
Javier M. Rodriguez a, b, Arline T. Geronimus c, b, d, *, John Bound e, b, d, Danny Dorling f

Mathematica Policy Research, USA
Population Studies Center, Institute for Social Research, University of Michigan, USA
Department of Health Behavior and Health Education, University of Michigan, USA
Center for Advanced Study in the Behavioral Sciences, Stanford University, USA
George E. Johnson Collegiate Professor, Department of Economics, University of Michigan, USA
Halford Mackinder Professor of Geography, School of Geography and the Environment, Oxford University Centre for the Environment, Oxford University, UK

Abstract
Excess mortality in marginalized populations could be both a cause and an effect of political processes. We estimate the impact of mortality differentials between blacks and whites from 1970 to 2004 on the racial composition of the electorate in the US general election of 2004 and in close statewide elections during the study period. We analyze 73 million US deaths from the Multiple Cause of Death files to calculate: (1) Total excess deaths among blacks between 1970 and 2004, (2) total hypothetical survivors to 2004, (3) the probability that survivors would have turned out to vote in 2004, (4) total black votes lost in 2004, and (5) total black votes lost by each presidential candidate. We estimate 2.7 million excess black deaths between 1970 and 2004. Of those, 1.9 million would have survived until 2004, of which over 1.7 million would have been of voting-age. We estimate that 1 million black votes were lost in 2004; of these, 900,000 votes were lost by the defeated Democratic presidential nominee. We find that many close state-level elections over the study period would likely have had different outcomes if voting age blacks had the mortality profiles of whites. US black voting rights are also eroded through felony disenfranchisement laws and other measures that dampen the voice of the US black electorate. Systematic disenfranchisement by population group yields an electorate that is unrepresentative of the full interests of the citizenry and affects the chance that elected officials have mandates to eliminate health inequality.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction
In the United States, after centuries of de jure and de facto disenfranchisement of black Americans, the Voting Rights Act of 1965 resulted in a mass enfranchisement of poor and black Americans. Today, however, erosion of these rights is a great and growing concern. Although the US government acknowledges political participation to be a universal human right, several governmental decisions and practices, often at the state level, appear to be selectively undermining the prohibition against voting rights discrimination on the basis of race, first set forth in the 15th amendment to the US Constitution. Felony disenfranchisement laws in many states have a significant discriminatory impact on voting outcomes given race/ethnic variations in prosecution and sentencing of drug-related crimes (Manza and Uggen, 2006; Uggen et al., 2012). Partisan legislative redrawing of electoral boundaries that concentrate racial/ethnic groups into minority districts also has been shown to reduce their political influence (Epstein and O’Halloran, 1999; Trebbi et al., 2008). The trend toward shortened poll hours and more stringent voter ID policies in several states have had or are anticipated to have disproportionately negative effects on voting among the nonwhite and the poor (Barreto et al., 2009). US racial inequalities in excess mortality are another possible threat to the relative voting power of blacks compared to whites, but how important are they? In this analysis we begin to answer that question by estimating the cumulative impact of mortality differentials between US blacks and whites from 1970 to 2004 on the racial composition of the electorate in the general election of 2004 and in close statewide elections during the study period.

* Corresponding author. CASBS, 75 Alta Road, Stanford, CA 94305, USA.
E-mail address: arline@umich.edu (A.T. Geronimus).
While voting behavior is influenced by a range of forces, it is certainly true that the longer a person lives, the greater their opportunity to vote over their lifetime. Throughout the 20th century, the mortality rate of US blacks was, on average, about 60% greater than that of US whites (Kauffman et al., 1998). Although measureable improvements in black excess mortality were seen mid-century, black-white mortality disparities have changed little over recent decades. For instance, the age-sex standardized mortality rate for blacks was 1.47 in 1960 and 1.41 in 2000 (Satcher et al., 2005). These statistics suggest that significant black-white mortality differentials are important social forces shaping the composition of the US electorate.

