

The “Second Demographic Transition” in the US: Spatial Patterns and Correlates.

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(contains maps in color)

1. The concept of a “second demographic transition”

The notion of two distinct phases in the overall demographic transition in the West was originally suggested by Lesthaeghe and vande Kaa (1986) and by van de Kaa (1987), and these authors are responsible for the terminology of a first (FDT) and a second (SDT) demographic transition. They themselves were directly influenced by a 1980 paper by the French social historian Philippe Aries, entitled “*Two Successive Motivations for the Declining Birth Rates in the West*”. In this short paper, Aries argued that the centuries long slow ascent of the “king-child” (cf. Aries, 1962) had come to an end somewhere in the 1960s and 70s, and that the motivation for fertility control was no longer linked to an altruistic reflex of parents wanting to give their smaller offspring more and better chances in life. Instead, a new motivation for fertility control had gained preponderance and it was seated in a greater preoccupation of the adult dyad with itself and with matters related to self-fulfillment. A second source of inspiration for the SDT was the conviction that fertility levels were not going to stabilize at or around replacement level, or that fertility would follow swings conditioned by business cycles or cohort sizes. The reason for that was not that economic factors would not matter anymore, but rather that there was a genuine change in preferences leading to broader life style options and new choices. In other words, Lesthaeghe and van de Kaa incorporated the effects of a “cultural shift” and found themselves arguing along very similar lines as the political scientist Ron Inglehart, who had empirically documented as early as the 1970s a decisive culture shift from material to non-material preoccupations in western populations, and further to self-expressive values in the following two decades (Inglehart, 1977, 1990, Inglehart and Welzel, 2005).

The terminology of a second versus a first transition may have stirred some commotion among demographers, but the main point is that there are two very distinct processes at work. Moreover, most predicted outcomes of the first or the “historical” demographic transition in the West (i.e. Europe and the English speaking overseas countries or ESOCs) did not materialize as envisaged (cf. Lesthaeghe and Surkyn, 2004). More specifically, the FDT outcomes did not conform to a “new stable demographic regime” characterized by fertility around replacement level (i.e. a total fertility rate or TFR around 2 children), to early and universal marriage (as opposed to the historical Malthusian

pattern of late marriage with sizeable proportions ending up in definitive celibacy), a dominance of the nuclear family consisting of a married couple with children born in wedlock, or to a preponderance of a single model for that family based on asymmetric gender roles (breadwinner model) but on strong emotional conjugality. Instead, a plethora of different living arrangements other than classic marriage emerged as legitimate alternatives, ranging from single living, to prolonged premarital cohabitation, parenthood within cohabitation, single sex household formation, post-marital cohabitation or LAT-relations replacing post-divorce or post-widowhood remarriage. In the process, ages at first marriage went up again and sometimes quite spectacularly so, non-marital fertility (other than that due to teenage contraceptive failures) started a steady upward trend as parents continued to cohabit, and first births were postponed as well. Fertility control during the FDT was indeed a matter of avoiding births of higher parities occurring at older ages and thereby safeguarding the opportunities of the already born children, but during the SDT it is a matter of postponing childbearing in function of more pressing competing goals such as prolonging education, achieving more stable income positions, increased consumerism associated with self-expressive orientations, realizing a more fulfilling partnership, keeping an open future, etc. The net outcome is not just a temporary drop in the period total first marriage and total fertility rates caused by the initial postponement of these events, but *structurally* lowered proportions married and *sustained* instead of temporary sub-replacement fertility. This, in its turn, creates a need for more immigration, which implies that the SDT leads to further societal transformations in a multi-cultural direction. This outcome is very different from the simple new demographic equilibrium and the essentially closed stationary population model envisaged by the FDT.

2. The SDT and value orientations.

The initial 1986 article on the SDT posited that new living arrangements, and cohabitation in particular, were the expression of secular and anti-authoritarian sentiments of better educated young cohorts with an egalitarian world view and a greater emphasis on Maslow's (1954) "higher order needs" (i.e. self-actualization, individualistic and expressive orientations, need for recognition). This reflected the picture of the new cohabitants in the Low Countries during the 1960s and 70s. In addition, these countries had a plethora of political parties that covered the entire spectrum from conservative to non-conformist values, and voting behavior according to living arrangement provided the first empirical checks (e.g. Lesthaeghe and vande Kaa, 1986, Lesthaeghe and Meekers, 1986, Lesthaeghe and Moors, 1996). At the same time, the correlates of Inglehart's "post-materialist" political orientation were high on the research agenda, and both the Eurobarometer surveys and the first European Values surveys (EVS) provided data for more detailed empirical verification in several West European countries. Also in the US statistical associations between value orientations and living arrangements were drawing the attention of sociologists and demographers. Moreover, research teams in the US were fully engaged in longitudinal panel studies. This design allows for the measurement of selected value orientations at each wave in tandem with the recording of household-related choices occurring in the window between waves. As a result, American investigators could move beyond the mere statistical association between values and

types of living arrangements, and they could begin to assess the net predictive power of existing values on subsequent choices, and furthermore study the feed-back, i.e. the net effect of changes in household status on subsequent value orientations. A clear example of this type of analysis is provided by the Detroit Panel Study, where secularization predicted non-conventional family formation patterns, and where in turn such patterns lead to further secularization (cf. Thornton, 1985, Thornton and Axinn, 1992). In other words, a recursive model appeared with (i) *values-based selection* into alternative living arrangements (e.g. directly into marriage or into single living, cohabitation ...), and (ii) *event-based adaptation* of previously held value orientations (either in the direction of strengthening these or of revising them in the opposite direction). This *feed-back model of selection and adaptation* provides the dynamics of the process at the micro level, whereas the cross-sectional correlations either at the individual or the aggregate level are merely the “footprints” of this recursive mechanism.

