudes of incoming generations mirror those of the oldest cohorts. The balance of attitudes on abortion is resistant to either aging effects or generational replacement.

I begin with the consequences for the changing balance of party identification over this 50-year period.

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[3] For example, the total deaths from 1950-1960, 9.9 million, divided by the total 1950 adult population, 95.4 million, is 10.4%.

The Effect of Electoral Replacement on Party Alignments and Macropartisanship

Erikson, MacKuen, and Stimson (2002:112) apply the label "macropartisanship" "to the national aggregation of partisanship," operationalized as the percentage of Democrats among all self-identified Democrats and Republicans. As Green, Palmquist, and Schickler (2002:93) note, "The central hypothesis of the macropartisanship literature is that presidential popularity, as well as the favorable economic conditions that contribute to it, bring new adherents to the president's party." Erikson, MacKuen, and Stimson conclude (p. 160),

> From our analysis of age and partisanship it is clear that young voters contribute disproportionately to *Macropartisanship* movement, and that potentially, replacement of old cohorts by the new can affect long-term *Macropartisanship* trends.

Erickson, MacKuen, and Stimson rely on Gallup and CBS/New York Times surveys to follow movements in macropartisanship within age cohorts over time. In contrast, I analyze the ANES surveys from 1952-2002. Table 3 presents the basic design of the cohort analysis. I separate the age cohorts into those born before 1930 and by decade thereafter.[4] I then observe the partisanship of each cohort in the first presidential and congressional election pair after each age cohort becomes fully age-eligible to vote.

I use the ANES surveys to establish the proportions of Democrats, Independents, and Republicans in each national election pair for each cohort. But, I apply these proportions to more accurate Census estimates of the true sizes of the cohorts to observe the effects of electoral replacement on aggregate partisan strength, or macropartisanship. I also age-adjust the ANES samples to compensate for the under-representation of the youngest set of eligible respondents in these samples, particularly in years in which the election study is part of a panel design. Finally, I include only native-born citizens (and citizens born abroad of U.S. parents) in the tables in insure that the changes we observe in the partisanship of the cohorts are due to generational replacement or to individual level partisan conversion, and not to the entry of newly naturalized citizens into the cohorts.[5] Table 3 classifies "leaning partisans" as true partisans while Table 4 classifies the leaners as Independents.

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[4] A long literature examines the marked differences in those who came to voting age before and after the Great Depression. That point is settled. Since I am interested in following cohorts from 1950-2000, I classify all of those who first voted before 1952 into one cohort. There are too few respondents who came to voting age before 1930 who remain in later ANES surveys to measure partisanship in the pre-Depression generation.

[5] In years in which the ANES item on place of birth was not asked, I used an alternate item on where the respondent grew up to distinguish between native-born and naturalized citizens. Details on validation of this substitution are available from the author.

(Table 3 Goes About Here)

Table 3 is notable for the following generalizations:

- There is remarkably little net individual conversion in partisanship within age cohorts among Democrats. For example, even as the pre-1930 age cohort declined from 88 million to 23 million, the proportion of Democrats only varied in the narrow range of 54% to 58%, little more than the expected sampling error. The proportion of Democrats in the younger age cohorts is similarly stable across time. The Reagan Revolution notwithstanding, once Democrats enter their 30s, there is little evidence that they ever exhibit much net conversion to Independent or to Republican self-identification.
- In contrast, from 1950 to 2000 the percentages of Republicans increased systematically by six to nine points in every age cohort except the oldest. This net gain amounts to about three to four million additional Republicans in each of the post-1952 age cohorts. Many Pure Independents became Leaning Republicans, and many Leaning Republicans became Weak and Strong Republicans.
- Although the proportion of Democrats trended down among those who came to voting age in the 1970s, the most evident generational shifts in partisanship are among those who came to voting age in the 1980s, the Reagan Republicans. Only among the 1980s generation do Republicans ever achieve parity with the Democrats. That parity disappeared, however, with the 1990s cohort, where the Democrats rebounded to their former strength.
- Deaths are extraordinarily concentrated among the oldest cohorts, those born before 1940. The younger cohorts decline in numbers scarcely at all, and even increase ever so slightly in the 1980's cohort. Perhaps some naturalized citizens begin to report themselves to the Census as native-born the longer they have been citizens.
- In sum, this analysis supports a long line of research on partisanship. Popular presidents and other political and economic events can influence self-identified partisanship among young voters. Beyond that, the primary pattern of individual conversion over the voter's life course is the small but regular and numerically significant shift of Independents to Republicans in each of the post-1952 election cohorts.

