U.S. Presidential Elections and the Spatial Pattern of the American "Second Demographic Transition" [1]

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1. Introduction.

One of the amazing features in many western countries is the close connection between voting results and indicators of change in patterns of family formation and fertility (e.g. Lesthaeghe and Neels, 2002). The US is by no means an exception to this rule (Lesthaeghe and Neidert, 2006). In fact, both opinions and actual behavior with respect to all issues of the so called "culture war" in the US are strongly differentiated, in part due to the fact that the US has a more sizeable population belonging to the "religious right" than any other western nation. Issues such as abortion, gay partnership, euthanasia, stem cell research, protection of privacy, censorship, gun control, capital punishment etc. are recurrent topics on the political agenda. And in tandem with life style differentiations, such issues can produce marked polarizations. In other words, it should not come as a surprise that areas with more unconventional forms of family formation, such as cohabitation, children born to cohabitors, postponement of partnership, marriage and parenthood to much later ages, and acceptance of interference with fertility through abortion and efficient contraception, are voting for Democrats. Conversely, those that retain classic forms of family formation (early marriage and parenthood) and more conventional gender roles should display a preference for Republicans. Furthermore, the "Culture War" issues were prominently present during the Bush-Gore and the Bush-Kerry contests of 2000 and 2004. One of the consequences was that the spatial pattern of the election results, both by state and by county, exhibited a marked correlation with the prevalence of new patterns of family formation (Lesthaeghe and Neidert, 2006). The shift to these new demographic patterns is often referred to by demographers as "the second demographic transition" or SDT (for a fuller description see van de Kaa, 1987, and Lesthaeghe & Surkyn, 2006).

One of the criticisms formulated against the theoretical underpinning of the Election-SDT correlation for the US was that this link was only a temporary phenomenon. If economic issues instead of "cultural" ones would dominate the debate during the presidential elections, this correlation would become unstuck. The 2008 elections now provide us with a very nice test indeed. Both candidates initially shun the "culture war" issues as too divisive, and only with the choice of Palin as McCain's running mate was there a brief revival of this debate. But shortly thereafter the banking crisis and the concomitant economic and social upheaval took center stage. And very forcefully so.

Did the link between the maps of the second demographic transition and of election results indeed weaken or vanish as the "*it's the economy, you dummy*" proponents predicted ? The answer is a resounding no as we shall now show empirically.

2. Empirical findings.

We operationalized the SDT-dimension as a composite variable formed as a factor in a principal component analysis of a set of 22 indicators, all dealing with patterns of family formation. These indicators are listed in Table 1, together with their factor loadings on two principal components. These factor loadings simply measure the correlation between each indicator and the composite variable. Not surprisingly, the first principal component or factor describes typical SDT features such as the postponement of marriage, greater prevalence of cohabitation and same sex households, postponement of parenthood, subreplacement fertility, and a higher incidence of

abortion. By contrast, the second principle component ("VUL" in Table 1) captures the family variables that generally lead to greater vulnerability of young women and children, such as teenage marriage and fertility, subsequent divorce, lone parent households, and children residing in the households of grandparents.

Table 1 about here.

For the present purposes, we shall only focus here on the first factor, i.e. the SDT dimension. And since we are dealing with the geography of the SDT in the US, two maps were prepared for the counties. The first is a classic map with the darker shadings for counties that are further advanced on the "second demographic transition" dimension, and lighter ones for those that have the slowest shift in that direction. The second map is a cartogram with the counties now drawn proportionally to the size of their population in the 2000 census (2).

Maps 1 and 2 about here.

At this point we present the scattergrams and correlations at the state level between the SDT-dimension (roughly representative for the period just prior to 2000) and the Republican vote for Bush in 2004 and McCain in 2008. This is done in Figure 1. The conclusion is obvious: the correlation existing in 2004 is very largely replicated in 2008, and the relative positions of the states in the scattergram are also essentially maintained. For those who like details : indeed, Arizona voted in 2008 more for McCain than expected on the basis of its SDT-score, while the reverse holds for Hawaii. Also, Utah had to yield its top position on the Republican vote to Wyoming and Oklahoma, despite its very low score on the SDT.

Figure 1 about here.

At the next step, we explored the SDT connections with indicators measuring socio-economic and cultural dimensions. More particularly we were looking for the best county-level predictors of the SDT capturing respectively the degree of urbanity, economic wealth, level of education, ethnic composition, religious composition, and share of immigrants. It turned out that the best representative for urbanity was simply the log of population density, for wealth the proportion of households with annual incomes of $75,000 or more, and for education the proportion of women aged 25+ with professional or higher degrees. The ethnic composition was measured via the percentages Hispanic and black respectively, and the religious composition via the percentage Evangelical + Mormon, and the percentage Catholic. Finally, the impact of immigrant populations was captured via the percentages foreign born and born out of state.