The values typically associated with the demographic characteristics of the SDT are (cf. Lesthaeghe and Surkyn, 1988, 2004):

- *Secularization*, or the disappearance of religious service attendance, the abandonment of traditional religious beliefs (heaven, hell, sin ...), and the decline in individual religious sentiments (prayer, meditation ...).
- The “*new political left*” with high scores on Inglehart’s post-materialism, voting for Green parties in Europe, high protest-proneness and greater distrust in institutions, and anti-authoritarianism in general.
- *Egalitarianism*, with an emphasis on gender equality, tolerance for all minorities including sexual ones, rejection of class distinctions, and a stronger preoccupation with North-South equity associated with “world citizenship”.
- *Individual autonomy with respect to ethics*, and particularly the accentuation of free choice in all domains of interference with life and death (abortion, euthanasia, suicide).
- *Accentuation of expressive values*, showing an enhanced preoccupation with individuality and self-actualization. Typical indicators here are the ranking of traits such as “imagination” and “independence” above all other qualities to be stressed in the education of children, and the preference for intrinsic work qualities (interesting job, allowing initiative, challenging, permitting social contact ...) over material ones (good pay, vacations, promotion ...)
- *Tolerance for unconventional or relativist ethics*, both in the marital domains (e.g. casual sex) and in that of civil morality more generally.
- *A retreat from classic forms of social capital and community involvement* associated with religious or political orientations in favor of self-elected friendships.

It should equally be stressed that value orientations are by no means the only factors that have shaped the SDT. Other conditioning factors matter just as much, and research has found a major role for, *inter alia*:

- *Family antecedents*: the experience of parental divorce or of family reconstruction after such a divorce frequently lead to earlier home leaving, more single living, a stronger preference for cohabitation, and even to a higher probability of lone parenthood (e.g. Thornton and Camburn, 1987, Waite and Kobern-Goldscheider, 1986, Wu and Martinson, 1991, Cherlin and Kiernan, 1995)
- *Diffusion mechanisms*: with the passing of time new forms of behavior gain acceptability and legitimation, and they get accommodated into the legal system. This in its turn facilitates further diffusion of a new form of behavior.
- *Economic differentiation*: new living arrangements may accommodate different economic conditions. For example, cohabitation often seems associated with a weaker or more insecure financial position than marriage. By contrast, a lack of partial financial independence of young adults and/or a tight private housing market is conducive to prolonged residence in the parental home and less cohabitation.
- *Policy effects, labor market characteristics and housing conditions*: earlier home leaving, single living and prolonged cohabitation in Europe, for instance, are more typical of countries with income support for students and young adults, with housing subsidies or controlled public housing sectors, and with more flexible labor markets allowing for part time jobs as well.
- *Regional historical contexts and cultural continuities*, which point in the direction of the existence of stable regional sub-cultures that have varying degrees of accommodation or resistance to demographic innovations (e.g. Lesthaeghe and Neels, 2002).

Having set the stage with this short report of concepts and earlier findings, we shall now turn our attention to the SDT in the US.

3. Major SDT – components in the US.

In this section we shall document that marriage and fertility postponement, premarital cohabitation and even fertility within cohabitation follow similar trends as in western Europe, but also that the current spatial variation in the US remains very important. Again, just as in Europe, major regional leads and lags emerge.

First of all, ages at first marriage for both non-Hispanic white and black populations alike have been rising since the 1970s and that occurred in tandem with a rise in both single living and especially cohabitation. As can be seen in Table 1 with data from the US National Survey of Family Growth (Raley, 2000, p. 27), the majority (62%) of the cohort of white women born in 1950-55, and reaching age 25 in the late seventies, was married by age 25 and they had done so without premarital cohabitation. In that cohort, a further 12% was already married by that age, but had started a cohabiting union prior to their marriage. Another 6% of white women was still in cohabitation by age 25, and only 20% had not yet started a union at all. The contrast with the cohort born in the years 1965-69, and reaching age 25 in the early nineties, is striking. For the latter the proportion directly moving into marriage was almost halved, from 62 to 32%, and the shares of those married after cohabitation and of those still in

cohabitation by age 25 both doubled, from 12 to 25 and from 6 to 14% respectively. Also, the proportion still single rose from 20 to 29 %. Note the shift among the black population as well: by age 25, the percentage directly married without prior cohabitation declined from 44 to barely 18% in the same period, whereas the proportion still cohabiting by age 25 increased from 12 to 23%.

Table 1: Changes in patterns of union formation among US white and black women: positions at age 25 for 4 birth cohorts.

At age 25 :	1. No union	2. Cohabiting and not married	3. Married after cohabitat.	4. Married without cohabit.
White women, cohort of:				
1950-54	20%	6	12	62
1955-59	22	11	18	49
1960-64	25	14	21	40
1965-69	29	14	25	32
Black women, cohort of:				
1950-54	31%	12	13	44
1955-59	47	16	10	27
1960-64	44	22	12	22
1965-69	46	23	14	18

