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“Culture War”:

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## **Spatial Aspects of the American “Culture War”: The Two Dimensions of US Family Demography and the Presidential Elections, 1968-2016**

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## **ABSTRACT**

This paper explores the link between two basic dimensions of family demography and the outcome of presidential elections for states and continental counties in the United States. It shows that the spatial patterns of respectively the "Second demographic transition" (SDT) and voting start converging in the 1990s. The correlations remain very high and stable thereafter. This does not hold for the correlation between the other dimension of family demography, i.e. the pattern of disadvantage (POD), and voting. The spatial SDT-voting correlation does not depend on the issues being debated during the successive elections, and it reaches a maximum in the latest election round (2016) at the level of both states and counties. Furthermore, the zero order correlation remains intact after controls for household income, education, urbanity, religion and ethnicity at the state level, but is reduced at the county level. The latter result is produced by the high concentration of Democratic votes and SDT household structures in the metropolitan counties. On the whole, the SDT dimension is one of the strongest predictors of spatial voting patterns in the US since the turn of the century.

## **Spatial Aspects of the American "Culture War:" The Two Dimensions of US Family Demography and the Presidential Elections, 1968-2016**

### 1. The lasting American "Culture War"

The expression "Culture war" originated in 1992 in James D. Hunter's book "Culture Wars: the Struggle to Define America," and it gained further notoriety following senator Patrick Buchanan's 1992 speech at the Republican Convention when he referred to "a religious war for the soul of America" and to "a cultural war, as critical. . . as the Cold War itself."<sup>i</sup> The typical issues that produced the divide in the US were as diverse as creationism, Bible against science, global warming, gun control, immigration, foreign relations, separation of church and state, education, censorship, individual privacy, recreational drug use, diversity, gender equality, abortion and homosexuality. In this instance, politics became a "cultural struggle" between traditionalist/conservative and modern/liberal views, and by extension between respectively, the Republican and Democratic parties in the US.

The emergence (or re-emergence) of a major cultural component in politics in the western world goes back to the 1960s, and the protest movements of 1968 in particular. An anti-authoritarian stance was common to all these movements, and in the US the polarization connected to the Vietnam War exacerbated the antagonisms. But, under the surface, a new pattern of family demography was being formed from the late 1960s onward, characterized by the end of the baby boom and the emergence of unmarried cohabitation as a form of partnership. This would later on develop into what is now known as a "Second Demographic Transition" (SDT).<sup>ii</sup>

It is in this context that we shall turn to the link between the aspects of family demography in the US and the presidential elections since 1968. More specifically, we will examine the respective spatial patterns at the level of states and counties.

### 2. The questions

In 2006 the present authors showed that the spatial dimension of the US "Second Demographic Transition" (SDT) correlated very strongly and robustly with the outcome of the 2000 and 2004 presidential elections by state and by county. More specifically, there was a strong negative relationship between the SDT indicators and the strength of the Republican vote. We found the same for the 2008 elections. Hence, a double question arose:

(i) Does this negative SDT-Republican vote correlation hold for recent elections, and does its strength vary according to the main issues debated in the various contests?

(ii) Going back in time, when did this correlation emerge, knowing that the SDT features were spreading and increasing in the US during the 1970s and 1980s just as in Western Europe and Canada?

### 3. The two dimensions of US family and household demography

In 2006 the present authors explored the dimensions of the American family and household structures. We could do so on the basis of a large set of indicators by state and by county. Using a classic principal components analysis two basic uncorrelated dimensions were defined, which together captured the gist of the information contained in 19 indicators (see Table 1). More specifically, the two factors covered 67.3 percent of the total variance contributed by the 19 indicators (Lesthaeghe and Neidert 2006).

**Table 1: Two dimensions ("factors") emerging from a Principal Components Analysis of indicators of family and household demography: 50 states, 19 indicators 1986-2002**

<i>Loading = correlation with:</i>	<b>Factor 1 SDT</b>	<b>Factor 2 POD</b>
% non-Hisp white women 25-29 without children in household, 2000	<b>.933</b>	-.186
% non-Hisp white women never married, 2000	<b>.905</b>	-.370
% non-Hisp white ever married women without own children in household, 2000	<b>.902</b>	-.097
Abortions per 1000 live births, 1992	<b>.887</b>	.057
% non-Hisp white women 30-34 never married, 2000	<b>.882</b>	-.326
Abortion rate per 1000 women 15-44, 1996	<b>.836</b>	.136
Fertility postponement ratio (fert.30+ / fert.20-29), 2002	<b>.794</b>	-.411
Same sex households per 1000 households, 2000	<b>.754</b>	.191
Non-Hisp white total fertility rate, 2002	<b>-.725</b>	.009
Non-Hisp. white fertility rate 15-19, 2002	<b>-.675</b>	<b>.633</b>
% households that are "families", 1990	<b>-.642</b>	.328
% households with same or different sex cohabitators, 2000	<b>.517</b>	-.148
Divorce rate per 1000 population, 1990	-.457	<b>.548</b>
Total fertility rate, all races, 2002	.338	-.155
% non-marital births, 1990	.329	<b>.803</b>
% teen births, 1986	-.303	<b>.875</b>
Divorce rate per 1000 population, 1962	-.277	.462
% population 30+ living with and responsible for grandchildren, 2000	-.189	<b>.886</b>
% non-marital births, 2000	.182	<b>.851</b>

The first basic dimension turned out to be an excellent description of the advancement of the so called "*Second Demographic Transition*" (SDT) as its main correlates *are the postponement of both marriage and parenthood, low total fertility and lower teenage fertility, and in addition, higher levels of unmarried cohabitation, including same-sex couples, and procreation among cohabitators.* The only exception, compared to the European SDT-pattern, is that the US divorce rates by state do not line up that clearly with the aforementioned indicators.

The other indicators, by contrast, describe higher levels of extra-marital fertility in the 1990s and of teen-age fertility more specifically.<sup>iii</sup> In addition it captures an indicator of family disruption and poverty, namely the percentage of the population aged 30+ who are living with or are responsible for grandchildren. Initially, we labelled this factor as "*vulnerable women and children*", but the more common term of "*Pattern of Disadvantage*" (POD) would be acceptable as well. Furthermore, the POD-factor for states is strongly negatively correlated with personal disposable income and equally with percentages with completed high school education or with a Bachelor degree (Lesthaeghe and Neidert, 2006).

To get a much finer spatial resolution, the same analysis was also done for the 3141 US counties, using a few more indicators pertaining to the incidence of lone mother households. As can be verified in Table 2, exactly the same two dimensions emerged for counties as for states, and the two added measurements pertaining to female headed households were evidently strong indicators of the POD-dimension.