The obvious reason for including these variables in the analysis was to play the advocate of the devil **against** our own thesis. More specifically, we are interested in the question whether or not the original zero-order correlation between the SDT and Republican voting would remain a robust one after controls for the other predictors. For example, if there is only a correlation between the spatial pattern of the SDT and the voting map as a result of the action of a common causal antecedent (e.g. degree of urbanity, wealth …etc), then the partial correlation controlling for these antecedents should become zero. In that case the original zero-order correlation between SDT en voting would be spurious.

In Table 2 we report our earlier findings for the correlation between the SDT-dimension and the percentage voting for Bush for the 3,141 counties, and the results of a repeated analysis for the percentage voting for McCain. It should be noted that the latter analysis is not yet final, since at the time of writing no election results were available for the counties in Alaska, and also only 1 Hawaiian county could be included.

Table 2 about here.

Contrary to the state-level analysis, for which a small drop in the SDT-Voting correlation could be noticed from 2004 to 2008, there is an improvement over time when the county-level analysis is performed. In fact the zero-order correlation (absolute value) increases from -.568 in 2004 to -.648 in 2008 (we shall revisit this issue below). This is **not** a feature one would expect on the basis of the fact that the economic issues were much more prominent in the 2008 debate than in the 2004 one. **In other words, the negative link between the maps of the SDT and of Republican voting became stronger instead of weaker, despite the fact that "culture war" issues had lost ground in the 2008 electoral debate.**

Further inspection of the partial correlations reported in Table 2 shows that the zero-order correlations, **both in 2004 and 2008**, are remarkably robust for controls and competing explanations. They are nowhere reduced to levels close to zero, and the strongest reduction of the original zero-order correlation occurs when we jointly control for the 3 "structural" predictors (urbanity, wealth, education) and the religious composition (partials = -.341 and -.366). **Furthermore, all partial correlations are further away from zero for the 2008 than for the 2004 elections**.

At this point, we can provisionally reject the hypothesis that the SDT-Voting link is merely spurious. With the present controls, the partials all remain significant and well above zero. Of course, this is not a definitive conclusion: With other controls, partials much closer to zero could possibly be produced. The trick is of course to find such better and plausible alternatives. The insertion of strong correlates, equally measuring urbanity, wealth, education, ethnic composition, religious composition, and size of immigrant population will be quite futile and only marginally change the results reported here. Ideally, we would need a predictor of voting that is stronger than the SDT variable, and only weakly related to the controls used so far. Since the publication of our 2006 analysis no such better competitor has been identified. But, as just said, this possibility can by no means be ruled out. Only, for the time being we have to admit that the SDT is indeed a powerful predictor of the presidential election maps, and that a fair share of this cannot be attributed to other correlates. Stated differently, when it comes to predicting the relative positions of states or counties, the SDT-dimension cannot be ignored. (3)

Finally, the "cause" of the strengthening of the SDT-Voting correlation coefficient in 2008 could also be identified. In our earlier analysis, we found that this correlation was quite weak when only southern counties were considered. In fact, in states such as Tennessee, Kentucky, South Carolina and Oklahoma, the coefficients were below the -.20 level for the 2004 elections. For the East South-Central and West South-Central divisions, these correlations were only -.252 and -.284 in 2004. For 2008, however, all these correlations increased substantially, as shown in Table 3, without, however, reaching levels commonly found in the other parts of the USA. The

outcome is that the exceptions in 2004 are less exceptional in 2008, with a strengthening of the overall correlation as a result.

Table 3 about here.

3. Conclusions.

From the above it seems that:

1. The spatial differentiations with respect to the outcomes of the last presidential elections at the levels of states and counties are quite robust over time. The maps may color darker or lighter, depending on the issues in the period preceding the elections and the themes that dominate the debate, but the position of counties relative to the counties' mean is much more stable. In other words, we cannot possibly predict the winner, but we can produce a pretty good guess when it comes to predicting **in which counties** each of the candidates will do better or poorer (i.e. in predicting county z-scores).

2. When it comes to the latter type of prediction, the SDT-dimension is by no means a sufficient, but **definitely a necessary ingredient** of the engine.