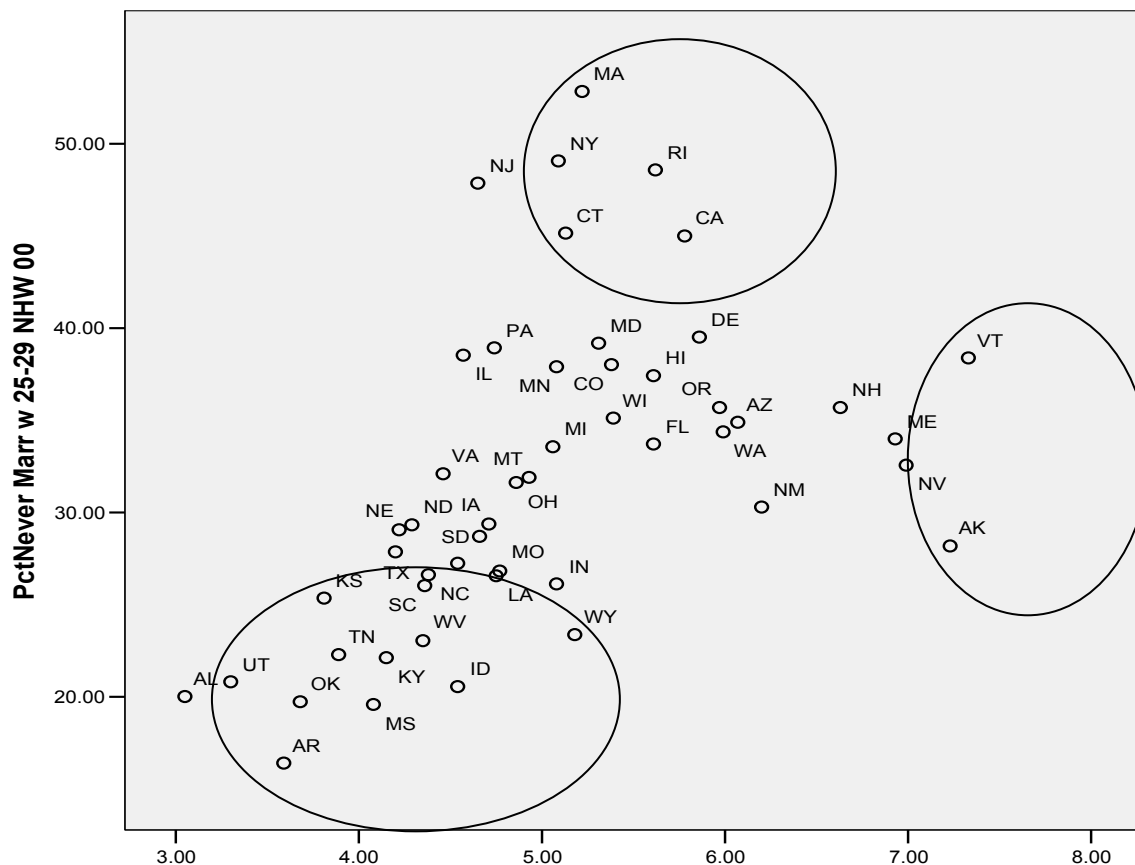
Source: US National Survey of Family Growth, 1995 as reported by R.K. Raley, 2000, p.27, fig 2.5.

From these figures it is clear that not only the age at first marriage was rising, but also that the spread of cohabitation was largely responsible for this. In other words, the US is hardly an exception in this respect and exhibits a trend similar to Europe's since the 1970s.

However, as in the EU (from Sweden to Greece), the US overall pattern hides very large spatial differentials. The degree of heterogeneity can be appreciated from Figure 1, where a plot is presented of the 50 states according to an indicator of marriage postponement and an indicator of the incidence of cohabitation. More precisely, marriage postponement is measured via the proportion of women aged 25-29 never married as recorded in the US Census of 2000, and cohabitation as the percentage of all households headed by unrelated adults of the same or of a different sex. Obviously, the positive relationship between the two indicators shows up ($r = .51$), but the main purpose of the figure is to highlight the position of the various states in this typical SDT two-dimensional space of marriage being postponed or declining in favor of cohabitation. The plot reveals the existence of several clusters with more distinct patterns:

1. There is a *pattern of early marriage and little cohabitation*. A large part of the South fits this picture, with states ranging from West Virginia, Tennessee, Kentucky and the Carolinas to Alabama, Mississippi, Oklahoma, Arkansas and Texas. But also Utah and Idaho have less than a quarter of non-Hispanic white women never married in the age group considered, in combination with less than 5 % of households headed by cohabitants.
2. At the other end, a first contrasting group is characterized by *very late first marriage and medium levels of cohabitation*, and it is made up of several northeastern states (New York, Massachusetts, Rhode Island, New Jersey, Connecticut) and California.
3. And a second contrasting one combines a *high incidence of cohabitation with intermediate proportions never married women 25-29*. This group contains the rest of New England, but also Nevada and Alaska. Evidently, the states in group 3 have a higher proportion of younger adults in a union (either marriage or cohabitation) than group 2.

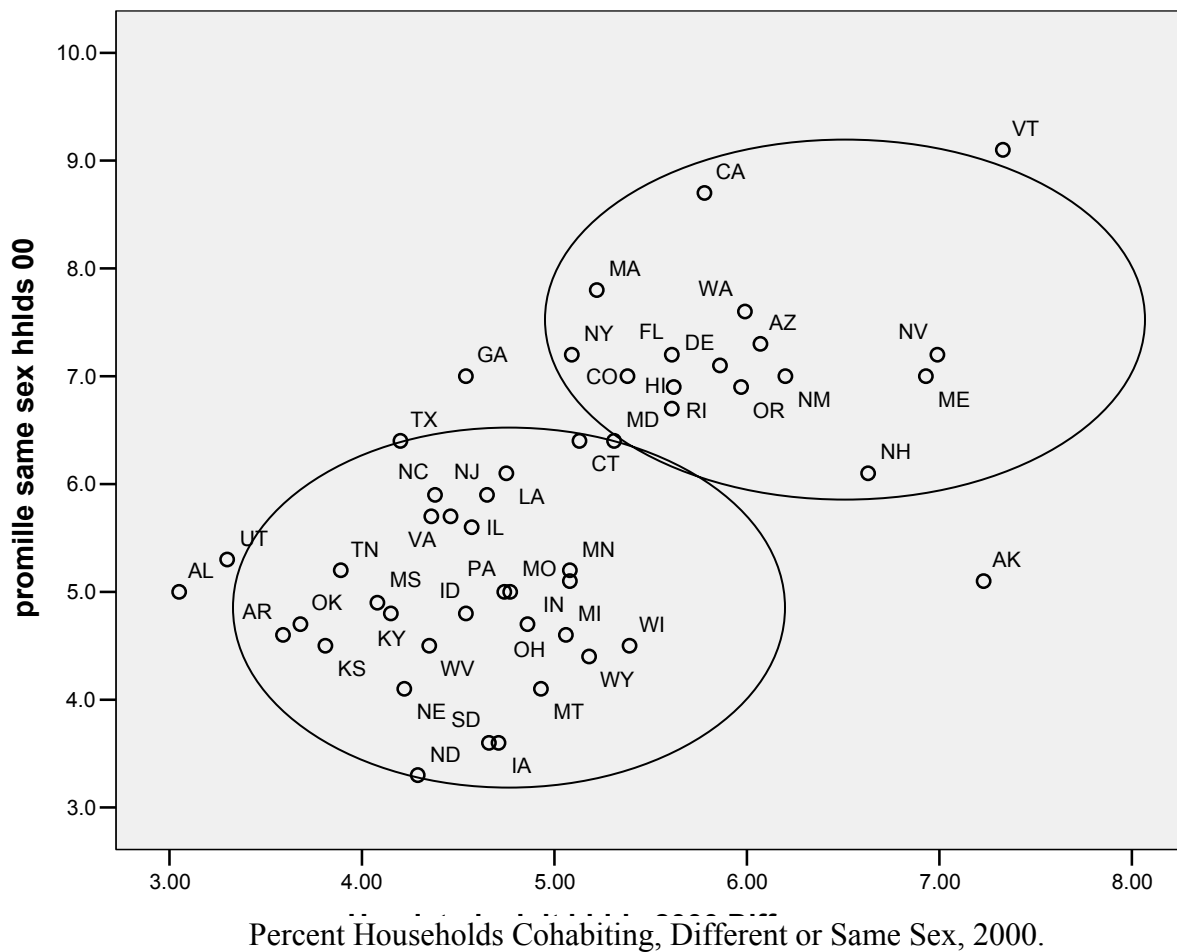
Figure 1: Location of states with respect to the postponement of marriage (Y-axis) and the incidence of cohabitation (X-axis), US Census 2000.