**Table 2: Two dimensions ("factors") emerging from a Principal Component Analysis of indicators of family and household composition; 22 indicators, 3141 counties ~2000.**

<i>Loading = correlation with:</i>	<b>Factor 1 SDT</b>	<b>Factor 2 POD</b>
% never married females, 25-29 [WNH]2000	<b>.837</b>	-.018
% age at first birth= 28+ in 1988 [WNH] 2000	<b>.812</b>	-.293
Mean age at first birth in 1988 [WNH]	<b>.792</b>	-.410
% childless women, 25-29 [WNH] 2000	<b>.787</b>	-.091
% never married females, 30-34 [WNH] 2000	<b>.780</b>	.074
Fertility postponement ratio, 1988 - 30+/20-29 [WNH]	<b>.733</b>	-.329
% cohabiting households [WNH] 2000	<b>.652</b>	.284
% cohabiting households [Total] 2000	<b>.606</b>	.461
% teen births, 1988 [WNH]	<b>-.556</b>	<b>.613</b>
% same sex cohabiting households [Total] 2000	<b>.517</b>	.364
Total Fertility Rate, 1999 [WNH]	<b>-.503</b>	-.143
% same sex cohabiting households [WNH] 2000	.495	.263
% pop 30+ living with and responsible for grandchildren [WNH] 2000	-.449	<b>.646</b>
% pop 30+ living with grandchildren [WNH] 2000	-.318	<b>.699</b>
% children living in married couple family [WNH] 2000	-.273	<b>-.609</b>
% children living in married couple family [Total] 2000	-.245	<b>-.746</b>
% pop 30+ living with and responsible for grandchildren [Total]2000	-.227	<b>.641</b>
% births by unmarried mothers, 1988 [WNH]	.164	<b>.479</b>
% currently divorced women, 35-44 [WNH] 2000	.127	<b>.530</b>
% pop 30+ living with grandchildren [Total] 2000	-.101	<b>.657</b>
% female-headed families/households [Total] 2000	.069	<b>.706</b>
% female-headed families/households [WNH]2000	.031	<b>.649</b>

Note that the SDT and POD dimensions are "composite" variables constructed on the basis of their indicators. They are normally distributed, with a mean of zero and a standard deviation of unity. The scores, expressed in standard deviations, indicate the relative position of each state or county on the SDT and POD-dimensions.

4. The SDT and the US presidential elections: convergence to a stable spatial association

The purpose of the original article was to predict the spatial pattern of the SDT dimension in the US using a set of socio-economic, cultural and migration features of states and counties. Hence, the demographic *SDT dimension was the initial dependent variable*. But, among the cultural predictors we used indicators of various religious denominations, but also of voting patterns during presidential elections. A very robust net negative relationship was found between the Republican vote and the SDT-factor, both at state and county levels. More specifically, at the state level, the SDT-Bush (2000 and again 2004) correlations were -0.880 and -0.871 respectively. At the county level the correlation of the SDT-dimension with voting for Bush in 2004 was -0.568, and for counties with at least 25,000 inhabitants it increased to -0.667.

This finding drew attention, but mostly not from its demographic angle, but from the political one. In other words, the question became whether or not the SDT dimension could be an excellent predictor of the spatial voting pattern. Now, *election results by state or county are turned from being the independent into the dependent variable.*

This latter question has remained since the 2004 presidential election. The initial critique was that, if dominant issues would shift back from the “Culture War” features to economic topics, this correlation would become unstuck. The collapse of the banking system – bailouts and bank failures dominated the news in the year preceding the 2008 election (Amadeo, 2017). In fact, the Lehmann Brothers bankruptcy occurred less than 6 weeks before the election, but the strong negative correlation between the SDT-dimension and the Republican vote (McCain) for states remained fully intact: -0.839. Evidently, the spatial correspondence between SDT and voting pattern remained exactly as in 2000 and 2004. *This was a first important finding: the spatial voting pattern in the US was not dependent on the dominant issues in the election specific debates.* Which candidate wins is a different matter!

To find out more about that stability of the spatial pattern of negative SDT-Republican Voting association, we calculated the correlation for the 50 states, starting with Nixon 1968 through Trump 2016. It should be noted that there were four elections with a significant conservative 3<sup>rd</sup> party candidate: Wallace in 1968, Anderson in 1980, Perot in 1992, and the Mormon candidate McMullen in 2016. As a result we also produced additional correlation coefficients with the vote for these four added to that of the Republican candidate.

Also note that we have not reconstructed the SDT-factor. In other words, the SDT variable is still capturing the picture by state as of the 1990s. The SDT-dimension can probably be updated for states, but this is not the case for counties.<sup>iv</sup> The vital statistics data are no longer available for all counties and a substitute based on census data has flaws.

With these caveats in mind, we can turn to the evolution of the correlation coefficient between the SDT dimension and the Republican/Conservative vote since 1968. The outcomes are shown in Table 3.

**Table 3: Correlation between the Percent Voting for the Republican candidate or Republican+3<sup>rd</sup> Conservative candidate 1968-2016 and the SDT-dimension ~1990s: 50 states**

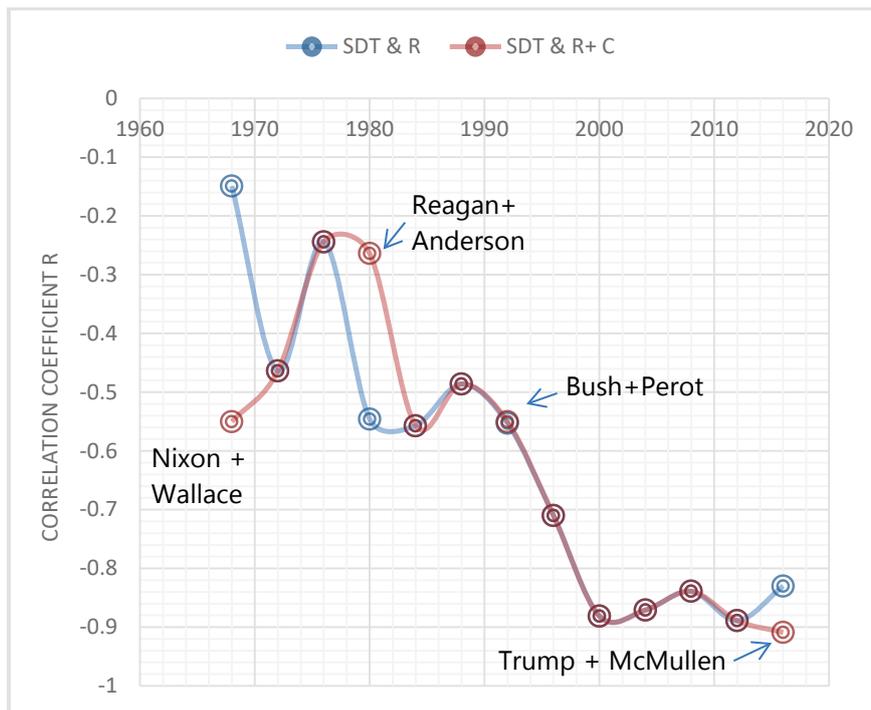
<i>Pre 1990 elections</i>			<i>Post 1990 elections</i>		
Year	Candidate	Repub & SDT	Year	Candidate	Repub & SDT
1968	Nixon	-.149	1992	Bush, H.W.	-.553
1968	Nixon + Wallace	-.550	1992	Bush, H.W. + Perot	-.550
1972	Nixon	-.464	1996	Dole	-.710
1976	Ford	-.244	2000	<b>Bush, W.</b>	<b>-.880</b>
1980	Reagan	-.546	2004	<b>Bush, W.</b>	<b>-.871</b>
1980	Reagan + Anderson	-.264	2008	<b>McCain</b>	<b>-.839</b>
1984	Reagan	-.557	2012	<b>Romney</b>	<b>-.889</b>
1988	Bush, H.W.	-.486	2016	<b>Trump</b>	<b>-.830</b>
			2016	<b>Trump + McMullen</b>	<b>-.909</b>

Source: Election returns from [Atlas of U.S. Presidential Elections](#)

A graphical representation of Table 3 is given in Figure 1. The blue dots and lines link the correlation coefficients for SDT-1990s and the vote for the Republican candidate alone, whereas the red dots and lines do that for the joint vote for the Republican and other conservative candidates, when appropriate. There are big gaps between the two series until the 1990s (Nixon vs Nixon+Wallace and Reagan vs Reagan+Anderson), and much smaller ones after 1990 (Bush, H.W. vs Bush, H.W.+Perot and Trump vs Trump+McMullen).