3. This holds particularly well in the US, because of the predominance of the two party system, the philosophical link of these parties to the defense of different life styles, and the very wide ideational spectrum. No other western country has retained the presence of a vocal and large "religious right" capable of organizing reactions against secular and non-conformist tendencies, and the US continues therefore to be a textbook example of spatial connections between demographic innovation and political orientation.

4. Economic issues definitely played a role in designating the winner in 2008, but the spatial map of the election results is more a question of sociological differentiations in life styles and their underpinning ideologies, which are captured so well via the "second demographic transition" features.

4. Notes.

(1) Relevant materials pertaining to the SDT concept and 2004 election results (maps, cartograms, articles) can be downloaded from our Univ. of Michigan website: www.sdt.psc.isr.umich.edu

(2) The map and cartogram of the SDT by county has been produced by Didier Willaert at the Interface Demography Unit of the Free University in Brussels.

(3) Richard Morrill (2008) reports the following correlations with the Obama vote for the US counties: with % conventional husband-wife families (-.64) , home ownership (-.55), craft occupations (-.52), religious membership (-.51), % population urbanized (+.49), % population rural (-.48), % using public transportation (+.48), % white (-.47), median rent +.45, and %

foreign born +.49. Note that, with one exception (the household composition variable !), these are much lower than the correlation with the SDT (+.65).

5. References.

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R. Lesthaeghe, J. Surkyn (2006): "When history moves on: foundations and diffusion of a second demographic transition." In R. Jayakody, A.Thornton, W. Axinn (eds), *International family change: Ideational Perspectives*. Mahwah, NJ:Lawrence Earlbaum and Associates: 81-117.

R. Lesthaeghe, L. Neidert (2006): "The second demographic transition in the US – Exception or textbook example?" *Population and Development Review* 32 (4): 669-698.

R. Morrill (2008): "Understanding the geography of the 2008 election." *New Geography*, Dec 5, http://www.newgeography.com/content/00434-understanding-geography-2008-election

D.J. van de Kaa (1987): "Europe's second demographic transition." *Population Bulletin* 42(1)

6. Tables, Maps and Figures.

Table 1: Demographic indicators and their two underlying dimensions: 3,141 counties *

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

Factor loadings > .50 in bold.

* WNH= white non-Hispanic; date is 2000 unless otherwise specified.

** Due to confidentiality concerns 1988 was the last year that NCHS produced detailed natality files for all counties. Thereafter only counties with populations of 100,000 or more can be identified.

Table 2: Correlation between the Republican Votes in the 2004 and 2008 Presidential Elections and the Spatial Pattern of the "Second Demographic Transition" Dimension in the US – Impact of Controls for Levels of Urbanity, Wealth, Education, Religious and Ethnic Composition, and Migration Indicators; Results for Counties*

	%vote Bush 2004	%vote McCain 2008
Zero order correlation SDT dimension with	-.568	-.648
Partial correlations between the same, controlling for:		
3 structural variables : Log population density, % households with incomes >= $75,000, % women 25+ with professional degrees	-.453	-.528
2 ethnic composition variables: % black, % Hispanic	-.600	-.673
2 religious composition variables: % Evangelical+Mormon, % Catholic	-.468	-.508
3 structural + 2 ethnic	-.541	-.603
3 structural + 2 religion	-.341	-.366
3 structural + % foreign born	-.456	-.528
3 structural + % born in state	-.479	-.550

Source : Lisa Neidert and Ron Lesthaeghe, Population Studies Center, Univ. of Michigan, 2008.
Note * Preliminary results for the 2008 elections (no county data yet for Alaska, only 1 county for Hawaii).

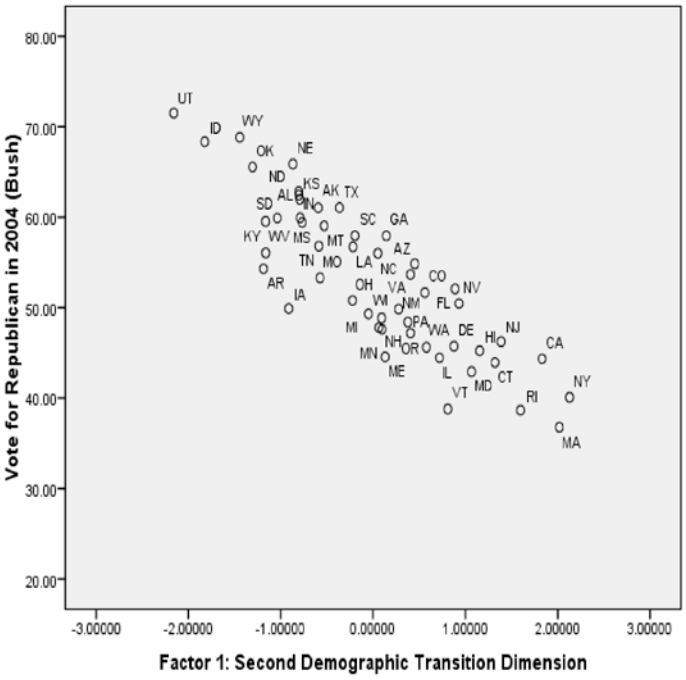
Table 3: Zero-order Correlation between the Republican Vote in the 2004 and 2008 Presidential Elections and the "Second Demographic Transition" Dimension in the US Counties, Regional Breakdowns