Percent Households Cohabiting, Different or Same Sex, 2000.

A similar picture can also be presented with respect to same sex households. This is done in Figure 2. Note, however that the incidence of cohabitation in general is expressed as a percentage of all households, whereas that of same sex cohabitation in pro mille.

Figure 2: Location of states with respect to the incidence of same sex cohabitation (Y-axis) and all forms of cohabitation (X-axis), US Census, 2000.



The plot in Figure 2 clearly indicates that there is again a correlation ($r = .60$) between the incidence of same sex and of overall cohabitation. But, as in the previous figure, there is still quite a bit of variation left. The striking feature of the plot is the existence of two clusters of states that are more differentiated by the incidence of single sex households than by that of overall cohabitation. Also, among the states that have higher

percentages cohabiting (e.g. more than 5 percent), some have considerably higher shares (e.g. above 7 per thousand) of same sex households than others. The “most tolerant” states with respect to both cohabitation in general and same sex cohabitation are clearly Vermont and California, followed by Massachusetts, Washington, New York, Delaware, Florida and Maine. They are very closely followed by a few others such as Colorado, Oregon, New Mexico and Hawaii. At the other extreme are states with a low incidence of both same sex and overall cohabitation, but there is no systematic southern cluster. Instead, the low cohabitation states on both accounts are often mid-western and include the Dakotas, Iowa, Kansas, Nebraska, Montana, and Idaho, along with Ohio, West Virginia, Kentucky, Oklahoma and Arkansas.

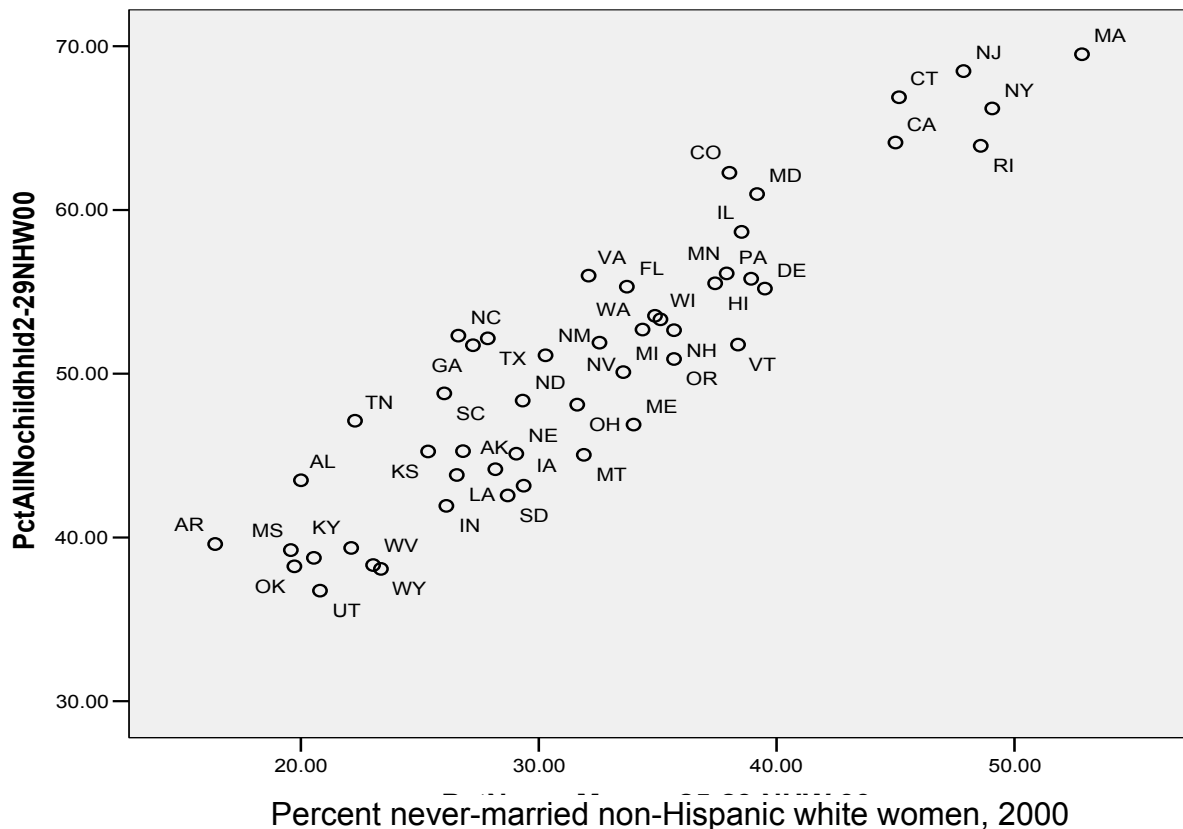
In Europe and Canada the steady expansion of the proportions cohabiting was soon followed by the emergence of a new feature: procreation within cohabitation or parenthood without converting the cohabiting union into a marriage. In countries with low teenage non-marital fertility, the trend of within cohabitation fertility can fairly well be documented by the overall increase in out of wedlock fertility, but in the US the matter is much more complicated and does not permit such a straightforward interpretation. The main reason for this is that the unmarried birth rate has a number of contributing components which cannot easily be separated via the current background information. For our purposes we would ideally need to know whether the birth occurred to a single mother or a cohabiting one, but there is to our knowledge no information in the vital registration on the presence of a partner. Hence, in order to get an idea about a possible trend in cohabitation fertility, we have to work via indirect indications, such as the age and the ethnic affiliation of the mother. But none of that comes remotely close to a direct measurement based on information about the presence of a partner at the time of the birth.