Beyond the compositional impact, a contraction in black voting-age adults might also affect partisan politics and policy, and thereby influence structural inequality. Abundant evidence indicates that race and racial prejudice affect political attitudes (Henry and Reyna, 2007; Sears and Kinder, 1971), candidate preferences (Bobo and Dawson, 2009; Valentino and Sears, 2005), political behavior (Enos, 2011; Sidanius and Pratto, 2001), political ideology (Lane et al., 2011; Pratto et al., 1994), public opinion (Mendelberg, 2008; Valentino et al., 2002), political inclusion (Lavariega Morfori and Sanchez, 2010; Massey and Denton, 1989), and race-based policy preferences (Rabinowitz et al., 2009; Tesler and Sears, 2010). Other evidence ties these racialized political processes to broad social inequalities (Bonilla-Silva, 2013) including race-based geographic or residential segregation (Dawson, 1995), incarceration rates (Caplow and Simon, 1999), and access to and the quality of structural resources such as medical care and welfare (Gillens, 1995) — all factors connected to health outcomes. In the US, where populations with different voting preferences face systematically unequal life chances, population health inequalities could affect not only the composition of the electorate, but election outcomes and subsequent policy, including policy that influences the health disparities that lead to excess mortality (Blakely et al., 2001; LaVeist, 1992; Purtle, 2013; Rodriguez et al., 2013).

Differential mortality by social group has been found to be associated with the composition of the electorate in the United Kingdom (Dorling, 1998, 2010; Smith and Dorling, 1996). For example, individuals living in working class areas in the UK live an average of one general election less than those living in middle or upper class areas (McCartney et al., 2010). Many national UK general elections have been very closely fought battles and so this difference could have been influential on past electoral outcomes in the UK. However, the possible impact of black excess mortality relative to whites on US election outcomes has not been examined.

In this analysis, we estimate the impact of excess deaths among blacks on the racial composition of the electorate in the US presidential election of 2004. Because felony disenfranchisement is widely considered significant enough to have changed electoral outcomes, especially in local elections (Manza and Uggen, 2006; Uggen and Manza, 2002), we also explore the impact of black excess mortality on close statewide elections during the study period.

2. Theoretical framework

The social, economic and geographical inequalities in mortality found in the US are remarkably large by international standards (Marmot and Bell, 2009) and disproportionately disadvantage blacks relative to whites. And much evidence suggests that US black-white health disparities are persistent at all levels of the socioeconomic spectrum (Pearson 2008), and far higher than in other affluent countries with less of a history of racial discrimination. Popularized images portray excess US black deaths as largely occurring to youth — the result of homicide, drug overdoses and other accidents; or reflecting a shorter life expectancy among black relative to white seniors. In fact, the predominant and persistent driving force behind US black/white mortality disparities is the unequal distribution of chronic morbidity among young through middle aged adults (Geronimus et al., 2011, 1999, 1996).

Fig. 1 shows the age distributions of all individuals who died in the US in 2004 by race. The area between the curves represents the mortality gap between non-Hispanic blacks and whites. Notably, the distributions do not intersect until approximately age 73, indicating that the mortality gap between blacks and whites persists throughout the average life expectancy of blacks. Fig. 1 also shows that the mortality gap between blacks and whites is greatest between the ages of about 40 and 65 — also an age range during which the probability of turning out to vote is the highest, as shown in Fig. 2. Simply put, this creates an especially high political participation disadvantage for the black population because blacks are dying off from the electorate at higher rates than whites during the ages of highest voter turnout.

The causes of racial disparities in health are multiple and complex and include social policies and laws that are, at least theoretically, amenable to reinforcement or change depending on political mandates. Among them, residential segregation, cumulative disinvestment, and austerity urbanism in predominantly black neighborhoods in the US have contributed significantly to health disparities (Geronimus, 2000; Geronimus et al., 2015; Schulz et al., 2005). Predominantly black neighborhoods are characterized by higher exposure to pollution, fewer recreational facilities, less pedestrian-friendly streets/sidewalks, higher costs for healthy food, and a higher marketing effort per capita by the tobacco and alcohol industries (Diez Roux and Mair, 2010; Diez Roux et al., 2001; Geronimus, 2000; Schulz et al., 2005). In the US, large black-white disparities are also detected in access to and quality of health care resources, including health insurance coverage and health services for preventive screening, diagnostic, diagnosing and treatment, and rehabilitation (Williams and Mohammed, 2009).

