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## Article

# The politics hypothesis and racial disparities in infants' health in the United States



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#### ABSTRACT

We propose the politics hypothesis—i.e., the hypothesis that political forces comprise either a powerful predecessor of the social determinants of health or are essential social determinants of health themselves. We examine the hypothesis that political actors like presidents, their ideology, and institutions like the political parties they represent shape overall and race-specific health outcomes. Using census and Vital Statistics data among many other sources, we apply both theory- and data-driven statistical methods to assess the role of the president's party and the president's political ideology as predictors of overall and race-specific infant mortality in the United States, 1965-2010. We find that, net of trend, Republican presidencies and socially-conservative ideology of U.S. presidents are strongly associated with slower declines of infant mortality rates, overall and for white and black infants, compared to Democratic and socially-liberal presidents in the U.S. Approximately half (46%) of the white-black infant mortality gap, about 20,000 additional infant deaths, and most if not all the infant mortality rate gap between the U.S. and the rest of the developed world, can be attributed to the 28 years of Republican administrations during the study period. These findings are consistent with the politicization of public health and the conceptualization of politics as a powerful predecessor, in the causal chain, of the social determinants of health. Understanding the political ideological and institutional contexts in which health policies and healthcare and welfare programs are implemented, as well as how governments construct culture and social psychology, provide a more comprehensive framework for understanding and improving population patterns of disease, mortality, and entrenched racial disparities in health in the U.S.

# 1. Introduction

Politics is a matter of life and death. Political actors and institutions not only have powerful influence on the fate of war and climate change, food and medicine production and distribution, access to clean water and sanitation, opioids and tobacco consumption: They are also powerful entities setting the policy agenda and its procedures and implementing the programs that ultimately shape the social determinants of health (Beckfield & Krieger, 2009; Muntaner et al., 2012; Navarro et al., 2006; Rodriguez, 2018). Not surprisingly, U.S. public health researchers have been paying attention to politics for a very long time. Yet, in spite of mounting evidence supporting the weight of policies and programs affecting health, the politicization of public health is among the most important yet understudied processes affecting illness, disability and mortality in the United States.

This paper examines the politics hypothesis—i.e., the hypothesis that political forces are either powerful predecessors of the social determinants of health or are essential social determinants of health

themselves. By political forces we mean the institutions and elected and non-elected state personnel that write, interpret, execute and enforce the rules, regulations, and programs that frame the epidemiological impact of the social determinants of health (Beckfield & Bambra, 2016; Navarro, 1994; Rodriguez, Bound, & Geronimus, 2014c). By political forces we also mean the power the government has to construct identities, belief systems, the norms that dictate human behavior and interaction, the main demographic groups (e.g., age, racial/ethnic, gender) that define us as social beings, and, in sum, the ways and frameworks through which our social life unfolds affecting our mental, behavioral and emotional health.

This study adopts frameworks developed in political epidemiology and the political economy of health (Barnish, Tørnes, & Nelson-Horne, 2018; Beckfield & Krieger, 2009; Muntaner et al., 2012) to describe the politicization of public health—i.e., the degree to which health policies and programs, the healthcare apparatus, and the production and distribution of disease, disability and mortality are politically patterned. We do this by expanding existing research on a central political actor

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(the president), a key political factor informing policy (the president's ideology in the social liberal-conservative spectrum), two central political institutions (the Republican and Democratic parties), and a central public health outcome (the infant mortality rate) (Rodriguez et al., 2014c). Different from previous research (Rodriguez et al., 2014c) our key objectives are to propose the politics hypothesis and investigate the importance of the president's party and the president's ideology as fundamental predictors of infant mortality, and the locus of the president's party in infant mortality rates' causal chain in the U.S.

## 1.1. The politics hypothesis and the social determinants of health

A central argument of this study is that the social determinants of health are, at least in part, *political* constructions. In the United States, politics directly or indirectly causes, or profoundly interacts with, the most critical periods and events linked to the social determinants of health: Imperialism and colonialism, slavery and the Emancipation, the American Revolution, the writing of the Constitution, the Civil War, the Reconstruction, the Jim Crow system, the First and Second World Wars, post-WWII decolonization, the Civil Rights Movement and September 11 have all affected the social determinants of health (Gaskin, Headen, & White-Means, 2004; Grady, 2006; Lauderdale, 2006; Paperson, 2010; Paradies, 2016; Smith, 2005). Today's globalization of markets and technological revolution shaping macroeconomics and medical advancement do not happen in isolation either: they operate within the frame of government policies, rules and regulations.

Politically-driven processes, therefore, from elections to health policy-making, are historically embedded and give direction and intensity to the social determinants of health depending on the political institutional ideologies of the time (Pacheco & Fletcher, 2015; Rodriguez, 2018; Rodriguez, Geronimus, Bound, & Dorling, 2015). In this manner, the social construction of vulnerable populations (Schneider & Ingram, 1993) gains epidemiological meaning within the context of their political construction. Immigrants, for instance, are politically defined by citizenship rights (Chavez, 2013); black people and Native Americans by being descendants of slaves or colonized indigenous nations (Robinson, 2001; Schroedel & Aslanian, 2015). Likewise, gender groups are characterized via state surveillance of reproduction, marriage and family relations (Laslett & Brenner, 1989); children and older adults through human rights legislation and retirement systems (James, 2011; Phillipson, 1982); religious groups by, for example, being a Jew after the Holocaust or a Muslim after September 11 (Levy & Sznaider, 2004; Ocampo, Dana, & Barreto, 2018).

Governments not only politically construct vulnerable and privileged populations; they also construct the social hierarchies in which they are embedded. This happens because governments have a vantage point to use history to institutionalize social identities, belief systems and legal frameworks for group differentiation, the distribution of and access to resources and opportunities, and ultimately the legitimization of the ownership and use of power (I. H. Lopez, 1997; Marx, 1997): the key predecessors, in the causal chain, of the social determinants of health.