The basic facts (see Ventura and Bachrach, 2000) are that non-marital fertility rose uninterruptedly from a low level of about 90,000 in 1940 to 1.47 million in 2003 (Medical News Today, Oct. 31, 2005). In terms of the share of all births, non-marital births accounted for 3.8 % in 1940 and for 35.7% in 2003. The birth rate per 1000 unmarried women aged 15-44 rose from 7 to 46 in 2004 (Natl. Center for Health Statistics, 2005). But since the number of unmarried women has been growing rapidly (expansion of the population at risk), the non-marital birth rate 15-44 has tended to stabilize since the early 1990s. In terms of absolute numbers, a decline is found among teenagers but not in the older age groups. Also in terms of non-marital birth rates per 5-year age groups, there is that sustained decline since 1991 among teenagers, but not so much among the older women, including those in their thirties (Ventura and Bachrach, p. 24, Natl. Center for Health Statistics, 2005, figure 1). In fact, women in the age groups 20-24 and 25-29 are the main contributors to the overall rise in numbers of non-marital births after 1994. Moreover, the decline in the share of teenagers occurs both among black and white populations, but the rises after age 20 are predominantly a white contribution (see Ventura and Bachrach, p. 19-20). This fuels the speculation that there has been a gradual shift in terms of relative contributions from teenagers remaining single to women in their twenties proceeding with reproduction within cohabitation. This is corroborated by survey data (Natl. Survey of Families and Households 1988,

and Natl. Survey of Family Growth 1995 – see Raley, 2001: table 4) which show that the share of all births contributed by cohabiting women 15-29 rose from about 5 % in the period 1970-74 to 12 % in 1990-94, and that of single women 15-29 rose from 13 to 23 %. Evidently the share of births among married women then declined from 82% to 65% over the same period. Also an *increasing* proportion of singles decided to cohabit before the child's birth, and a *decreasing* proportion of cohabiters converted their union into marriage before that birth (Seltzer, 2000, Raley, 2001). These survey figures document the trend prior to 1995, and no such a clear decomposition is available for subsequent years. But the bottom line is that, despite the lack of such a finer decomposition, all indications point in the direction of both a greater incidence and a greater acceptability of procreation within cohabitation in the US as well.

A third, and major component of the SDT is the postponement of parenthood and the development of a late fertility schedule. The degree of postponement can be documented easily via the proportions of women never married in the age group 25-29 or 30-34 and via the proportions that are still childless by these ages. In Figure 3 those percentages found in the census of 2000 by state are shown for non-Hispanic white women aged 25-29.

Figure 3: Location of states with respect to percentages never married (X-axis) and childless (Y-axis) among non-Hispanic white women 25-29, US Census 2000.



There is of course a strong positive correlation between these postponement indicators ($r = .92$), but the scatterplot mainly shows the spatial pattern of the unfolding of the SDT. The vanguard in the US with respect to postponement is once again made up of Massachusetts, New Jersey, New York, Connecticut, Rhode Island and California. In these six states, about half of the non-Hispanic white women are not yet married, and more than 60 percent have not made it yet to parenthood. At the other extreme, there is a group of states where less than a quarter of non-Hispanic white women is still single and less than 40 percent still childless. This group is composed of West Virginia, Kentucky, Oklahoma, Mississippi, Arkansas, Utah and Wyoming.

The postponement of fertility is also associated with well below replacement fertility, as is shown in Figure 4. Here we have made use of the non-Hispanic white total fertility rate for 2002 and an index of fertility postponement for these women at the same date (data in Sutton and Mathews, Natl. Vital Statistics Report, 2004, vol. 52, nr 9). The latter index is the ratio of the sum of the age specific fertility rates above age 30 over the sum of these rates between 20 and 29. In this index, teenage fertility is left out since this constitutes an entirely different issue and a variable with another sociological connotation.

Fig. 4: Location of states with respect to the total fertility rate (TFR) and the index of fertility postponement, non-Hispanic white women 2002.