Moreover, racialization and its subsequent environmental, material, and health care constraints shape exposure to everyday challenges and coping options. Repeated and high-effort coping with social disadvantage and the contingencies of stereotyped...
social identity are now thought to contribute to a cumulative physiological toll across the life-course, or weathering (Geronimus, 2013; Geronimus et al., 2006). Weathering reflects stress-mediated physiological damage and dysregulation across body systems. These can result in a relatively steeper age-gradient increase in high allostatic load, adverse health outcomes including early onset of hypertension, diabetes, and disability, and excess death from young through middle adulthood, such as that observed in Fig. 1 (Crimmins et al., 2003; Geronimus et al., 2010; McEwen and Seeman, 1999).

To the extent that social stratification processes — which are affected by public policy and political power — sort Americans into different socioeconomic strata and physical environments based on their race, a disproportionate number of blacks are non-randomly exposed to the challenges, physiological stressors, and risks of injury that emanate from social disadvantages, thus contributing to racial inequality in health. It is widely acknowledged that eliminating racial disparities in health will require addressing such fundamental social causes and more proximate social determinants of health (Satcher, 2010). Because the social determinants of health are influenced by political forces, the black vote may play a key role in determining both the mechanisms of social stratification and the ultimate exposure of blacks to the psychosocial and environmental threats and challenges that increase racial health inequality (Rodriguez et al., 2013, 2014).

Thus, large and persistent US black-white mortality disparities could be both a cause and an effect of political processes. Social and health policies that have population health implications are shaped, in part, by those holding elective office. It is also possible that political mandates or political will in support of policy to diminish disparities in health, are linked to political participation (Keiser et al., 2004; Schneider and Ingram, 1993; Thompson, 2005). Because political representation is a function of the share of the population eligible to vote and participation levels throughout adulthood, racial disparities in age-specific mortality rates may influence political outcomes. In particular, as excess mortality impacts black underrepresentation in the electoral process, it may limit blacks’ influence on policy-making and political decision-making processes including those that affect their health.

3. Racial mortality gaps and electoral politics

The effects of black-white differential mortality on electoral participation are dynamic and influence the demography of politics in at least three quantifiable ways. First, individuals who die before the age of 18 never have the opportunity to vote. Second, individuals who die after the age of 18, but before the age of life expectancy of their cohort have a shorter “electoral life” than those who culminate their normal life span. And third, premature death prevents individuals from voting not only in the election immediately following their death but in all subsequent elections for which they could have expected to have lived, making the effect cumulative. This cumulative effect most dilutes the electoral voice of blacks relative to whites. We aim to quantify this cumulative effect of excess mortality on nonparticipation.

4. Research design

We evaluate a counterfactual: What would have been the effect on the 2004 general election if blacks had survived at the same rates as whites between the years 1970 and 2004? Considering that differential mortality effects are cumulative, the case study of the 2004 general election allows for the full electoral cumulative effects of excess mortality in the time range of the available data. Because the mortality files we use are only available on the state level until 2007, the 2004 general election represents the latest general election available for analysis.