Accordingly, vulnerable communities and the social determinants of health are currently being politically constructed. Examples include the "zero-tolerance policy" that separates immigrant families at the U-Mexico border. In December 2017, the Centers for Disease Control and Prevention were directed not to use the words diversity, entitlement, evidence-based, fetus, transgender, vulnerable, and science-based in their budget requests, all central to health disparities research. Similarly, the removal of health information on the LGBTQ community from numerous federal websites, and the almost complete elimination of gunviolence research from the National Institute of Justice (Gostin, 2018).

These types of events reveal that critical policy, budgetary, and legislative decisions shaping the social determinants of health mostly happen within governmental structures and jurisdictive frameworks. Governments influence virtually all aspects of daily lives. They regulate

the fuel and chemical industries and prescribe environmental policy (J. S. Shapiro, Walker, & NBER, 2015; Wilson & Schwarzman, 2009). They also make decisions affecting employment, the minimum wage, and the power of worker unions (Boris & Klein, 2015; Cummings & Kreiss, 2008; Figart, Mutari, & Power, 2002). Their decisions also affect the consumption of unhealthy products by, for example, taxing or not sugar-sweetened beverages and tobacco (Hacker & Pierson, 2010; Niederdeppe, Gollust, Jarlenski, Nathanson, & Barry, 2013). Likewise, government decisions shape the distribution of life opportunities, from access to education to mass incarceration and the criminal justice system (Alexander, 2012; Purtle, 2013). The fate of the largest national health programs-Medicaid, Medicare, the Affordable Care Act, and Social Security—as well as legislation affecting nutrition, physical activity, and the built environment (Callaghan & Jacobs, 2016; Eyler, Nguyen, Kong, Yan, & Brownson, 2012; Glied & Jackson, 2017) are all heavily influenced by politics, and all vary widely depending on the political party in power.

#### 1.2. Political parties, the president, and infant mortality

The infant mortality rate has traditionally been the focus of public policy. Vulnerable communities, such as pregnant women and newborns, are more likely than others to be measurably affected by variations in the social determinants of health. Socioeconomic adversity and inequality, racial and gender discrimination, and lack of access to high-quality health services and resources interact with the biological endowment of pregnant women affecting gene expression and ultimately the health of their newborns (Geronimus, 1996).

Public policy and interventions matter for infants' health, and they reflect government activity—the most concrete political output resulting from the collective articulation of officeholders. Yet such collective articulation does not happen in a vacuum; it is framed within the political platform of the party they represent. In the United States, the political parties are longstanding, powerful institutions exclusively committed to political activity. They organize political information to educate and mobilize their electoral support. Political parties are also responsible of producing networks to finance campaigns, the nomination and election of candidates, and compete around ideologically-informed policy agendas (Aldrich, 1995; Hershey, 2014). The U.S. political two-party system, therefore, is the chief instrument for bureaucracy and democratic administration. As Schattschneider (1942) claimed, "democracy is unthinkable save in terms of parties" (p. 1); or, as Aldrich (1995) later paraphrased him, "democracy is unworkable save in terms of parties" (p. 3; italics in original).

Political parties and their elites' ideological polarization have grown extreme over the past decades (McCarty, Poole, & Rosenthal, 2016). Polarization along party lines is critical because lack of consensus generates policy gridlock. Accordingly, political polarization correlates with government *inaction*. This means that politics can still directly or indirectly affect the social determinants of health as a consequence of policies that have not changed or that did not get enacted. This observation is true in general, but not on all fronts. Research shows that most of the bills that do become effective follow the interests of high socioeconomic status individuals, and even more so of powerful interest groups and corporate elites (Achen & Bartels, 2017; Freudenberg, 2014). Simply put, health policy and policies shaping the social determinants of health are the result of the mobilization of political power.

And, in the United States, the president represents the head of power. Presidents are also the most salient, influential single political figures advancing, directly or indirectly, the policy platform of their party (Marshall, 2008). Not only are presidents the focal point of the media, public opinion, and popular culture; they also are well-resourced to unilaterally initiate, innovate, and prioritize the policy agenda via executive orders, agreements, statements, proclamations, and memoranda (Thorpe, 2014). Given gridlock in Congress, presidents

have increasingly equipped themselves with bureaucracies, thousands of staff members, and gatekeeper appointments who have the power to shape policy and advance the presidential agenda quite independently from Congress, if necessary (Kagan, 2001; Krent, 2008; Lewis, 2011). This vast expansion of the executive branch has put the bulk of federal management resources in the president's hands, from greater access to information and the capacity to act faster than other branches of government, to the legal leverage that gives the executive branch the last word on its own authority (Marshall, 2008).

Political polarization also interacts with public opinion informing the ways presidents shape their legislative coalitions. Presidential policy-making is increasingly responsive to polarized partisan bases, as is the congressional decision-making reaching the president's desk (Purtle, Goldstein, Edson, & Hand, 2017; R. Y. Shapiro & Jacobs, 2010). Further, media consumption on the social determinants of health is also polarized. Democrats and Republicans disagree on almost every aspect of healthcare policy and reform (Gollust, Lantz, & Ubel, 2009), including differences on government actions to reduce health disparities along racial, socioeconomic, and immigration status lines (Rigby, Soss, Booske, Rohan, & Robert, 2009; Sanchez et al., 2012, 2017; Vargas, Sanchez, & Juárez, 2017; Vargas & Ybarra, 2017). Overall, ideology is correlated with public opinion on health disparities, with liberal and moderate (vs. conservative) political elites being more likely to agree that health disparities exist and need to be addressed via policy (Pacheco & Maltby, 2017; Purtle, 2013; Purtle et al., 2017).

Research also shows that both Democratic and Republican presidents have increasingly incorporated a free-market capitalist agenda and have given massive tax cuts to the wealthy worsening critical social determinants of health like income and wealth inequality (Hacker & Pierson, 2010; Piketty & Saez, 2007). Both are less responsive to the policy positions (including health policy) of low-income citizens (Flavin, 2012; Rigby & Wright, 2013). They have been likewise hostile to undocumented immigrant populations (Macías-Rojas, 2018) and felons and ex-felons (Alexander, 2012) thus undercutting the provision of public goods and services among the needlest communities.