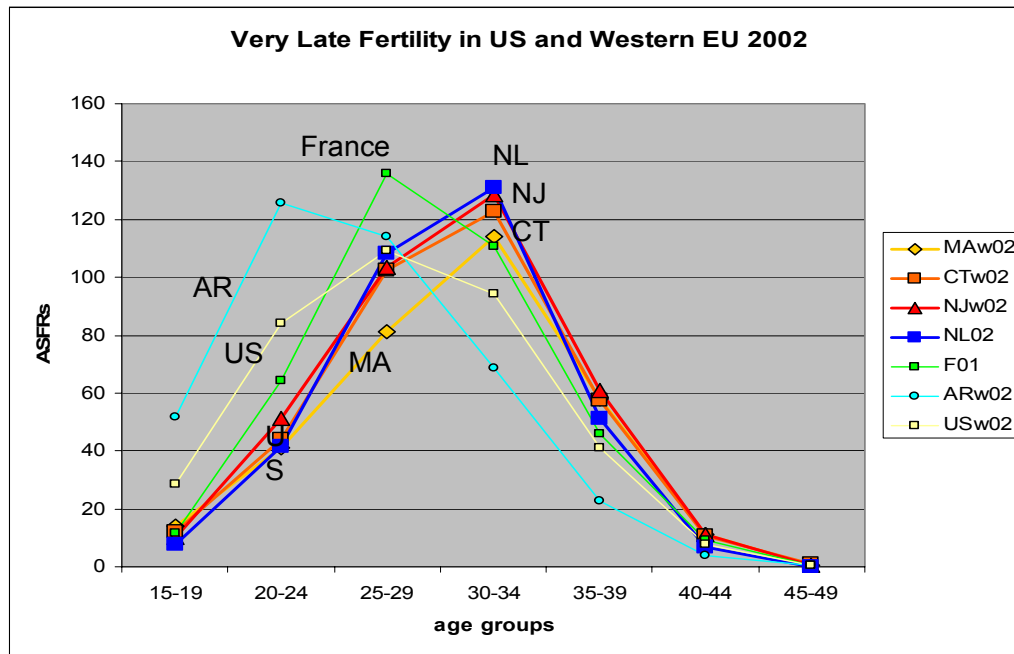


First of all the figure reveals that for the non-Hispanic white population of the US, only 4 states have above replacement fertility (i.e. higher than 2.05 children) : Utah and Idaho, Alaska and Kansas. Three come very close: Oklahoma, South Dakota and Nebraska. All of these states have early fertility schedules for non-Hispanic white women. But in many other states, an early fertility schedule (not counting teenage fertility) is not a guarantee for preventing sub-replacement fertility. For instance, Arkansas, Kentucky, West Virginia, Mississippi and Wyoming have the youngest fertility schedules in the US, but all have sub-replacement fertility among non-Hispanic white women.

Obviously, at the other end of the distribution the leading states with respect to postponement typically dip below a TFR of 1.80 (California, New York, Connecticut) and even below 1.60 (Rhode Island and Massachusetts). Evidently, these states have patterns of fertility that are completely similar to those of the western European countries. In fact, in the EU the Netherlands have for a long time held the record of fertility postponement, and as shown in figure 5, the non-Hispanic white population of Connecticut and New Jersey are just as late, and Massachusetts even beats the Dutch in this respect. For comparison also the schedules for France and the US as a whole (non-Hisp. whites) are added to the figure, together with the earliest age schedule of all US states, i.e. that of Arkansas.

If we take a typical western European or Scandinavian postponement index of about 0.80 as a benchmark and compare the US non-Hispanic white populations with the European SDT countries, then we should add a number of other states to the American trio of Massachusetts (postponement index = 150 as against 126 for the Netherlands or 107 for Sweden), Connecticut (131) and New Jersey (130). These extra states would be: New York (112), Rhode Island (107), California (99), Maryland (98), Illinois (91) Minnesota (84), New Hampshire (84), and Delaware (81). In these instances fertility after age 30 would be 80% or more of that between ages 20 and 29. At the other end of the distribution the lowest postponement indices in the non-Hispanic white populations of the US are for Arkansas (40), Mississippi (41), West Virginia (41), Kentucky (45), Wyoming (45), Oklahoma (45), Tennessee (50), Alaska (51), Idaho (51) and Alabama (51).

Figure 5: Age specific fertility schedules in the Netherlands and France and in selected non-Hispanic white populations of the US, 2002.



In Europe the Dutch (NL) had the latest age schedule of fertility, with a typical peak in the age group 30-34. The non-hisp. white populations of New Jersey and Connecticut now have a schedule that is just as late, and non-hisp. whites of Massachusetts even have a later one. Arkansas has the youngest age pattern among non-hisp. whites of all 50 states, with white teenage fertility being higher than that of all women after age 35.

From this section it is evident that the demographic map of the US with respect to patterns of family formation exhibits very strong contrasts. A very sizable portion of the US non-Hispanic white population exhibits all the typical SDT characteristics, whereas another major segment of it shows few signs of this new demographic pattern.

4. Spatial patterns of family formation: dimensions and correlates at the state level.

In this section we intend to give a more complete analysis of the spatial dimensions of the US patterns of reproduction and their socio-economic and cultural or political correlates. For this purpose we have enlarged the set of demographic indicators to include other variables pertaining to teenage and non-marital fertility, incidence of abortion, divorce rates, or household composition indicators measured at the level of the 50 states. As a rule of thumb we have also chosen two different indicators to capture a particular phenomenon in order to minimize idiosyncratic indicator effects. For instance, the incidence of abortion is measured once per 1000 live births and once per 1000 women aged 15-44. Similarly, fertility postponement is indicated by the vital statistics based postponement ratio (see above) and by the census based percentage of

women still being childless at ages 25-29 or 30-34. In the current analysis 19 such demographic indicators are used, and they essentially contain two distinct dimensions in the patterning of US family formation. These two dimensions emerged very clearly from a classic Principle Component Analysis (PCA), followed by a Varimax orthogonal factor rotation. Together the two factors explain 67.3 percent of the total variance contained in the 19 indicators. The definitions of the variables and the respective factor loadings are presented in Table 2 below. The variables are ordered by absolute value of factor loadings on factor 1.

Table 2: Demographic indicators and their two underlying dimensions: definitions and factor loadings (50 states).