Ideally we would trace cohort mortality back to birth, but for methodological and data availability reasons, we instead start the clock at 1970 rather than at the birth cohort of the oldest blacks alive in 2004. Although crude versions of the mortality data used in this analysis date back to 1959, it is not until 1970 that the available data allow us to account for consistent state-level mortality statistics in all states and years, and to validly identify the Hispanic or non-Hispanic origin of whites and blacks. In addition, in our statewide calculations we assume no net migration across states. This assumption would be implausible prior to 1970. Between 1910 and 1970, 6.5 million blacks migrated from southern to northern states, 5 million after 1940 during the Great Migration (Lemann, 2011). After 1970 when the Great Migration ended and there were small cross-state net migration rates among blacks, our assumption is reasonable. Using 1970 as the starting point, however, implies that we will underestimate accumulated excess black deaths by 2004 given that all those succumbing to premature death before 1970 — who would have otherwise survived beyond 1970 — are excluded from the analysis.

Our calculations use data from four sources. Deaths by state of residence, race, gender, and age were derived from the Multiple Cause of Death files from 1970 to 2004. Population counts by state of residence, race, sex, and age were taken from population estimates from the US Census Bureau. Data on the total number of votes by state were taken from the US Elections Project, while state data on the gender, race, and age distribution of voters were taken from the National Election Pool General Election Exit Polls (2004). For more details, see the Data Appendix.

All calculations are conducted using stratification by sex, non-Hispanic race origin (i.e., non-Hispanic black and non-Hispanic white), age (0–84 years), state of residence (32 states with significant black populations and the District of Columbia, see Table 1), and year (1970–2004). To exploit the fullness of the available data, we use similar analyses to examine both the presidential election of 2004 and close senate and gubernatorial elections during the study period.

Our calculations occur in stages. First, the total number of black excess deaths by sex, age, and state is calculated for each year.
between 1970 and 2004. Then, applying life tables for whites, we calculate the fraction of black excess deceased who would have survived to 2004 had they faced white mortality rates. Finally, using the election data we then estimate the fraction of these hypothetical black survivors who (1) would have voted; and (2) would have voted for each party’s nominee – John Kerry (D) or George W. Bush (R) –, assuming that the voting behavior of these hypothetical survivors would have resembled the voting behavior of the existing black population stratified by sex, age, and state of residence.

To provide a context for the magnitude of our findings, we compare the number of voting-age hypothetical black survivors in 2004 to the total number of black disenfranchised felons and ex-felons in that year (for detailed descriptions of our estimation procedures, please see the Methodological Appendix.)

In addition, we examine the possible partisan-electoral effect of black votes lost to excess mortality at the state level by identifying close senate and gubernatorial elections between 1970 and 2004. In this calculation, we make the conservative assumption that the number of black hypothetical survivors in each year prior to 2004 would be no greater than the number in 2004. Given the stability of the black-white mortality gap, this assumption, while crude, should not bias our conclusions. In addition, as explained above, we underestimate the 2004 accumulated excess black deaths by excluding from analysis those excess deaths occurring before 1970.

We looked for senate and gubernatorial elections in which the margin of victory for the Republican compared to the Democratic candidate was 35% or less than the number of hypothetical black survivors in that state, positing that these races were sufficiently close that had blacks survived at white rates, it is reasonably likely that the election result would have been reversed. To place our findings in context, we then compared these results to the implications for state elections of total felony disenfranchisement calculated by Uggen and Manza (Manza and Uggen, 2006; Uggen and Manza, 2002).
black votes lost to black excess mortality — or about 900,000 votes — while Republican candidate George W. Bush lost about 13.4%, or 140,000, of these votes. However, despite the closeness of the election, the additional black votes from our estimates of hypothetical survivors alone would not have been sufficient to reverse Bush’s win.  

When we combined the effects on the black voting population in 2004 of both excess mortality and felony disenfranchisement, we found that 1 in 7 (15%) of all voting-age blacks did not have the opportunity to vote in that year for one of these two reasons (Table A2, Appendix). In 2004, a total of 166 presidential electoral votes (61.5% of the 270 needed to elect a president) were disputed in states where at least 15% of voting-age blacks did not have the opportunity to vote either due to premature death or felony disenfranchisement.  