Correlation between SDT and	% Vote Bush 2004	% Vote McCain 2008
All counties	-.568	-.648 *
Counties of 4 Regions:		
Northeast	-.804	-.796
Midwest	-.605	-.633
South	-.415	-.560
West	-.773	-.747 *
Counties of 9 Divisions		
New England	-.700	-.658
Mid Atlantic	-.790	-.791
East North Central	-.606	-.636
West North Central	-.572	-.599
South Atlantic	-.510	-.590
East South Central	-.252	-.400
West South Central	-.284	-.446
Mountain	-.750	-.728
West	-.733	-.696 *
Counties of selected states		
Tennessee	+.03	-.39
Oklahoma	-.12	-.41
South Carolina	-.18	-.33
Kentucky	-.18	-.39

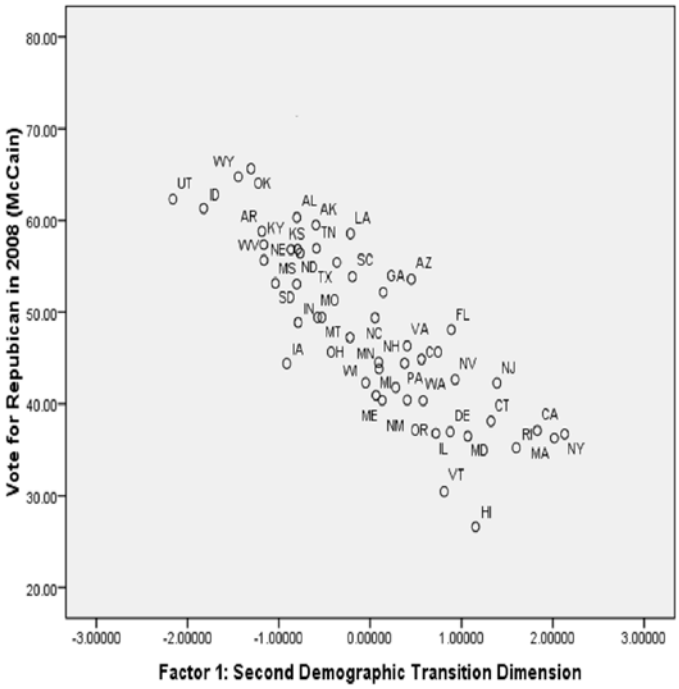
*No election results for Alaskan counties (only whole state); results for only 1 county in Hawaii.

Figure 1: Relationship between "Second Demographic Transition" Dimension and Vote for the Republican Presidential Candidate in 2004 and 2008, 50 States