Loading = correlation with:	factor 1	factor 2.
* Pct non-Hisp. white women 25-29 without children in household, census 2000	.933	-.186
* Pct non-Hisp. white women never married, census 2000	.905	-.370
* Pct non-Hisp. white ever married women without children in household, census 2000	.902	-.097
* Abortions per 1000 live births, 1992	.887	.057
* Pct non-Hisp. white women 30-35 never married, c. 2000	.882	-.326
* Abortion rate per 1000 women 15-44, 1996	.836	.136
* Fertility postponement ratio (fert.30+/- fert.20-24), 2002	.794	-.411
* Same sex households per 1000 households, census 2000	.754	.191
* Non-Hisp. white total fertility rate, 2002	-.725	.009
* Non-Hisp. white fertility rate 15-19, 2002	-.675	.633
* Pct households that are “families”, census 1990	-.642	.328
* Pct households with unrelated same or different sex adults (cohabitators), census 2000.	.517	-.148
* Divorce rate per 1000 population, 1990	-.457	.548
* Total fertility rate, all races, 2002	-.338	.155
* Pct births non-marital, 1990	.329	.803
* Pct births to teenagers, 1986	-.303	.875
* Divorce rate per 1000 population, 1962	-.277	.462
* Pct pop. 30+ living with and responsible for grandchildren, census 2000	-.189	.886
* Pct births non-marital, 2000	.182	.851

Factor loadings > .50 in bold.

The first principle component is mainly identified by all the postponement indicators of both marriage and parenthood among non-Hispanic whites, the higher incidence of abortion, the non-conventional household types based on cohabitation, and by lower overall fertility levels. In other words, the first principle component clearly identifies the emergence of the SDT in the 50 states. A typical American feature compared to the western European pattern, however, is that the maps of the divorce rates in the US are

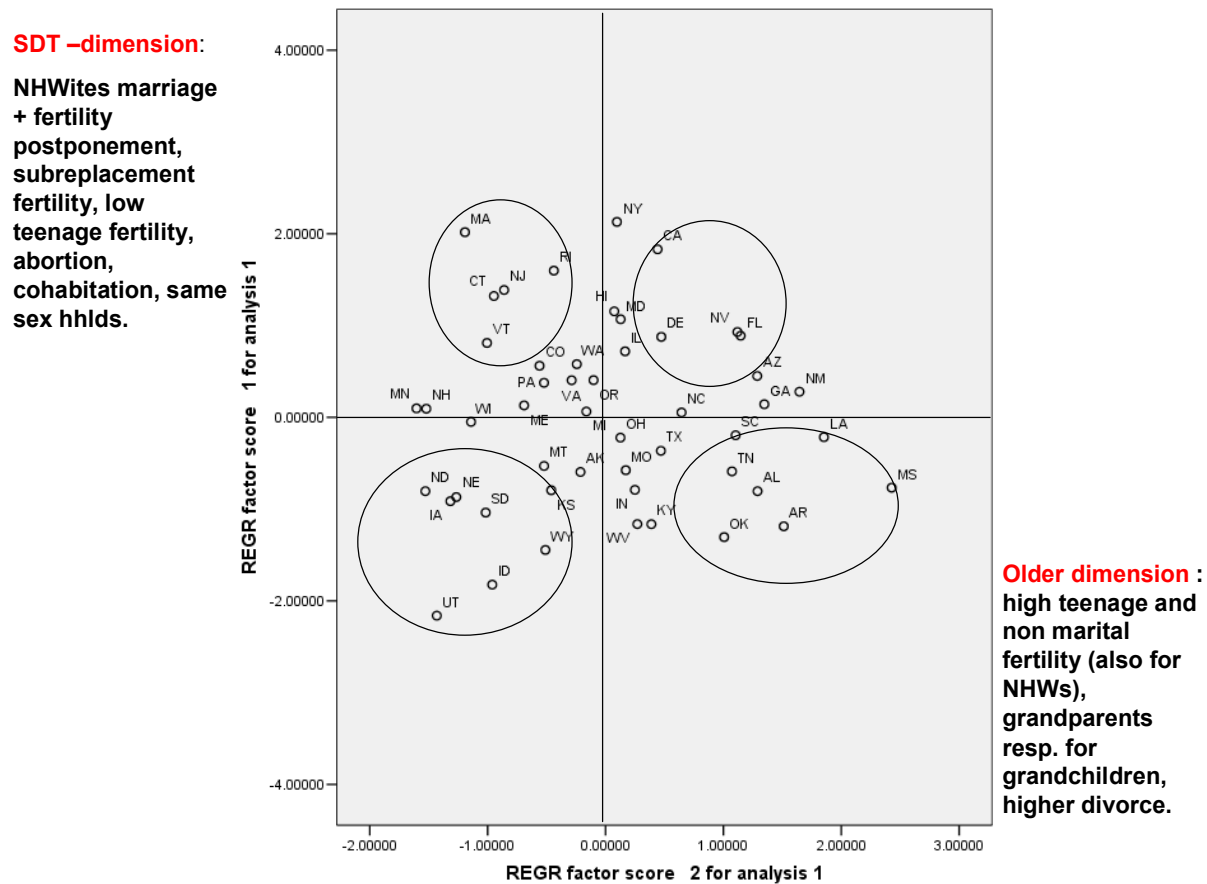
not positively correlated with this SDT dimension, but negatively so. Apparently, the very early rises in American divorce rates from the late 1940s onward created a different spatial pattern, which is not related to that of the current SDT. In other words, the early divorce maps in the US do not predict the later SDT ones in the US, whereas they do in several EU countries (Lesthaeghe and Neels, 2002).

The other principle component (uncorrelated to the first one) is identified by high teenage fertility, including that of non-Hispanic whites, high fertility out of wedlock, and households where not the parents but the grandparents have become the caretakers of children. This is evidently an older dimension of early family formation in the US with unmarried teenagers or young women, black or white or Hispanic, becoming mothers, ending up as single parent households, or needing their own parents to look after their children.

The location of the states with respect to these two dimensions of American family formation is shown in figure 6. The four quadrants in the figure identify 4 contrasting types of family formation. At the bottom left are states that are resisting the SDT-features so far, but that are also conservative in the sense that they have few teenage mothers, low non-marital fertility, and hence few grandparents needing to look after grandchildren. The typical states in this cluster are the Dakotas, Nebraska, Iowa, Wyoming, Idaho and Utah. The other cluster that is resistant to the SDT so far, but has high proportions of teenage mothers, lone mothers and reliance on grandparents is located in the lower right hand corner of figure 6. It contains typically southern states, such as South Carolina, Alabama, Mississippi, Louisiana, Tennessee, Oklahoma and Arkansas.