Both Democratic and Republican presidents heavily rely on campaign donations from the super-rich and corporations putting their interests ahead of those of the average citizen and apply mobilization strategies focused on the already-active rather than mobilizing the poor and the politically isolated (Gilens & Page, 2014; Leighley, 2001)—i.e., those with higher health needs. Both have strengthened the prison and military industrial complexes perpetuating mass incarceration and war (Alexander, 2012; Thorpe, 2014). And both have cut regulations for the benefit of businesses, including the pharmaceutical and food industries, perpetuating malpractices in the industry that affect health (Davis & Abraham, 2013; Freudenberg, 2014).

Although presidents from both parties have threatened the social determinants of health and vulnerable populations, research shows marked differences between their administrations. There are at least two clear instances in which Democratic presidents have recently worsened the health of vulnerable populations. The first one is Bill Clinton's Three Strikes Law—an excessive statute imposing life in prison to persons convicted of three serious felonies or drug offenses. By treating drug offenders as criminals, it was possible to focus on punishment and escalate mass incarceration of racial minorities while overlooking their health needs (Turney, 2017). Evidence shows that mass incarceration also harms the physical, mental, and behavioral health of children and partners of incarcerated people (Foster & Hagan, 2009).

The second is Barack Obama's first-term massive immigrant removals—the legacy of Bill Clinton's draconian 1996 Illegal Immigration Reform and Immigrant Responsibility Act (Macías-Rojas, 2018). As Obama's immigrant removal record is the highest in presidential history, such immigration law enforcement resulted in racial profiling and the over-criminalization of Latinx men. The anxiety of living under vigilance, the stigmatization of being an immigrant, the separation of

families, and the experience of arrest, detention, and deportation became salient stressors affecting health (APA, 2018). In fact, immigrants live in communities profiled by immigration enforcement, and the stress-related spillover effects of immigration raids affect birth outcomes among Latinx mothers (Novak, Geronimus, & Martinez-Cardoso, 2017).

While research directly testing the connections between politics and health in the U.S. is still in its developmental phase, there is growing evidence that Republican administrations have directly and indirectly undermined the social determinants of health. For example, Republican administrations have favored the tobacco industry by lowering cigarette taxes (Golden, Ribisl, & Perreira, 2014). They have also been indulgent with firearms deregulation and the political wills of the National Rifle Association (Santilli et al., 2017). Republican administrations have been reluctant to promote environmental health protection while acquiescing to the fuel and chemical industries' antiregulatory efforts (Fredrickson et al., 2018). They also support market-based approaches to health insurance that limits coverage—a position that mobilized the repeal of the Affordable Care Act as a platform priority (Cummins, 2011).

Republican politics are also engrained in the unequal balance of power among constituencies with different health needs. For instance, Republican budget proposals are much more consistent with whites' and high-income individuals' preferences than with those of black people and the poor (Griffin & Newman, 2016). Similarly, the proportion of Political Action Committee (PAC) contributions to Republican candidates are strongly, positively correlated with higher-income medical specialties (Bernstein, Barsky, & Powell, 2015). Similarly, other researchers show that Republicans have benefitted electorally—directly or indirectly—from felon disenfranchisement policies and premature mortality among black people (Cottrell, Herron, Rodriguez, & Smith, 2019; Purtle, 2013; Rodriguez et al., 2015), and are increasingly supported by opponents of universal health insurance, and a healthier and more politically-active constituency (Henderson & Hillygus, 2011; Pacheco & Fletcher, 2015).

Research also indicates that Republicans have promoted a policy agenda aligned with economic, social, and racial conservatism since the Realignment period, linking these to partisanship (Rodriguez et al., 2014c; Tesler & Sears, 2010; Valentino & Sears, 2005). The Democratic Party (long sympathizer of the Jim Crow system in the South) gradually incorporated a more racially-liberal policy agenda based on the issues raised by the Civil Rights Movement. Racially-relevant issues newly promoted by Democrats-such as busing, crime, welfare, poverty, affirmative action and government assistance to minorities—were jointly promoted with liberal social stances on abortion, gay rights, faith-based issues, taxes, and national defense (Sears, Valentino, & Cheleden, 1999; Valentino & Sears, 2005). As the two parties polarized along racial/ ethnic identities and the balance of political power between them, higher racial resentment in the South became a stronger predictor of voting, Republican partisanship, and policy attitudes than in other U.S. regions (Osborne, Sears, & Valentino, 2011; Sears et al., 1999; Valentino & Sears, 2005). More recently, racial attitudes during Obama's era became more powerful drivers of partisanship polarization than they were before Obama, even showing spillover effects of racialization over healthcare reform (Knowles, Lowery, & Schaumberg, 2010; Tesler & Sears, 2010).

The most recent example of this policy conservatism-racial prejudice-partisanship connection is the election of Republican President Donald Trump and his administration. Research shows that whites more fearful of other races/ethnicities were 10 times more likely to vote for Trump (Green & McElwee, 2018). Whites reminded that they will eventually become a minority showed increased support for Trump's anti-immigrant policies (Major, Blodorn, & Major Blascovich, 2018). Among low-education whites, there was a 60-percentage point support difference for Trump between those who deny—compared to those who acknowledge—the existence of racism in the U.S. (Sides, Tesler, &

Vavreck, 2017). Similarly, a series of studies point out that Trump's political appeals to racial resentment and sexism either have the potential or have already had negative psychological and physiological consequences (Hoyt, Zeiders, Chaku, Toomey, & Nair, 2018). Indeed, Trump's cuts to healthcare and environmental programs, and the antigovernment, anti-tax and pro-gun policies he is pushing through 'white backlash conservatism,' have shortened the lives of lower- and middle-income white Americans (Metzl, 2019).