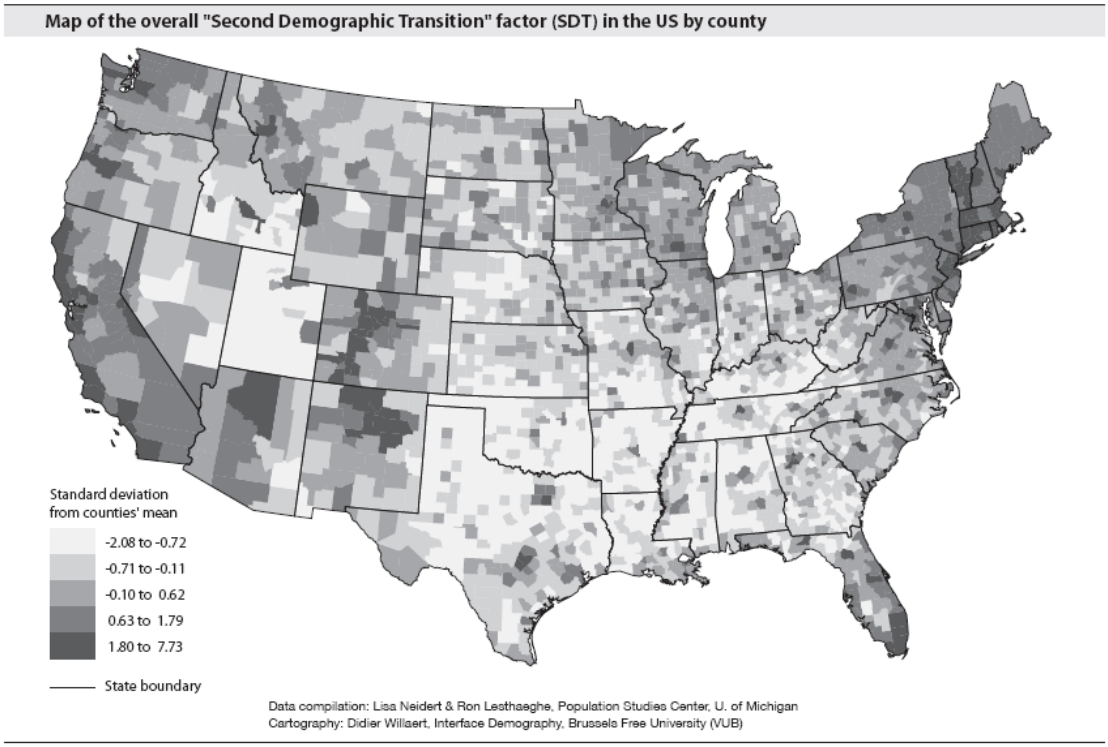
2004 (Bush)
R=-.87

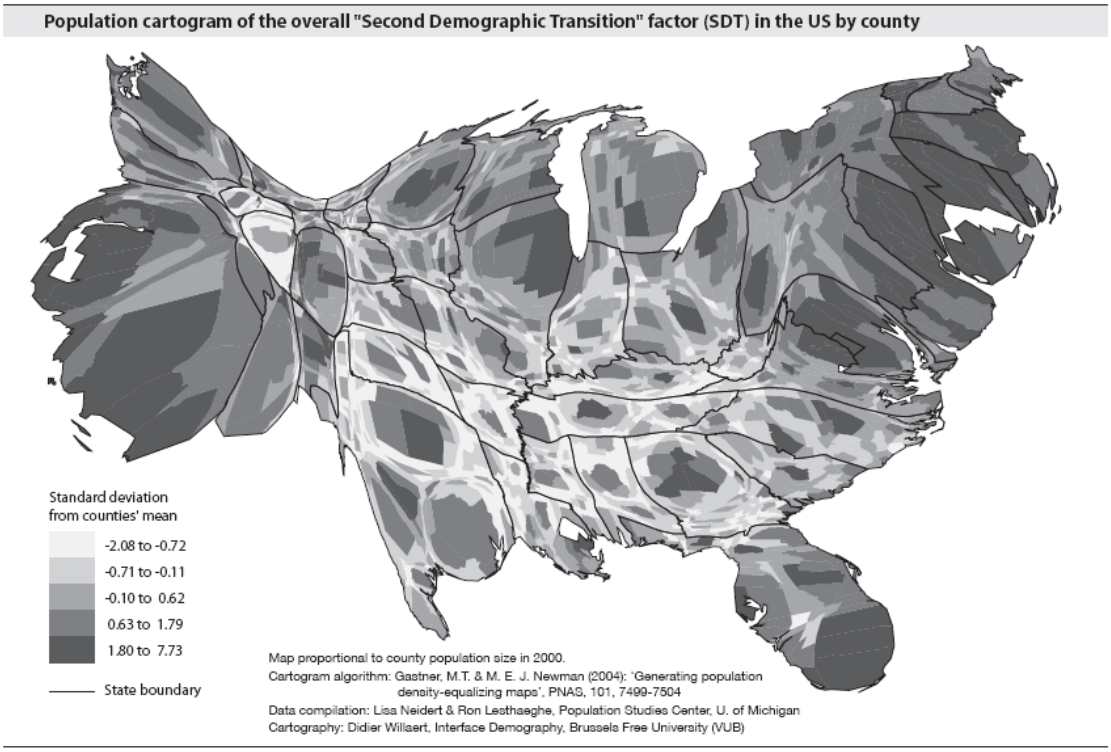


2008 (McCain)
R=-.83



Maps 1 and 2: Map and Cartogram of the Second Demographic Transition Dimension in US Counties, ca 2000.





(Color versions available at www.sdt.psc.isr.umich.edu)