The overall picture is that of (i) weaker negative correlations between the Republican (or Republican +3<sup>rd</sup>) and the SDT states map prior to the 1990s, (ii) a clear convergence of the two variables in the 1990s, and (iii) a very stable negative and substantial correspondence after 2000 and continuing through the latest 2016 elections. *More specifically, after the turn of the century, correlations were observed between -.830 and -.900 for no less than 5 successive elections.*

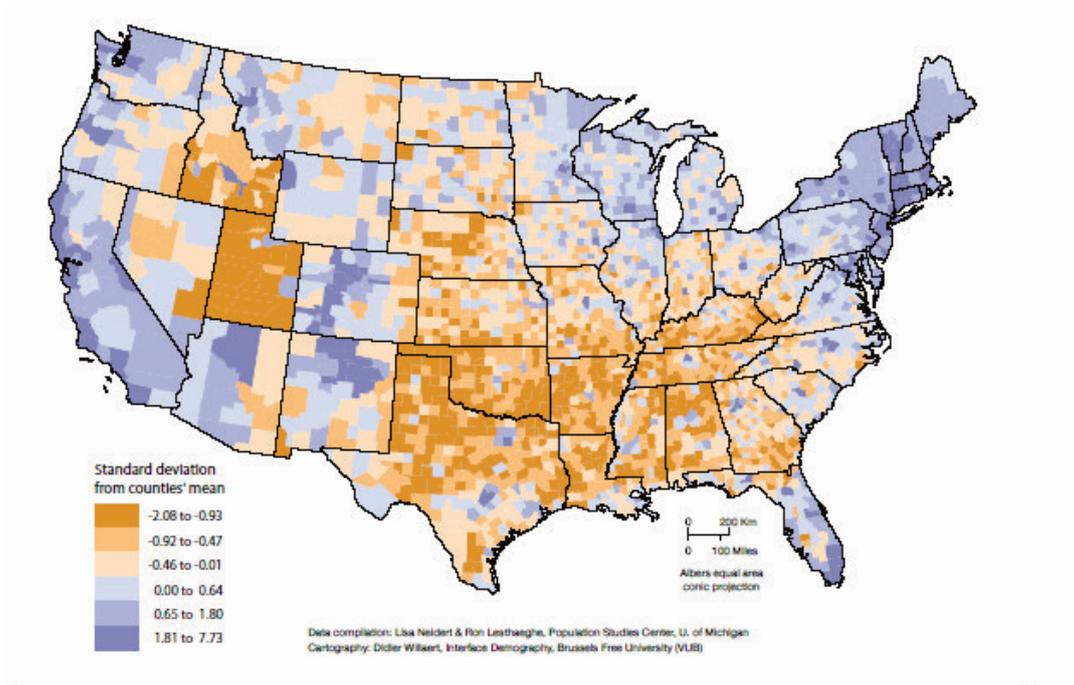
**Figure 1. Correlation Coefficient between the SDT Dimension and the Vote Republican or (Republican + Conservative 3<sup>rd</sup> Candidate): Presidential Elections 1968-2016**



Obviously, the SDT geography by state was still in the making prior to 1980, with incipient rises in the postponement of marriages and in the percentages of pre-marital cohabitation during that decade. But, by the 1990s, the SDT map of the regional diversity, for both states and counties, would have adopted a more definitive shape (see Figure 2 below). We know that the incidence of the SDT characteristics (further postponement of marriage and of birth of first child, increasingly longer duration cohabitation, more frequent parenthood among

cohabiting couples) has risen further throughout the US, but we expect that regional SDT-contrasts would have remained largely intact or became even sharper after 2000. The latter point needs further statistical documentation, but, as indicated before, faces data problems.<sup>v</sup>

**Figure 2. Map of the overall "Second Demographic Transition factor (SDT) in the US by county**



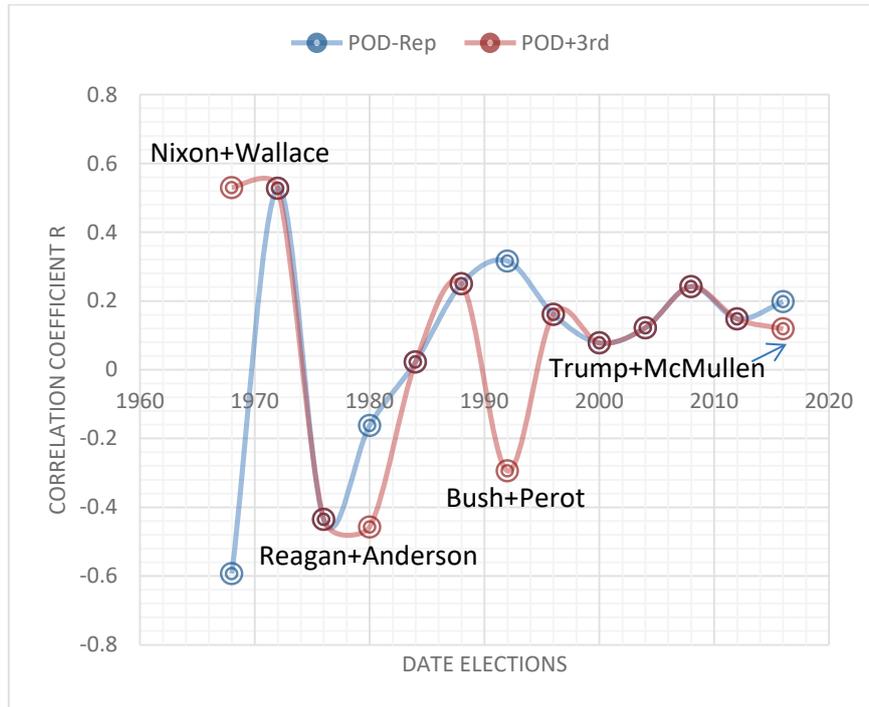
Map: Red= negative SDT z-scores; blue= positive SDT z-scores (more advanced SDT patterns in households and families). Distribution of SDT z-scores in six categories with equal number of cases and centered on the mean of zero.

##### 5. The "Pattern of Disadvantage"- dimension (POD) and the election results by state.

In Figure 3 we present the evolution of the correlation coefficient with Republican or Republican+Conservative voting, as in Figure 1, but now for the other dimension of the family demography of US States, namely the pattern of disadvantage (POD).

In 1968 (Nixon+Wallace) and 1972 (Nixon), there is still a significant positive correlation between the POD-score of states and the percentage Conservative/Republican vote, but that relationship switches signs in 1976 (Ford) and 1980 (Reagan or Reagan+Anderson). From 1984 onward this correlation is about zero or stays positive but very weak. In fact, since 1996, i.e. at the time of the SDT-Republican correlation reaching its high levels, the POD-Republican vote correlation remains contained between +0.078 (2000, Bush) and +0.242 (2008, McCain). In the latest contest (2016, Trump+McMullen) it was still no more than +0.116.