These findings on Trump's presidency confirm longstanding research on Republican administrations. Republican regimes correlate with higher suicide and homicide rates (Gilligan, 2013). They also correlate with higher unemployment and lower inflation, producing higher income and wealth inequality (Bartels, 2016). Republican rightwing politics also infuse fiscal deficits through tax cuts and increased military spending thus shrinking the expansion possibilities of healthcare coverage and services (Kawachi, 2009). Further, Republican administrations prioritize reducing government involvement by not subsidizing healthcare, and rank the reduction of costs over healthcare access (Pagel, Bates, Goldmann, & Koller, 2017).

Despite the studies listed above naturally have shortcomings and limitations, the convergence of results from a multidisciplinary spectrum of researchers reveals a strong, longstanding politicization of the social determinants of health. Likewise, it is difficult to find research supporting the hypothesis that the public and social policies and programs that shape the social determinants of health are equally influenced by the political parties and by political actors working at different locations along the liberal-conservative ideological spectrum.

## 2. Methods

Given that the distribution of public goods and services that shape the social determinants of health respond to the government activity dictated by political actors, the parties they represent, and the ideology that brings them together, we hypothesize that the party that controls the presidency and the president's ideology affect overall and racespecific infant mortality rates (IMRs). In line with the growing evidence, we expect that Republican and socially-conservative presidents would detrimentally affect IMRs and racial disparities in IMRs. To test our hypothesis, we collected data from the National Vital Statistics Reports, the Current Population Survey, the Bureau of Labor Statistics, the Centers for Medicare & Medicaid Services, and the U.S. Census Bureau among many other sources (Appendix). The variables included in this study (Table 1) are relevant to infant mortality overall, and to racial disparities in IMR according to existing literature (Appendix). Given variation on data availability, we assembled a national-level dataset for the time period with the highest consistency across indicators, mostly covering 1965-2010 depending on data availability.

Partisan control of the presidency is lagged by one year, as is standard in the literature, since it is not expected that presidential policy would affect infant mortality immediately (Finkelstein, 2004). To cross-validate our findings with the president's party, we used 1-year lagged DW-Nominate scores—an objective measure of the ideological position of politicians, estimated using their complete voting and proposed bills records. To locate politicians in a liberal-conservative spectrum, scores also account for the frequency with which politicians vote in conjunction with, or in opposition to, other politicians throughout their political record. The resulting scores vary from -1 (extremely liberal) to 1 (extremely conservative) (McCarty et al., 2016; Poole & Rosenthal, 2001; Appendix).

The data are de-trended—i.e., residuals were recovered after fitting a long-term trend—since infant mortality is strongly related to long-term factors such as medical technology, sanitation, and programs like Medicaid. By de-trending all the variables (except the president's party, DW-Nominate scores, and the recessions indicator) we removed most of the variation attributable to history. Explicitly, residuals were recovered after fitting a median cubic spline with knots fixed at minimum

and maximum values of time range plus equidistant internal knots at 33.3 and 66.7% of time range (Rodriguez, Bound, & Geronimus, 2014b, c: Appendix).

Overall and race-specific IMRs are analyzed separately. Comparison of medians and means of de-trended data (Table 1), quantile regression on the median and OLS linear regression (Table 2), and influence Deltabeta analysis (Table S1, Appendix) are implemented to assess the association of interest and its robustness. We used Least Angle Regression (LAR) (Efron, Hastie, Johnstone, & Tibshirani, 2004) to explore the importance of the president's party at explaining IMRs (Fig. 1). LAR applies a model-building algorithm to produce a parsimonious linear model (simplified from a given set of covariates) in which variables are orderly selected according to their statistical importance and prediction accuracy. Using the variables selected by LAR's algorithm, we then took advantage of the nice small-sample properties of Seemingly Unrelated Regressions (SUR) (Kmenta & Gilbert, 1968) to run a sensitivity analysis and analyze the robustness of the collective association of the president's party with overall and race-specific IMRs (Table 3). Given that race-specific IMRs are related to one another and are inbuilt components of overall IMR, SUR allows to simultaneously estimate the distinct effects of the president's party on overall and race-specific IMRs accounting for the fact that they are interrelated (Appendix).

Given that presidential policy precedes the social determinants of health that in turn affect IMR, effects of the president's party on IMRs may be inherently indirect. A mediation analysis is therefore used to explore the possibility that the president's party belongs in the causal chain responsible for infants' health. To do this, a baseline structural equation model is used to explore mediation dynamics and the stability of the president's party direct effect coefficient. The structural equation models were fitted using maximum likelihood estimation. Because the ratio of data points to possible mediators is small, two mediators are "rotated" alternatively, with each mediator sharing the model with all other mediators one time (Fig. 2). The sensitivity of the president's party direct effect on IMRs was analyzed using a total of 1,218 structural models-with 406 different mediator-combination models for overall, white and black IMRs respectively (Fig. 3; Appendix). Direct and indirect effects were estimated each run. Accordingly, indirect effects via Rotate 1 = B1 \* B4, and via Rotate 2 = B2 \* B5. The direct effect was always B3.

#### 3. Results

Table 1 shows a drastic difference between the political party of presidents across de-trended IMR-relevant social determinants of health indicators. There is a general underperformance of Republican (vs. Democratic) presidents at improving the social determinants of health. All medians and means of de-trended overall infant mortality rates (IMR), whites' (WIMR), blacks' (BIMR), low birthweight (LBW) and preterm birth (PB) rates are negative—i.e., decrease relative to trend—under Democratic presidents and are positive—i.e., increase relative to trend—under Republican presidents.

Analyses of these cross-party differences via quantile regressions on the median and OLS linear regressions corroborate differences depicted in Table 1 (Table 2). The DW-Nominate scores (DWN) faithfully replicate statistical results using the president's party. For instance, OLS linear regression estimates show that, net of trend, the average socially-conservative Republican president (average DWN = 0.70) is associated with .29 (IMR), .25 (WMR), and .50 (BIM) more annual infant deaths per 1,000 live births compared to the average socially-liberal Democratic president (average DWN = -.56). Given that the average ideological distance between socially-conservative and socially-liberal presidents is 1.26 units, multiplying the DWN coefficients by 1.26 shows those results are practically identical to results using the president's party. Delta-beta analysis shows these results are not driven by any specific president-year (Table S1, Appendix).