Turning to state level results, we estimate that between 1970 and 2004 the outcomes of 7 close senate elections, and of 11 close gubernatorial elections would have been reversed from Republican to Democratic victors with the addition of black hypothetical survivors alone (see Tables 2 and 3). Uggen and Manza’s estimations of the impact of total felony disenfranchisement on senate elections (Manza and Uggen, 2006) suggest it could have reversed 7 senate races between 1978 and 2004, of which 4 overlap with the 7 we have identified. In one additional election, the 2002 senate election in Missouri, adding excess mortality and felony disenfranchisement effects together, we infer that the Democrat would have won, even though neither effect alone would have been sufficient to change the election.  

6. Discussion  

In this study, we provide the first estimates of the impact of racial mortality differentials on political participation in the US. We find that premature deaths among blacks have had a significant impact on the racial composition of America’s electorate and, during the study period, may have been a key influence on several state election outcomes. State level findings suggest that our estimated effects could have had political potency at the national level, as well, given that the predicted reversal of specific senate elections would have sustained Democratic control of the Senate from 1986 to 2002 (Manza and Uggen, 2006; Purtle, 2013).  

In our calculations we were able to account for only 35 years of mortality exposure rather than the ideal of 84 years. Thus, while somewhat crude, on balance, our results underestimate the effect that black excess mortality has on the size of the black population and electorate. Even with our truncated years of data, we estimated 1.74 million total black voting-age hypothetical survivors in 2004 (see Table 1). This number is close to the 1.95 million black voting-age disenfranchised felons and ex-felons in the year 2004 estimated by Manza and Uggen (2006). Manza and Uggen’s estimated figure is widely considered significant enough to have changed electoral outcomes, especially in local elections (Manza and Uggen, 2006; Uggen and Manza, 2002).  

Blacks having the same mortality schedules as whites during the study period could have yielded different results in other political arenas as well — state legislatures, cities, counties, and congressional districts, although data limitations precluded us from these calculations. If so, they also may have acted to reduce the gerrymandering and redistricting by the majority that dilutes the political power of racial minorities, potentially altering national congressional majorities. The impact of these hypothetical black survivors might have been felt in additional aspects of the democratic process, such as Democratic primaries, in which blacks manifest a high vote share in key Southern states (some over 40%), or in the electoral college presidential vote, especially when a small number of swing states decide the election.  

The current study findings suggest that excess black mortality has contributed to imbalances in political power and representation between blacks and whites. Politics helps determine policy, which subsequently affects the distribution of public goods and services, including those that shape the social determinants of health, which influence disenfranchisement via excess mortality. In the United States, especially after the political realignment of the 1960s, policy prescriptions emanating from government structures and representing ideologically divergent constituencies have influenced the social determinants of health, including those that affect racial disparities. And given the critical role of elected politicians in the policy-making apparatus, the available voter pool is an essential mechanism for the distribution of interests that will ultimately be represented in the policies and programs that affect us all.  

Thus, our examination suggests that large and persistent black-white mortality disparities have been both a cause and a consequence of partisan US politics over the past 40 years. In our polarized electoral environment, partisan electoral implications can translate into important policy differences. On a speculative level, there are a huge number of ‘what might have been?’ hypotheses. For example, our estimates suggest that some recent Republican governors may have been defeated by their Democratic opponent, if hypothetical survivors were included in the electorate. The state-by-state question of whether or not to incorporate the Medicaid expansions provided by the Affordable Care Act has proven to be a highly partisan issue, suggesting that different electoral outcomes in states with Republican governors might have