**Figure 3. Correlation Coefficient between the POD Dimension and the Vote Republican or (Republican + Conservative 3<sup>rd</sup> Candidate): Presidential Elections 1968-2016**



*From this, it is abundantly clear that the voting pattern by state is not statistically related to the states' POD-scores as measured in the 1990s. Moreover, that holds for the last 10 elections irrespective of the dominant issues debated in the successive campaigns.*

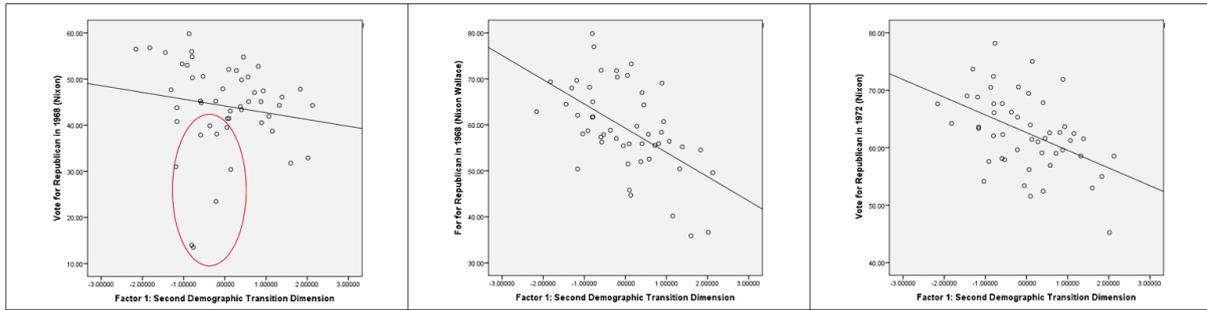
6. A closer look at the SDT-Republican vote.

The convergence to a stable level of association between the SDT-dimension and the voting patterns for the US states can also be illustrated quite eloquently by a set of scattergrams.<sup>vi</sup> First, the scattergrams between the SDT and the election results of 1968 show why adding in the southern vote for Governor Wallace to the Republican vote for Nixon strengthens the negative correlation from -0.149 to -0.550 (see Figure 4). All the Southern states were outliers in the 1968 scattergram when only the Nixon vote is taken into account (circled in red), but they are of course no longer when the vote for Wallace is added in. The scattergram for the subsequent election in 1972 (Nixon alone) resembles the previous one, but corrected for the Southern conservative vote.

*At that time there are first indications that the voting pattern of states may become a predictor of the later spatial unfolding of the SDT-dimension: the Atlantic North-East and the Pacific North-West, with a lower percentage voting for Nixon in 1972, are indeed the cradle states of the American SDT.*

However, there is still a very wide scatter around the regression line, and only a modest correlation as a result.

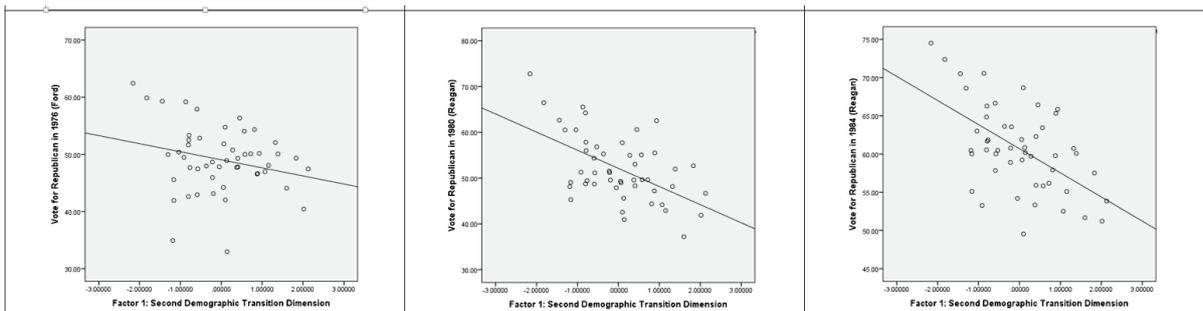
**Figure 4. Scattergrams for the relationship between the SDT-dimension and the election results of 1968 (Nixon), 1968 (Nixon+Wallace) and 1972 (Nixon)**



*For larger versions of the individual scattergrams, including state labels, see Appendix at the end of the document*

With the 1976 election (Ford), the structuring of the states along a clear negative association vanishes, and the correlation drops back to  $-.244$ . However, 4 and 8 years later, i.e. the Reagan era, the SDT-Republican Vote correlation is back to  $-.546$  and  $-.557$ , and the previous spatial picture emerges again, but still with a very substantial amount of scatter. Basically the liberal and conservative ends of the distribution are in place, but the scatter is still very wide in the middle (see Figure 5). For instance, New York and West Virginia have roughly the same percentage voting for Reagan in 1980, but the former would become a typical SDT state, whereas the latter would definitely not.

**Figure 5: Scattergrams for the relationship between the SDT and the election results of 1976 (Ford), 1980 (Reagan) and 1984 (Reagan)**

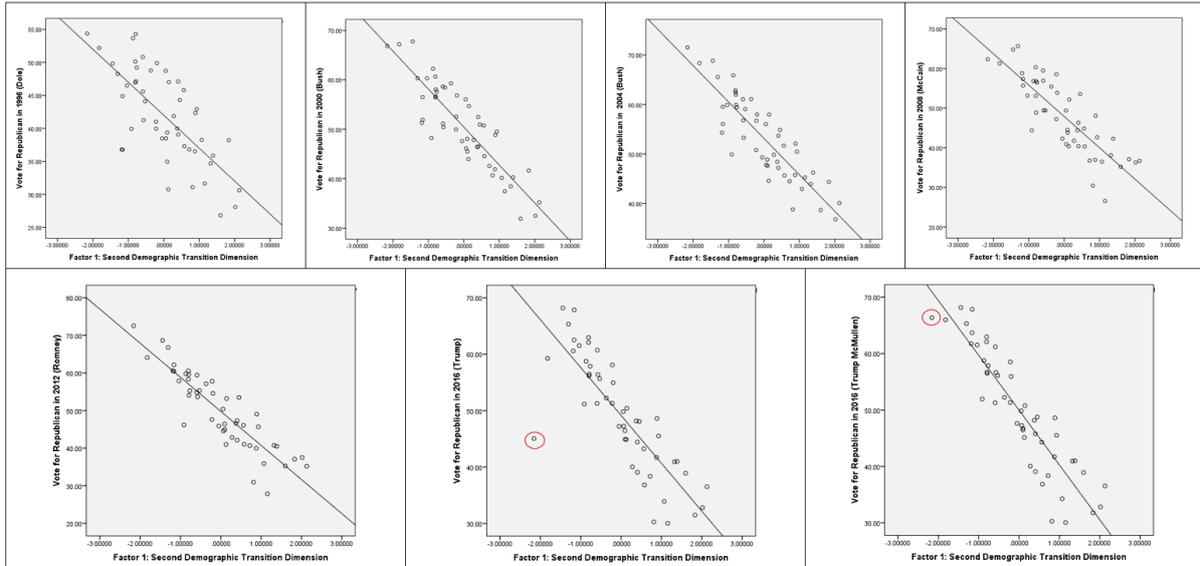


*For larger versions of the individual scattergrams, including state labels, see Appendix at the end of the document*

In 1988 (Bush) and 1992 (Bush or Bush+Perot) there are hardly any changes and the correlation remains around  $-0.500$ . More precisely, it is  $-0.486$  in 1988 and  $-0.553$  in 1992 (Bush) or  $-0.550$  (Bush+Perot). This is still only a partial convergence of SDT and Republican voting, predominantly caused by the positioning of the most liberal and most conservative states at the two tails of the distribution.

With the election of 1996 (Dole) the relationship becomes much crisper ( $r=0.710$ ), and by 2000 (Bush) the correlation crosses the 0.800 threshold and stays there until now. The scattergrams assembled in Figure 6 give an eloquent visual representation of the strong spatial convergence between the SDT and voting outcomes in the 50 states.