Results from LAR show the president's party was among the earliest

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 $\begin{tabular}{ll} \textbf{Table 1} \\ \textbf{Medians, means, and test statistics of de-trended variables by president's party.} \\ \end{tabular}$ 

Variable	Median	Median	Wilcoxon	Probability	Mean	Mean	T-test	N
			Rank-sum Test	Random draw				
De-trended	Dem	Rep	(p-value)	Dem > Rep <sup>a</sup>	Dem	Rep	(p-value)	
IMR (all races)	191	.131	.00	.12	174	.112	.00	46
Black IMR	461	.208	.00	.21	305	.196	.00	46
White IMR	188	.112	.00	.10	150	.096	.00	46
Low Birthweight Rate (all races)	022	.005	.12	.36	024	.015	.05	46
Preterm Birth Rate (all races)	140	.061	.00	.20	131	.066	.00	42
DW-Nominate Score <sup>b</sup>	52	.73	.00	.00	56	.70	.00	46
Recessions <sup>b</sup>	.00	.00	.36	.44	.17	.29	.37	46
Family Income Gini Index	0002	.0002	.51	.44	0002	.0001	.85	46
Black Family Income Gini Index	0047	.0014	.00	.23	0045	.0027	.00	45
White Family Income Gini Index	.0001	.0005	.82	.48	.0003	0002	.74	46
Income Share Ratio Top 5%/Bottom 20%	08	.09	.10	.36	08	.05	.09	46
Percent Poverty	05	.06	.25	.40	16	.11	.20	46
Percent Under 1.25 Poverty Threshold	26	.04	.29	.41	17	.10	.29	45
Percent Female Poverty	16	.08	.28	.40	15	.09	.27	45
Percent Female Without Husband Poverty	79	.50	.03	.31	53	.34	.04	46
Percent Black Poverty	82	.27	.02	.30	69	.42	.01	45
Percent White Poverty	11	.06	.40	.43	11	.07	.35	46
Percent Black Females Without Husband Poverty	-1.01	.62	.01	.25	87	.53	.01	45
Percent White Females Without Husband Poverty	41	.25	.13	.37	42	.27	.11	46
Income Share of Top 5%	.09	.00	.59	.55	.06	04	.45	46
Black Income Share of Top 5%	40	.17	.03	.31	33	.20	.03	46
White Income Share of Top 5%	.07	12	.29	.59	.06	04	.61	46
Income Share of Bottom 20%	.03	06	.01	.72	.05	03	.01	46
Black Income Share of Bottom 20%	.09	06	.00	.81	.10	06	.00	45
White Income Share of Bottom 20%		03	.01			03		46
	.04 229	03 113	.02	.72	.04 247	03 150	.02 .01	
Mean Income of Bottom 20%				.71				45
Black Mean Income of Bottom 20%	203	- 94	.00	.79	282	-171	.00	45
White Mean Income of Bottom 20%	246	- 99	.03	.69	210	-128	.03	45
Women's % of Men's Earnings	29	.31	.02	.30	43	.28	.01	46
Consumer Price Index-URS	50	.36	.24	.40	98	.63	.10	46
Change in Consumer Price Index Medical Care	04	14	.82	.48	06	.05	.80	39
Unemployment	15	.12	.31	.41	22	.14	.23	46
Black Unemployment	03	.31	.27	.40	32	.21	.25	46
White Unemployment	20	.08	.36	.42	20	.13	.24	46
Percent with High School Degree	.03	03	.14	.63	.08	05	.10	46
Percent Black with High School Degree	.21	10	.07	.66	.22	14	.05	46
Percent White with High School Degree	.02	05	.15	.63	.08	05	.08	46
Percent Black Female with High School Degree	04	.02	.62	.54	.09	06	.54	46
Percent White Female with High School Degree	.04	05	.30	.59	.03	02	.41	46
Total Maternal/Child Expend. per capita	.02	02	.19	.62	.06	04	.11	46
Federal Maternal/Child Expend. per capita	.02	01	.32	.59	.02	02	.21	46
Total Maternal/Child Health Expend. %GDP	.00	.01	.77	.53	.03	17	.27	46
Federal Maternal/Child Health Expend. %GDP	03	01	.49	.44	.00	.00	.99	46
Percent Uninsured	25	.04	.25	.37	14	.08	.26	31
Alcohol Consumption	.00	.01	.47	.43	.00	.00	.53	43
Tobacco Consumption	27.7	- 9.6	.38	.58	7.98	-5.42	.48	42
Median Age of Mother at 1st birth	.025	020	.34	.59	.012	009	.38	39
Black Median Age of Mother at 1st birth	.041	-0.022	.13	.64	.032	025	.09	39
White Median Age of Mother at 1st birth	.017	.004	.80	.52	.002	002	.84	39
Percent Rural Population	.04	.03	.96	.50	02	.01	.19	46
Abortion Rate	.39	.03	.78	.48	02	.03	.86	44
Abortion Ratio		- 4.59				.03 99		
	4.04		.39	.58	1.57		.62	44
Abortion Percent	.27	18	.74	.53	06	.04	.86	44

a Probability that a random draw from Democratic president values would be larger than a draw from Republican president values.

variables chosen into the model (revealing its high importance for infant mortality) and the size of its coefficients is substantial (Fig. 1). The president's party is the most important predictor of IMR and WIMR, and the third most important of BIMR (after LBW and rurality). LAR best-fitting standardized models show that, net of trend, IMR, WIMR and BIMR are on average .17, .15, and .25 respectively higher in a typical Republican-president-year compared to a typical Democrat-president-year (Tables S2a–S2c, Appendix). With 28 Republican-president years between 1965 and 2010, Republican presidents are associated with a total slowdown of the IMR, WIMR and BIMR equivalent to 4.76, 4.20,

and 7.0 infant deaths per 1,000 births respectively.