Table 4 duplicates Table 3 in all respects except that leaning partisans are grouped with pure Independents. The same patterns are manifest in both. The proportions of Democrats are stable within age cohorts over time. The proportion of leaning and pure independents declines within age cohorts as some shift to a Republican identification. Republicans outnumber Democrats only in the 1980s cohort. Among the 1990s cohort, over half of all voters identify as leaning or pure Independents. Among the partisans, Democrats outnumber Republicans by almost 2:1 in this newest age cohort.

(Table 4 Goes About Here)

Electoral Replacement and Voting Turnout

Wolfinger's and Rosenstone's *Who Votes?* (1980) discovered the smooth ascending curve of increasing turnout as voters age. Wattenberg (2002:95-97) detects a generational effect that overlays the aging effect. Comparing the presidential elections of 1972 and 2000 and the congressional elections of 1974 and 1998, Wattenberg observes that a new generation gap has emerged. Younger citizens today vote at lower rates than young voters in the early 1970s, but older citizens today vote at higher rates than older voters in the 1970s. The age-turnout curve is getting steeper as the correlation of age and turnout increases.

Figure 4 presents a different perspective on whether an important generation difference is emerging in voting turnout. I use the same CPS surveys as Wolfinger and Rosenstone and as Wattenberg and include only citizens.[6] I organize the age-turnout curve by the birth year of the respondents, which permits us to observe the effect of aging on turnout in each of these elections.

(Figure 4 Goes About Here)

To my eye, the generational differences are very small across this 32-year period. To be sure, 48% of the 18 year olds voted in 1972, compared to only 35% in 1988. But, the voting rate of 18 year olds rebounded to 42% in 2004. The steepness of the age-turnout curve is 1988 appears to be the outlier, and the 2004 age-turnout curve is very similar to 1972.

The vertical distances between the three curves for each birth year highlight the aging effect on turnout. The 18 year olds who voted at a 48% rate in 1972 increased their voting rate to 59% when they were 34 in 1988 and to 70% when they were 50 in 2004. In 1988, those who only voted at a 35% rate when they were 18 voted at a 60% when they were 34 in 2004, almost exactly the same rate of increase as in 1972. Their voting rates will continue to increase as they age. Whatever generational differences one might observe in this figure seems very small compared to the common aging effect in these three presidential elections. To Wattenberg's question, "*Where Have All the Voters Gone?* one plausible answer is "No Where Really."

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[6] The 1972 CPS survey did not explicitly ask whether respondents were citizens, but it did code the volunteered answer "Not a citizen" as a response to a question as to why respondents did not vote. The proportion who volunteered they were not citizens is very close to the actual 1970 census figure for non-citizens, and I classified these respondents as non-citizens.

Electoral Replacement and Attitudes on Abortion

Fiorina and colleagues (2006) have drawn out attention to the marked stability of public opinion on abortion from 1972 to 2005. I reproduce their evidence in Figure 5.

(Figure 5 Goes About Here)

This aggregate stability appears to result from two forces. First, once Americans adopt a position on abortion as adults, few change their beliefs over their life course. They become neither more pro-choice or pro-life, or change their views about the conditions under which abortion is morally justifiable. Second, the newest generation of Americans have much the same opinion in the aggregate as their parents' and grandparents' generation.

I have not completed the cohort analysis of the General Social Surveys from 1972 to 2005 to confirm these assertions. However, they are certainly born out in the cohort analyses available on the ANES web site.

Conclusion

The rate of electoral replacement in the U.S. has been very high across the second half of the 20th century. This replacement rate has three types of consequences: The first is changes in party alignments and macropartisanship. Changes in the balance of Democrats, Independents, and Republicans depend principally on generational replacement. However, there is a small but systematic pattern in which Independents shift to Republican self-identification as they age. Partisan identification among Democrats is immune to this aging effect. The second is voting turnout, which exhibits the opposite pattern. Changes in turnout vary greatly and systematically as people age, and generational replacement has had remarkably little effect on turnout patterns. The third is public opinion on abortion. Abortion attitudes are distinctive among political and religious values in the United States. The cultural transmission of abortion values is so strong that the attitudes of incoming generations mirror those of the oldest cohorts. The balance of attitudes on abortion is resistant to either aging effects or generational replacement.

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