**Figure 6: Scattergrams for the relationship between SDT and election results in 1996 (Dole), 2000 (Bush), 2004 (Bush), 2008 (McCain), 2012 (Romney), 2016 (Trump), and 2016 (Trump+McMullen)**



For larger versions of the individual scattergrams, including state labels, see Appendix at the end of the document

The main feature since 1996 is the much crisper lining up of voting in the “middle ground states” according to their SDT-score of the 1990s. *From then onward, the degree of penetration of the new forms of family behaviour and composition by the turn of the century becomes an excellent predictor of a state’s position on the Republican-Democrat continuum for all subsequent elections.*

It should also be noted that in 2016, the slight drop in the correlation to  $-0.830$  is just the effect of a Mormon third candidate McMullen capturing about a third of the vote in Utah. That state became an outlier on the scattergram as a result, circled in red. But, when the McMullen vote is added in as a conservative vote with the Republican one, Utah falls in line (see red circle), and the correlation reaches an unprecedented level of  $-0.909$ .

At this point, an answer can be given to our two initial questions:

(i) *the strong negative correlation between the SDT scores and Republican votes in the 50 states has been a CONSTANT feature from 1996 until now, and it has NOT been affected by the main issues of the debate, whether economic (banks crash, mortgage crisis, unemployment), cultural (religion and abortion), social (position of women, crime and gun*

control), ecological (global warming, CO<sub>2</sub> emissions) or demographic (immigration). In other words, since the middle of the 1990s the maps with respect to the SDT and the map of Democrat versus Republican voting have been both, *very stable and very similar*.

(ii) Election results prior to 1996 are only weak predictors of the spatial manifestations of the SDT. Only the states with the very highest and the very lowest percentage of Republican votes became the respectively vanguard and tail states on the SDT ranking of the 1990s. *The election of 1996 marks a turning point, and the "Culture War" as defined by J.D. Hunter in 1992 brings the vote in line with the SDT patterning among states.*

### 7. Are these correlations robust?

In the original 2006 article we checked to what extent the zero-order correlation for 2000 and 2004 could be caused by the influence of predictors common to both the SDT-dimension and the Republican vote. In other words, we were playing devil's advocate trying to obliterate the zero-order correlation by introducing control variables. The outcome was that the correlation between the SDT-dimension and the Republican vote was largely robust for several controls for structural (income, education, urbanity) and cultural (religion, ethnicity) variables. For this purpose partial correlations were used we found that these were not much lower than the zero order correlation. Only the religious composition (Mormon+Evangelical) mattered to some extent. Furthermore, this analysis was performed for both states and counties. At present we extend the analysis to a much longer period and up to the latest elections of 2016.

More specifically, the following controls were introduced:

*i) a baseline control for three structural variables : **income, education, urbanity (IEU)**.* For states, the variables were: the median disposable household income, the percentage of the population age 25+ with a BA-degree (1990) and the percent of the population in metropolitan areas. For counties, the three structural variables were the log of population density, the percent of families with incomes of \$75,000 or more, and the percent of women with professional degrees (all around 2000 unless specifically mentioned).

*ii) additional controls for **ethnic composition**, i.e. for the percentages Black and Hispanic.*

*iii) additional controls for **religions**, i.e. for the percentages Mormon/Evangelical and Catholic.*

*iv) control for religion on its own.*

In the present analysis these control variables are being maintained.<sup>vii</sup> The election results are updated to run from the 1996 election to the latest one in 2016. In other words, we check the influence of control variables for all elections in which the zero order correlation in absolute value rose above -.700 at the state level. At the county level we start from the 2004 election.

**Table 4. Zero order correlation between the SDT-dimension and the Republican vote in Presidential Elections, 1996-2016 and Partial correlation coefficients controlling for structural and cultural variables**

<b>Universe: States</b>	<b>1996</b>	<b>2000</b>	<b>2004</b>	<b>2008</b>	<b>2012</b>	<b>2016a</b>	<b>2016b</b>
Zero Order (no controls)	-0.710	-0.881	-0.871	-0.839	-0.889	-0.830	-0.909
3 Structural IEU	-0.684	-0.787	-0.812	-0.761	-0.847	-0.696	-0.851
3 Struct. + Relig.+Ethnic	-0.778	-0.841	-0.853	-0.816	-0.866	-0.716	-0.852
3 Struct + Religions	-0.576	-0.734	-0.742	-0.654	-0.784	-0.617	-0.807
Religions only	-0.463	-0.788	-0.755	-0.699	-0.798	-0.732	-0.851

Note: 2016b includes votes for the independent Mormon candidate in 2016 (see Utah outlier).

As indicated in Table 4, controls for the three structural variables (capturing levels of household income and education and degree of urbanity (IEU)) are hardly capable of reducing the zero-order correlation. At the onset (1996), however, a control for religious composition does reduce the zero-order correlation to a noticeable degree, but this is no longer so from 2000 onward. *For the latest election, none of the controls have any significant effect, and the original correlation proves to be a very robust one indeed.<sup>viii</sup> Stated differently, at the level of states, the negative zero correlation between the SDT-dimension and the Republican vote cannot be considered spurious or merely the result of effects of major structural or cultural common predictors.*

A very similar analysis can also be performed at the level of counties. In that instance, two extra variables were added, the percentages of the population foreign born and born in the state of current residence respectively. The results are given in Table 5 for the mainland counties and for all mainland counties with a population of at least 25,000.

**Table 5. Zero order correlation between the SDT-dimension and the Republican vote in Presidential Elections, 2004-2016 and Partial correlation coefficients controlling for structural and cultural variables**

<b>Controls</b>	<b>Mainland Counties</b>			
	<b>2004</b>	<b>2008</b>	<b>2012</b>	<b>2016*</b>
Zero order (no controls)	-0.573	-0.656	-0.662	-0.773
3 Structural IEU	-0.450	-0.531	-0.509	-0.493
Religion only	-0.475	-0.512	-0.538	-0.649
3 Struct+Relig.+Ethnic	-0.538	-0.604	-0.622	-0.648
3 Struct + Religion	-0.341	-0.366	-0.357	-0.368
3Struct+Foreign Born	-0.453	-0.531	-0.508	-0.490
3Struct+Born in State	-0.477	-0.553	-0.530	-0.499

**Table 5. continued**

<b>Controls</b>	<b>Mainland Counties, Population 25,000+</b>			
	<b>2004</b>	<b>2008</b>	<b>2012</b>	<b>2016*</b>
Zero order (no controls)	-0.666	-0.728	-0.730	-0.791
3 Structural IEU	-0.550	-0.603	-0.581	-0.541
Religion only	-0.533	-0.577	-0.591	-0.702
3 Struct.+ Relig.+Ethnic	-0.616	-0.663	-0.678	-0.670
3 Structural + Religion	-0.397	-0.411	-0.400	-0.395
3Structural+Foreign Born	-0.548	-0.600	-0.578	-0.538
3Structural+Born in State	-0.559	-0.609	-0.596	-0.540

\*includes votes for independent Mormon candidate in 2016

The first major observation for the analysis of the data for counties is that the zero order correlation has steadily become more pronounced from -.57 in 2004 to -.77 in 2016. If very small counties with less than 25,000 inhabitants are dropped from the analysis, the zero order correlation between the SDT-dimension and Republican voting evolves from -.67 to -.79, *i.e. to almost the level found for states.*

However, the controls for the three structural variables, family income, educational level and degree of urbanity, have a stronger impact at the counties than at the state level. If in addition to the structural trio the religious composition is also taken into account, the zero order correlation is cut by up to half (in 2016 from -.77 to -.37 in all counties, and from -.79 to -.40 in +25,000 counties). This means that the strong zero-order correlation at the county level is partially the result of the combination of the three structural variables and the religious composition. However, the partial correlation is still not zero, and consequently the original SDT-Republican vote correlation is not entirely spurious. *In other words, the SDT-dimension in counties remains a major part of the explanation.* Finally, it can also be noted that controls for percentages born abroad or in the state of residence add virtually nothing to the explanatory power of the structural trio Income-Education-Urbanity.