SUR analyses corroborate Republican administrations underperform Democratic ones in IMR, WIMR, and BIMR. Effects on BIMR are also noticeably larger than on WIMR under Republican administrations, thus promoting racial disparities in health. Estimates from Model 6 show that, net of trend, Democratic presidents would have saved 1 extra infant life per 1,000 live births for every 5–6 years of Republican administrations—i.e., approximately 20,000 infant lives in the study period. Had Republican presidents had the record of Democratic presidents for IMR, most (if not all) IMR differences between the U.S. and

<sup>&</sup>lt;sup>b</sup> Not de-trended.

Table 2
Parameter estimates of quantile and OLS linear regressions for IMRs using president's party and DW-Nominate scores, 1965–2010.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Quantile	OLS										
	IMR	IMR	IMR	IMR	WIMR	WIMR	WIMR	WIMR	BIMR	BIMR	BIMR	BIMR
President's party	.31*	.286*			.30*	.25*			.63*	.50*		
	(.07)	(.05)			(.04)	(.04)			(.14)	(.13)		
DW-Nominate			.23*	.23*			.21*	.20*			.48*	.40*
			(.05)	(.04)			(.05)	(.03)			(.14)	(.10)
Constant	19*	17*	-0.07	05	19*	15*	06	04	43*	31*	08	08
	(.05)	(.03)	(.03)	(.03)	(.03)	(.02)	(.03)	(.02)	(.11)	(.11)	(.09)	(.07)
Observations	46	46	46	46	46	46	46	46	46	46	46	46
R-squared		.39		.40		.37		.39		.26		.28

Note: DW-Nominate scores vary from -1 (extremely liberal) to 1 (extremely conservative). Average score for Democratic presidents is -.56 and for Republican presidents is .70 (difference of the means = 1.26 units). Standard errors are in parentheses; for OLS linear regressions standard errors were estimated using robust estimation. Statistical significance code: \* p < .01.

the rest of the developed world would possibly have never existed. For example, averaged IMRs between 2005 and 2010 for Singapoure, Hong Kong, Iceland, Luxemburg, and Sweden (the five world nations/territories with the lowest IMR) were 1.9, 2.0, 2.1, 2.3, and 2.6 respectively, while for the U.S. was 6.8 (U·N., 2019). Whereas the difference between the IMR of the U.S. and the average IMR of these top-5 nations/territories is 4.6 units, the total IMR slowdown during the 28 years of Republican administration was 5.04 units.

A similar scenario arises for WIMR and BIMR, which were, net of trend, .17 and .29 units higher respectively, during a typical Republican-president-year vs. a typical Democratic-president-year. The racial gap in IMR therefore increased by about 1 infant death per 1,000 live births for every 8 years of Republican administration. Net of trend, observed total increase in the black-white IMR gap between 1965 and 2010 was 7.6 units, of which 3.5 (46%) could be attributed to the 28 years of Republican administrations. Republican presidents may have been the single most important factor affecting national IMRs and racial disparities in infant mortality in the U.S. during the last half century.

Results from the structural equation model (SEM) mediation analyses show that LBW and PB are strong mediators of the president's party effect on IMR, WIMR and BIMR. The direct effect of the president's party repeatedly diminishes-while its indirect effect repeatedly increases—mostly under the presence of LBW and PB (Fig. 3). This needed not to be true. That PB and LBW—two key predecessors of infant mortality-happen to mediate the president's party effect on IMRs, suggests that the president's party belongs to the causal chain that produces infant mortality. Whichever the social factors altered by the president's party, they persistently affect IMR, WIMR, and BIMR more so through PB than through LBW, with average indirect effects of .16 vs .08, .18 vs .11, and .17 vs .15 respectively. Using average direct effects of the president's party on IMR, WIMR, and BIMR at baseline, these effects diminished by 15, 12, and 26% respectively when LBW was selected into the model, and by 22, 19, and 20% respectively when PB was selected into the model.

# 4. Discussion and conclusions

We found that the president's ideology cross-validates the effect of the president's party on infant mortality. This is critical because it indicates that historical factors shaping the U.S. two-party system are harmonized with presidents' ideology in the conventional social conservative-liberal spectrum, affecting health. Net of trend, the economic, social and racial conservatism incorporated by the Republican Party since the political Realignment has worsened overall and race-specific IMRs and increased racial disparities in IMRs. Should the political, institutional and ideological polarization of the past decades continue,

the public health community should expect an increasing politicization of U.S.'s healthcare system. This also means a higher correlation between health outcomes and political factors; a higher political influence on welfare, public health policy, and the effectiveness of interventions at improving health.

That from dozens of key determinants of infants' health the president's party was selected as the most important predictor of national IMR and WIMR, and third for BMR, highlights how necessary political factors are for public health research. Nonetheless, pivotal surveys in public health tend not to include political variables. Without being able to include political variables in research designs our understanding of and capability to improve population health and entrenched racial disparities in health are limited, incomplete, and potentially biased. Recent research also shows that critical variables like health status, mortality, drug use, and insurance coverage are correlated with electoral outcomes, party identification and policy-issue positions (Bor, 2017; Cottrell et al., 2019; Goodwin, Kuo, Brown, Juurlink, & Raji, 2018; Monnat & Brown, 2017; Pacheco & Fletcher, 2015; Rodriguez, 2018; Rodriguez et al., 2015). Health appears to be endogenous to politics; political decisions shape the social determinants of health that in turn affect the health outcomes on which subsequent political decisions are made. Political factors may, therefore, be interpreted as essential social determinants of health themselves in the sense that politics may be both a cause and effect of health processes, and vice versa (Rodriguez et al., 2015).