### Table 2  
Crude test of hypothetical effect of mortality gaps on US senate elections.  

<table>
<thead>
<tr>
<th>Territory</th>
<th>Year</th>
<th>Republican candidate votes (two-party vote share %)</th>
<th>Democratic candidate votes (two-party vote share %)</th>
<th>Two-party vote difference (%)</th>
<th>35-year voting-age hypothetical black survivors (% black VAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia</td>
<td>1992</td>
<td>635,118</td>
<td>618,774</td>
<td>16,344</td>
<td>95,052</td>
</tr>
<tr>
<td>Florida</td>
<td>1988</td>
<td>2,051,071</td>
<td>2,016,553</td>
<td>34,518</td>
<td>99,705</td>
</tr>
<tr>
<td>Georgia</td>
<td>1980</td>
<td>803,686</td>
<td>776,143</td>
<td>27,543</td>
<td>95,052</td>
</tr>
<tr>
<td>North Carolina</td>
<td>1980</td>
<td>898,064</td>
<td>887,053</td>
<td>10,411</td>
<td>86,960</td>
</tr>
<tr>
<td>Texas</td>
<td>1978</td>
<td>1,151,376</td>
<td>1,139,149</td>
<td>12,227</td>
<td>100,065</td>
</tr>
<tr>
<td>Virginia</td>
<td>1978</td>
<td>613,232</td>
<td>608,511</td>
<td>4,721</td>
<td>62,771</td>
</tr>
<tr>
<td>Nevada</td>
<td>1974</td>
<td>79,605</td>
<td>78,981</td>
<td>624</td>
<td>3038</td>
</tr>
</tbody>
</table>

The current study findings suggest that excess black mortality has contributed to imbalances in political power and representation between blacks and whites. Politics helps determine policy, which subsequently affects the distribution of public goods and services, including those that shape the social determinants of health, which influence disenfranchisement via excess mortality. In the United States, especially after the political realignment of the 1960s, policy prescriptions emanating from government structures and representing ideologically divergent constituencies have influenced the social determinants of health, including those that affect racial disparities. And given the critical role of elected politicians in the policy-making apparatus, the available voter pool is an essential mechanism for the distribution of interests that will ultimately be represented in the policies and programs that affect us all.
affected the health insurance prospects of millions of poor residents of those states.

In general terms, what difference might it make for American democracy, if we were able to diminish or eliminate the several sources of disproportionate black disenfranchisement? Would minority interests be better reflected in government and policy? Suggestive evidence comes from a recent study where Fowler (2013) investigated the implementation of compulsory voting in Australia — a democracy with past turnout inequalities between different social groups similar to present-day inequalities in the US. The investigation was undertaken to respond to the question of what would happen to public policy and the partisan composition of government if the electorate were substantially expanded. Findings from this research suggest that both policy and government if the electorate were more representative of the aggregate interests of the citizenry, including the most disadvantaged who did not vote before the adoption of compulsory voting.

Our findings highlight that black excess deaths are a challenge to democracy. While we have presented the results of a statistical exercise, the meaning of lives lost too soon cannot be reduced to aggregate numbers. As with all human beings, it matters whether a black person is alive or dead. Each of the hypothetical survivors represented in our results had a name, a personal history, a family, a community, human rights, and the potential to continue to contribute. They matter. After reconstruction, along with literacy tests and poll taxes, the lynch mob was used explicitly to rob blacks of their votes and to intimidate surviving blacks from fully exercising their rights, including to vote (Markovitz, 2004). Although less spectacular or overtly intentional than the noose, the culture of impunity that allows us to escape accountability for the structural violence that disproportionately cuts black lives short — whether through acute injury, a discriminatory and militarized criminal justice system, or the accumulated physiological insults inherent to everyday life at the margins of a race-conscious society — remains a moral failure and threatens democracy.

Funding

This research was supported in part by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (Grant #T32 HD007339) and by the Center for Advanced Study in the Behavioral Sciences, Stanford University.

Acknowledgments

The authors would like to acknowledge helpful conversations with James DeNardo, Teresa E. Seeman, Mark Q. Sawyer, David O. Sears, and Peter M. Bentler, the support of Libbie Stephenson and Jamie Jamison at the UCLA Social Science Data Archive, and the editorial assistance of N.E. Barr. The findings and conclusions expressed are solely those of the authors and do not represent the views of Mathematica Policy Research.

Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.socscimed.2015.04.014.

References


Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.socscimed.2015.04.014.

References


Outgroup Activates Political Participation. Harvard University, Unpublished Manuscript, pp. 1–50.