#### 8. Caveats and interpretations.

First and foremost, this note only deals with states and counties as units of analysis, and as a result it says nothing about individual voting preferences. It is not because the percent voting by state has barely a relationship to the POD-scores of states, that poverty would not be an issue at lower levels of aggregation or at the individual level. *In other words, the findings here are ONLY valid when looking at the position of the geographical aggregate used here.*

With this in mind, it is very remarkable that such a strong correlation evolved by the middle of the 1990s between the presidential election outcomes in states and their SDT-scores. *To our knowledge, no other aspect of the Liberal-Conservative "complex" brings out the voting contrast more clearly than do the SDT-characteristics.*

A second caveat pertains to the prediction of who actually wins the election. In this respect, the findings here are *singularly unhelpful*. They simply illustrate which states will have more or fewer votes for a given party on the basis of their SDT-scores compared to all the other states. *In other words, the relative position of a state in the distribution of percent voting for a given candidate is well predicted by the relative position of the state on the SDT-dimension. But the actual, observed percent voting for a candidate cannot be predicted.*<sup>x</sup>

At the level of states, the zero-order correlation between the SDT-dimension and voting outcome is as good as completely robust to controls for family income, education levels and degree of urbanity. Only the religious composition mattered at the onset, but the impact of this variable has been fading in the later elections.

At the county level, the zero-order relationship has been strengthening over time and it has become closer to the level found for states, i.e. to the level valid at a much higher level of geographical aggregation. However, a control for the structural trio in combination with the religious composition does have a clearly noticeable effect, but these combined controls are still falling short of proving complete spuriousness of the zero-order coefficient. Part of the explanation for the weaker robustness of the zero-order correlation at the county level is the strong concentration in urban areas of both the Democrat vote and the SDT family characteristics.

Finally, can we conclude that an era of conservative backlash has been inaugurated by the election of Trump? It is very early to come to that conclusion on the basis of a single election. All that we can say from the present analysis is *that the issues that dominated each of the elections may have had a major effect on who was actually the winner in presidential contests, but they are of virtually no consequence when it comes to predicting the position of states or even counties in the overall distribution of voting percentages for either party. By contrast, the relative positions of states have been very stable since the mid-1990s and very predictable on the basis of the SDT pattern at the onset. Very much the same holds for counties. Evidently, the map of the American "Culture War" is not only in evidence in the local voting patterns, but just as markedly so in its family demography.*

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## ENDNOTES

<sup>1</sup> As is well known, the notion of a culture war dates back to the 19<sup>th</sup> Century German *Kulturkampf* between Bismarck and the Catholic church. The German word *Kampf* translates as *struggle* in English and not as *war*, which is *Krieg* in German. "Culture struggle" would be a better translation. It should also be noted that a culture war was already waged in the 1920s in the US to refer to the opposite cultures of long term residents and new immigrants, and that the notion was also imported in Canada in 2010 referring to Conservative party - Liberal party antagonisms. See also Andrew Hartman (2015), Richard Jensen (1995) and Irene T. Thomson (2010).

<sup>1</sup> The term "Second demographic transition" was used for the first time in the Dutch sociological journal "Mens en Maatschappij" of 1986 by R. Lesthaeghe and D.J. vande Kaa.

<sup>1</sup> It should be noted that in the 1990s non-marital fertility was still predominantly unplanned fertility among younger women. At present, the overall level of non-marital fertility needs to be specified according to the age of mother, since older women (say 25+) in cohabitation are also becoming mothers (mostly planned). The former, contributed by teenage and young women (deficient contraception), is a POD indicator, whereas the latter among older mothers is a SDT phenomenon (postponement and childbearing among cohabiting women combined).

<sup>1</sup> The fertility measures in the American Community Survey (ACS) has good, but not perfect correspondence to results from the vital statistics system at the state level (Johnson and Dye, 2005 )

and for race groups at the national level. Recall that the ACS is a sample whereas vital statistics are based on all events. Thus, these measures will be quite noisy at the lowest level of geography in the microdata – public use microdata areas (PUMAs), which would have to be mapped to counties. In addition, there are limits on the years one can choose to cumulate due to data collection errors in the fertility question in 2012 in selected PUMAs (Simmons, 2016). And, PUMA boundaries also changed in 2012.

<sup>1</sup> The "Big Sort" argument of Bishop and Cushing (2008) would go in the direction of enhanced local SDT contrasts via an increasing ecological clustering of like-minded individuals.

<sup>1</sup> The SDT and POD dimensions are treated as independent variables with a mean of zero and a standard deviation of unity.

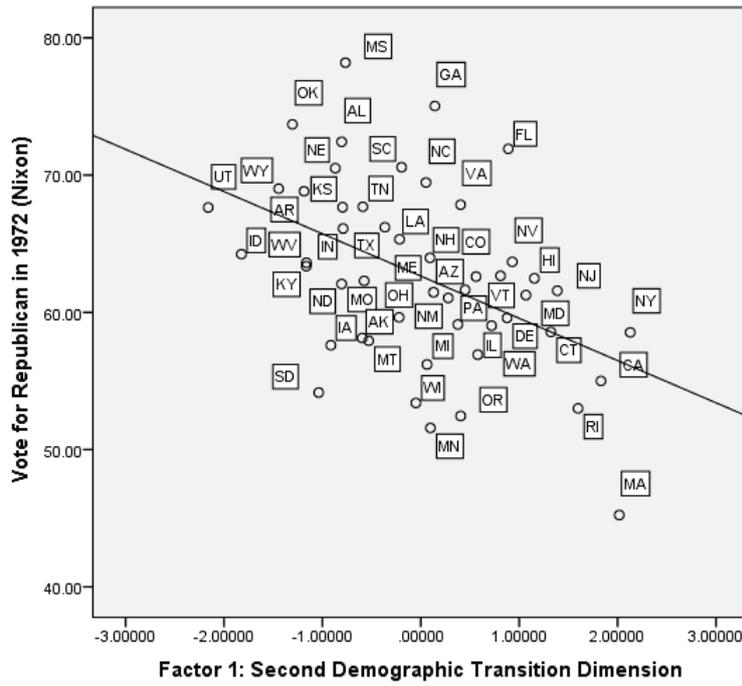
<sup>1</sup> The main reason for not measuring these control variables at later dates is that many could not be measured in the same way as in the original article of 2006.

<sup>1</sup> Note that ALL the partial correlations in 2016 are stronger than the zero correlation in 1996.

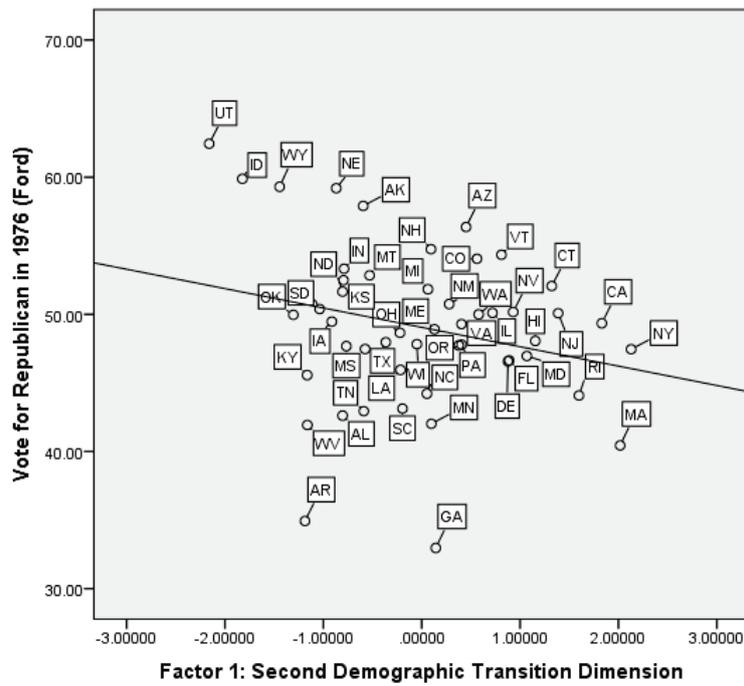
<sup>1</sup> In statistical terms, we do very well in predicting z-scores of states or counties with regard to their voting position, but we cannot predict the actual percentage voting for a given candidate in any state. Similarly, we would predict the ranking of states quite well, but not the actual voting percentages in them.