Interestingly, our SEM analyses showed that the effects of the president's party on IMRs were not completely attenuated by mediation dynamics. Such attenuation was an expected behavior of coefficient estimates because the president's party presumably affects infant's health through the social determinants of health. One possible explanation is that by de-trending the data, slow yet significant temporal changes in the social determinants of health were absorbed by the splines, thus removing essential variation that otherwise would have been linked to infants' health. Partial mediation was also probably due to model misspecification, where mediators of and paths between the president's party and IMRs were omitted (due to small sample constraints). Our SUR analyses showed, however, that factors associated with LBW, PB, rurality, alcohol consumption and abortion attenuated the president's party effect on IMR, WIMR and BIMR by 38%, 32%, and 42% respectively.

Another alternative explanation is that, given the centrality of the president's party, it may work as a unitary construct capturing critical variation of the multivariable structure of *all* federal policy effects on health. Presidents, their party and ideology may possibly reflect underlying covariation of all components of policy-making and execution. Accordingly, the president's party may be working as a multi-social

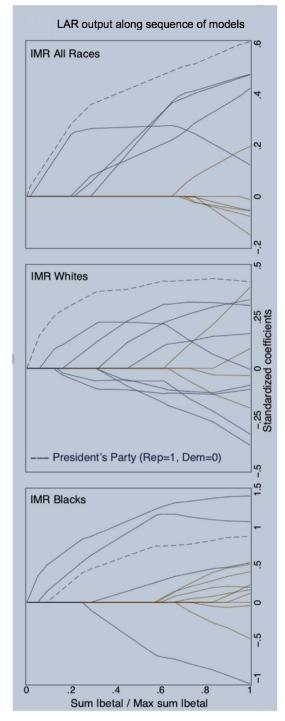


Fig. 1. LAR output along sequence of models.

Fig. 1. The dark lines (the first ones from left to right of X-axis) refer to variables included in the final model—i.e., the one that minimizes Mallows' Cp statistic, which is a parameter of prediction error (Fig. S2, and Tables S2a–S2c in the Appendix). From left to right of the X-axis, variables are selected into the model in order of importance. In this case, their effects on IMRs are gradually manipulated in the direction of prediction accuracy. The Y-axis refers to the size of coefficients (standardized). Different sets of variables were used in the models (e.g., if models were race-specific, then race-specific variables were used accordingly, if available). The variables were also chosen to diminish multicollinarity (see Tables S6a–S6c in the Appendix). In order of importance, the predicting variables included were:

IMR for all races: (1) president's party, (2) PB, (3) Percent rural population, (4) LBW, (5) alcohol consumption, (6) income share of top 5%, (7) abortion ratio, (8) Federal per capita expenditure in maternal/child care, (9) percent with high school, (10) women/men income ratio, and (11) income share of bottom 20%.

IMR for whites: (1) president's party, (2) PB, (3) percent whites with high school, (4) abortion ratio, (5) alcohol consumption, (6) federal per capita expenditure in maternal/child care, (7) income share of bottom 20% for whites, (8) LBW, (9) income share of bottom 20% for whites, (10) percent rural population, (11) women/men income ratio, (12) cigarette consumption, and (13) total expenditure maternal/child care as percent of GDP.

IMR for blacks: (1) LBW, (2) percent rural population, (3) president's party, (4) abortion percent, (5) alcohol consumption, (6) income share of top 5% for blacks, (7) recession years, (8) total expenditure maternal/child care as percent of GDP, (9) CPI, (10) PB, (11) women/men income ratio, (12) income share of bottom 20% for blacks, (13) Percent black households with females without husband, and (14) percent blacks with high school.

summary measure carrying explanatory weight on IMRs beyond the social determinants of health alone.

Moreover, that the president's party is associated with IMR, WIMR, and BIMR independently from well-established determinants of infants' health, suggests the possible existence of statistical coherence beyond that attributable to policy-making and program implementation. The relationship between the government and population health may go well beyond policy (Muntaner et al., 2012): Governments construct social identities, ideologies of supremacy and subordination, senses of justice and inequality, the norms that dictate what is socially acceptable or stigmatized, and the belief and value systems that thread morality, culture, human relations and the fabric of our social consciousness—all of which shape the underlying factors that regulate our mental, behavioral, and emotional health.

The politics hypothesis therefore sheds light on a critical yet overlooked component of the social determinants of health: That governments throughout time and space not only shape via policy the "conditions in the environments in which people are born, live, learn, work, play, worship, and age" (ODPHP, 2019). They also shape, through the construction of culture and social psychology, *how* people are born, live, learn, work, play, worship, and age. Political forces produce, distribute and perpetuate the frameworks in which our social life unfolds, the ways in which our daily challenges reveal, and the core principles and support systems we use to cope with and adapt to the stressors that 'get under our skin'.

Our findings corroborate other recent analyses using different methods and data (Rodriguez et al., 2014b, c). Racial disparities in IMR are not induced by favoring whites over blacks; rather, they are induced during Republican administrations by favoring neither whites nor blacks—with blacks bearing the worst outcomes. Future research should determine structural and psychosocial mechanisms through which the president's party, their ideology and other political actors affect infant mortality and other indicators of population health, especially those where health disparities are entrenched.

That the president's party and ideology contributes to established mechanisms producing infant mortality, predicts IMRs in concordance with existing research on the social determinants of health, and replicates observed longstanding racial disparities in IMRs reported by public health-specific (politics-independent) research, brings support to the politics hypothesis. Even though all research designs implemented here have limitations, the consistency of results adds support to the politics hypothesis. Accordingly, the inclusion of political factors for the study of public health should be institutionalized; political epidemiology courses should be added to curricula in schools of public health. After all, much has been stressed that population health is considerably an outcome of structural factors (Assari, 2018; Beckfield, 2018; LaVeist & Isaac, 2012; Rodriguez et al., 2019), and, as the politics hypothesis points out, politics is central to them all.