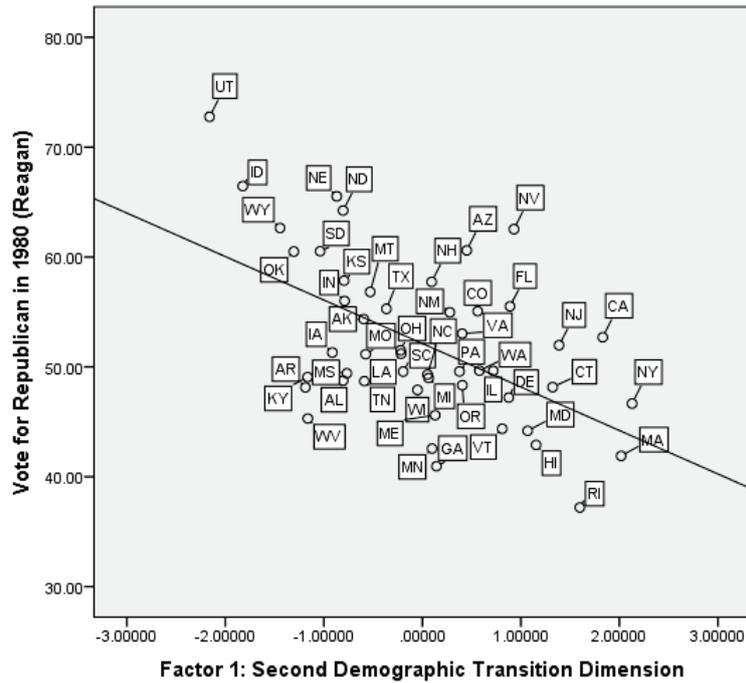
**Figure 3. Relationship between the SDT factor and the vote for Nixon in 1972, US 50 states ( $r = -.464$ )**



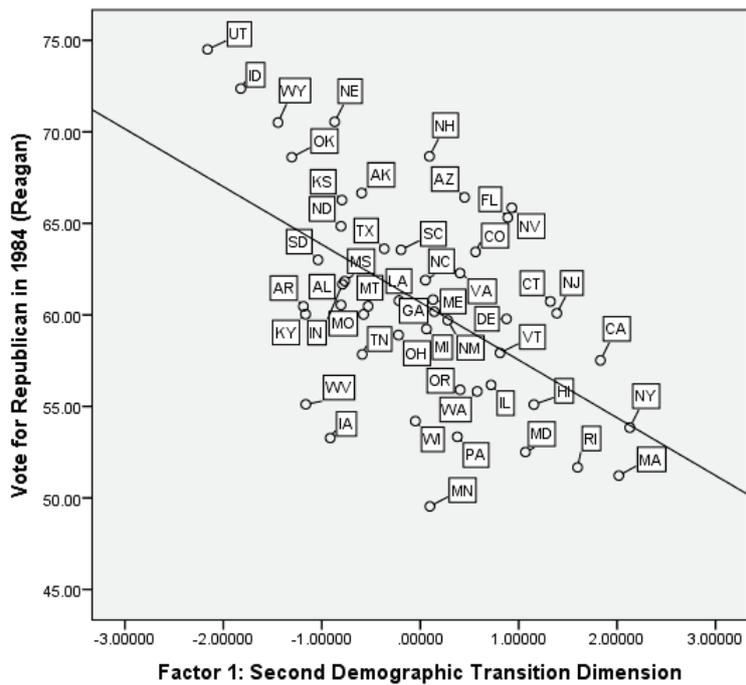
**Figure 4. Relationship between the SDT factor and the vote for Ford in 1976, US 50 states ( $r = -.244$ )**



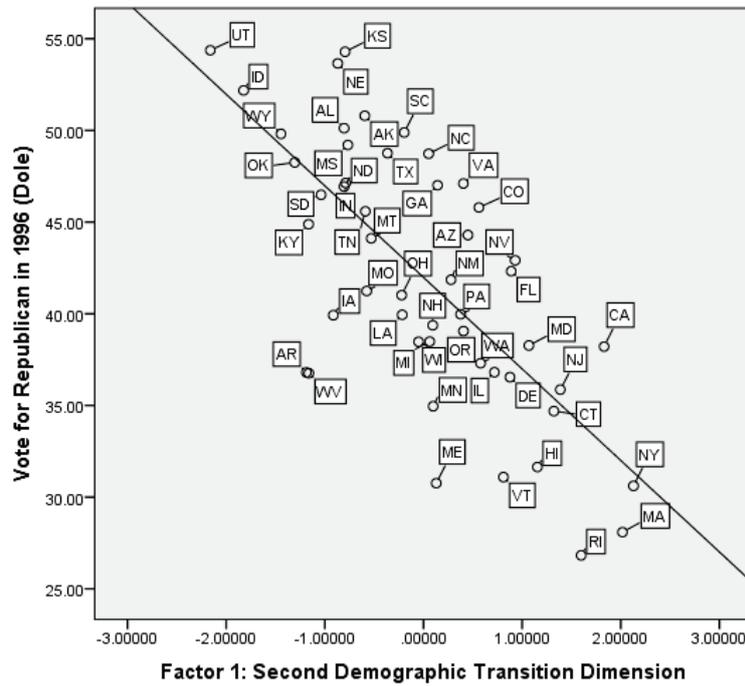
**Figure 5. Relationship between the SDT factor and the vote for Reagan in 1980, US 50 states ( $r = -.546$ )**



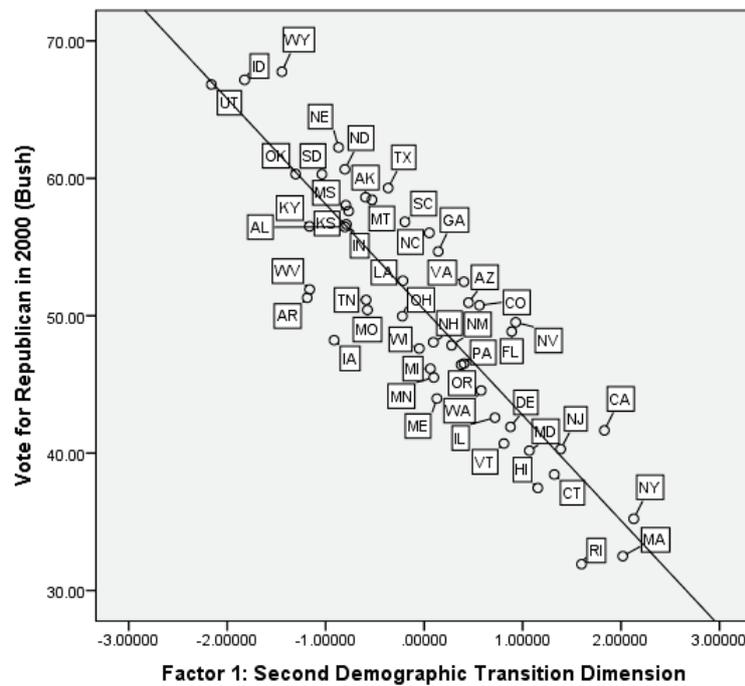
**Figure 6. Relationship between the SDT factor and the vote for Reagan in 1984, US 50 states ( $r = -.557$ )**



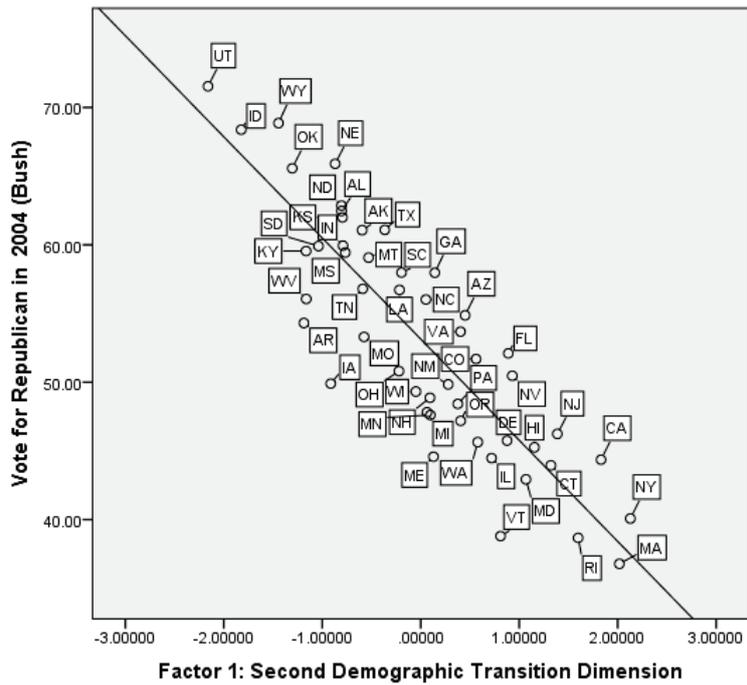
**Figure 7. Relationship between the SDT factor and the vote for Dole in 1996, US 50 states (r=-.710)**



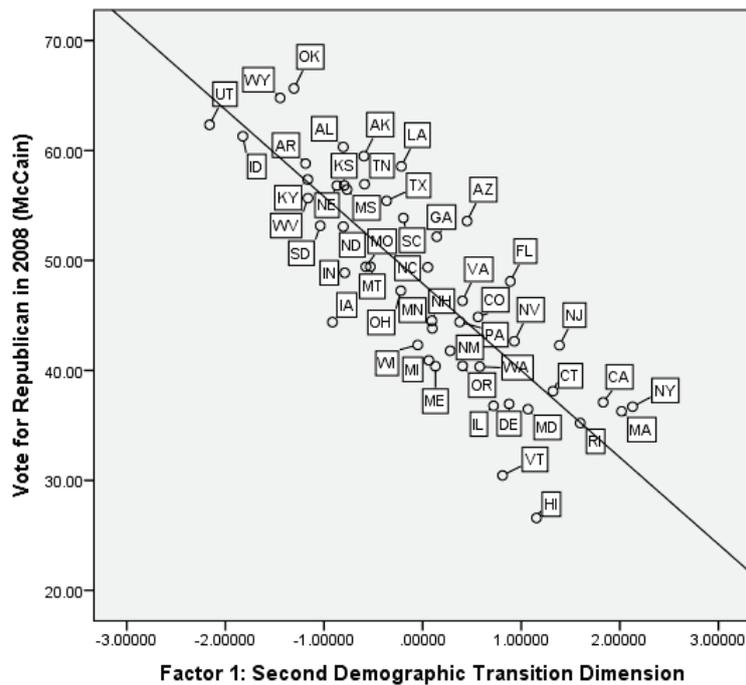
**Figure 8. Relationship between the SDT factor and the vote for Bush in 2000, US 50 states (r=-.881)**



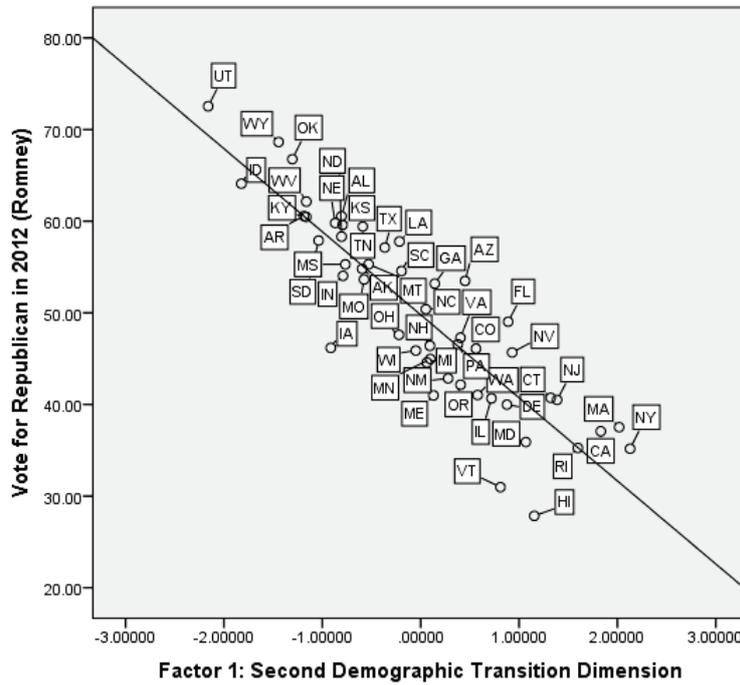
**Figure 9. Relationship between the SDT factor and the vote for Bush in 2004, US 50 states ( $r=-.871$ )**



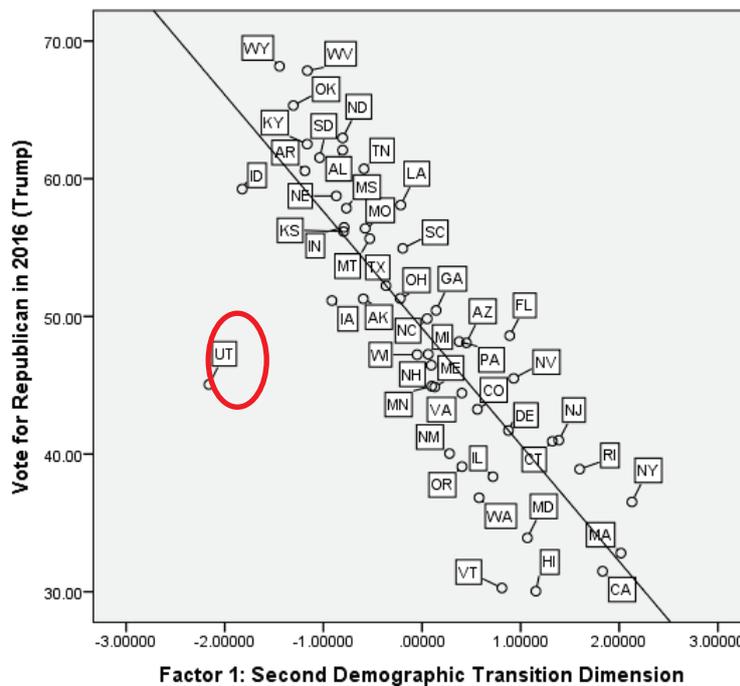
**Figure 10. Relationship between the SDT factor and the vote for McCain in 2008, US 50 states ( $r=-.839$ )**



**Figure 11. Relationship between the SDT factor and the vote for Romney in in 2012, US 50 states (r=-.839)**



**Figure 12. Relationship between the SDT factor and the vote for Trump in 2016, US 50 states (r=-.830)**







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