Although there are strong ethical considerations to prevent public health from becoming politically-influenced, it has already been deeply politicized during the past half century. If public health becomes politicized—the argument goes—it may lose the credibility to impartially influence policy, thus injecting considerations other than pure science

**Table 3**Sensitivity Analysis: Seemingly Unreleated Regressions parameter estimates for president's party.

MODELS	IMR All Races	IMR Whites	IMR Blacks
Model 1: President's Party (Rep = 1, Dem = 0)	.29**	.25**	.50**
Model 2: adds Low Birthrate to model 1	.23**	.22**	.34**
Model 3: adds Preterm Births Rate to model 2	.22**	.20**	.38**
Model 4: adds Percent Rural Population to model 3	.21**	.20**	.34**
Model 5: adds Alcohol Consumption per capita to model 4	.18**	.17**	.26**
Model 6: adds Abortion Percent to model 5	.18**	.17**	.29**
Model 7: adds Education to model 6	.18**	.17**	.29**
Model 8: adds Income to model 7	.19**	.17**	.30*

Note: Cells are the effect of the president's party on IMR, WIMR, and BIMR. Sample size varies across models from 39 to 46 depending on data availability. Models 1 through 8 sequentially add the variables selected by LAR in the order they were selected (Tables S2a–S2c, Appendix). "Abortions percent" is abortions as a percentage of pregnancies (excluding miscarriages and fetal deaths). "Education" is percent with a high school (HS) education; percent of whites with HS for WIMR, and percent of blacks with HS for BIMR. "Income" is the income share of the bottom 20% for IMR; income share of bottom 20% for whites for WIMR, and income share of bottom 20% for blacks for BIMR. Standard errors are computed using small sample size statistics. Statistical significance code: \*\*p < .01, \*p < .05.

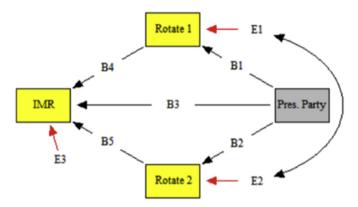


Fig. 2. Baseline structural equation model Fig. 2. Mediation analyses were run using this structural equation model, which accounts for the correlated error of the rotating variables terms (error para-

meters not shown) (Tables S6a-S6c; Appendix).

into efforts to improve population health (Gostin, 2018; Kraemer & Gostin, 2009; Rodriguez, Bound, & Geronimus, 2014a, b, c). The politics hypothesis argues this position does not fit reality: It overlooks public health as a community of researchers, policy-makers, program implementers, health and social workers, and stakeholders whose processes are articulated through institutional arrangements. As Goldberg (2012) puts it, "If American regulatory processes are fundamentally political in nature, the semantics of the claim that public health policy ought not be politicized are puzzling. How can an ineliminable political process avoid politicization?" (p. 46).

It appears matters of life and death are too important to be at the mercy of politicians' idiosyncrasies, the bias of ideology, and the self-interests of political parties and of the wealthy and corporate players they represent. Public health needs to be safeguarded from unjustified political manipulation. Yet, paradoxically, the politics hypothesis suggests this will not be accomplished outside of the realm of politics. The socioeconomic, racial and gender democratization of health may only happen through a fairer execution of the same political means that are currently undermining the health of vulnerable populations. As health and welfare policy depend on social interactions, the fate of the social determinants of health will continue to depend on value judgements that are ideologically informed, institutionally moderated and mediated, and will inevitably be resolved politically (c.f., Quanstrum & Hayward, 2010).

Some limitations of this study should be noted. First, black disadvantage may be underestimated. Even though underreporting adverse health conditions on birth certificates is higher among black people (Buescher, Taylor, Davis, & Bowling, 1993), and that underreporting has changed across time, we found no theoretical reason to

believe it is correlated with the president's party or ideology. Second, although our study represents the universe—not a sample—of presidents in the study period, we faced mall sample size limitations (e.g., the influence of outliers, high multicollinearity, low statistical power, and a large ratio of independent variables to the number of years in the series). However, our findings showed to be robust across a great variety of statistical techniques known to help account for these limitations.

Of course, presidents, their ideology, and the political party they represent are not the only political forces affecting infant's health. Future research would benefit from investigating the pathway complexities through which presidents and other political actors and institutions (e.g., Congress, state legislatures, local government structures) affect health and vice versa. It would be interesting to examine how political factors interact with psychosocial mechanisms (e.g., weathering), measures of multi-system physiological dysregulation (e.g., allostatic load, oxidative stress), and molecular expressions of life stress (e.g., accelerated telomere shortening). More research is necessary to determine how political variables position themselves within behavioral, multi-level, and multigenerational and life-course approaches to health. As evidence continues to develop on how structural forces distribute life challenges and stress in the population, resources and opportunities for adaptation, and ultimately the conditions for disease, disability and death, the politics hypothesis can illuminate research in the social determinants of health, and socioeconomic, racial and gender disparities in health.

# **Ethics approval**

Ethics approval is not required for this paper since it uses publicly available aggregate data.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://

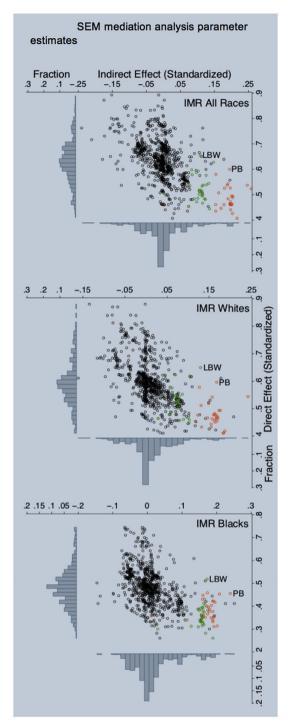


Fig. 3. SEM mediation analysis parameter estimates

Fig. 3. Each data point represents the standardized indirect (X-axis) and standardized direct (Y-axis) effects of the president's party on IMR, WIMR, or BIMR retrieved from a model each time a given rotating variable was selected into the model. The variables that mediate the effect of the president's party on IMRs can be identified as the president's party indirect effects *increase* while direct effects *decrease*. These variables appear in clusters located at the lower-right quadrant of the scatterplots. Standardized coefficients are comparable within panels but not between panels, as coefficients are standardized using the standard deviation of the respective dependent variable (and  $SD_{IMR} \neq SD_{WMR} \neq SD_{BMR}$ ).

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