The states that are leading with respect to the SDT are found in the upper half of Figure 6, but they too are differentiated with respect to what happens with their children. High on SDT, but conservative re teenage motherhood are several northeastern states: Massachusetts, Vermont, Rhode Island, Connecticut and New Jersey. Also high on SDT but experiencing more early teenage fertility and lone or needy parents are California and Nevada, but also Delaware and Florida. Aside from the four “corner” types in Figure 6, there is of course the middle of the road America with average scores on both dimensions. Typical examples thereof are Michigan, Ohio, Virginia or Oregon which are all located near the center of the graph.

Figure 6: Location of states with respect to two principle components of US family formation (scales in standard deviations).



These two basic dimensions of US family formation can be related to a series of economic (income, poverty), socio-economic (education, urbanity), political (voting) and cultural (ethnicity, religion) variables. The correlates of the two dimensions are presented in Tables 3 and 4. The left hand column repeats the correlation or factor loadings of each of the demographic indicators and the principle component, whereas the left hand column reports the best predictors of each principle components together with the correlation coefficients. These tables permit a further interpretation of the regional demographic picture of the US.

Table 3: Best indicators and correlates of the SDT-dimension.

US 50 states : First demographic dimension (SDT)				
Factor loadings (left) & best correlates (right)				
PCA with Varimax rotation				
•	% No child NHW w. 25-9, 2000	+ .93	• % vote Bush 2004	-.88
•	% Never marr. NHW w 25-9	+ .91	• Disp. Personal income 01	+ .70
•	% No child NHW ever mar 25-9	+ .90	• % pop. Metropolitan 2000	+ .68
•	Abort. Per 1000 LiveBirths 92	+ .89	• % pop. Metropolitan 1970	+ .65
•	% Never marr. NHW w 30-4	+ .88	• % Catholic 1990	+ .62
•	Abort. Rate p. 1000 w. 15-44 96	+ .84	• % Evangelical* 2000	-.62
•	NHW fertility postponmt index 02	+ .79	• % pop 25+ with BA 1990	+ .62
•	%0 Same sex househlds, 2000	+ .75	• % workers unionized 2001	+ .50
•	NHW total fert. rate, 2002	-.73	• Disp. Personal income 80	+ .49
•	NHW fertility rate 15-19, 2002	-.68	• %vote Nixon 72 (vs McGovern)	-.46
•	% hhlds “families” 1990	-.64	• %vote Goldwater 64 (Johnson)	-.43
•	% hhlds cohabitants 2000	+ .52		
•	Divorce rate per 1000 pop 2000	-.46		

* With estimated nr of Mormons in Utah

* With estimated nr of Mormons in Utah

* NHW = Non-hispanic whites

Table 4: Best indicators and correlates of the teenage and non-marital fertility dimension.

US 50 states : second demographic dimension.			
Factor loadings (left) and best correlates (right)			
PCA with Varimax rotation			
•	% grandparents responsible for grandchildren in hhld, 2000	+ .89	% pop 25+ High school grads 90
•	% births to teenagers 1986	+ .88	% pop in poverty 98-00
•	% births unmarr. W. 2000	+ .85	% pop black 2000
•	% births unmarr. W. 1990	+ .80	% pop NHWhite 2000
•	NHW fertility 15-19 2002	+ .63	% Evangelical / Mormon
•	Divorce 1000 pop 1990	+ .55	% vote Goldwater 64 (vs Johnson)
•	Divorce 1000 pop 1962	+ .46	% vote Nixon 72 (vs McGovern)
•	NHW fert postpnmt index 02		% pop. 25+ with BA
			Disp. Personal income 2001
			+ .66
			+ .66
			+ .57
			+ .54
			+ .54

Table 3 shows that the SDT- dimension is strongly correlated with being a wealthier state, with disposable household incomes above the US average, and with being highly urbanized and high percentages of the population living in metropolitan areas. Moreover, the SDT map also correlates positively with high proportions of Catholic populations (many not practicing) and higher proportions of adults having college

degrees (BA and higher). Finally, also states with high proportions of unionized workers tend to score higher on the SDT dimension.

The SDT is clearly negatively correlated with high proportions being Evangelical Christian and with conservative Republican voting in the past, i.e. in favor of Goldwater (as opposed to Johnson) and in favor of Nixon (against McGovern). But the most striking feature of all in Table 3 is undoubtedly the very strong negative correlation ($r = -.88$) between the SDT pattern and the 2004 percentage vote for G.W. Bush. The so called “blue states” are high on SDT and the “red ones” low. We shall return to this point later on in greater detail, since it is the most striking finding in this analysis.

The correlates of the teenage and unmarried mothers dimension are all too well known. These demographic features are correlated with lower average disposable incomes, lower proportions finishing high school, with higher proportions in poverty, higher proportions black or Hispanic, but also with high proportions Evangelical Christians or Mormon. America’s “Bible belt” that reacts so strongly against the manifestations of the SDT is also the home of poverty and low education based teenage childbearing, young lone mother families, and higher divorce rates.

5. The SDT- Bush connection.

On occasion demographers have been quite successful in predicting election results, although their preoccupation goes in the opposite direction: linking demographic outcomes to cultural and political indicators. Examples are the strong relations between voting for secular parties and the speed of the fertility decline during the FDT (e.g. Lesthaeghe and Wilson, 1986) or the prediction of the regional outcomes in the Italian divorce referendum of the 1970s on the basis of the timing of the same historical fertility transition 40 years earlier (Livi Bacci, 1977). But the very strong negative correlation of $-.88$ found here between the SDT dimension (i.e. factor 1 in Table 2) and the percentage votes for G.W. Bush in the 2004 elections is to our knowledge one of the highest spatial correlations between demographic and voting behavior on record.

But first, it is useful to reproduce the scatterplot between these two variables with the state identification on it. This is presented in Figure 7. Obviously also strong correlations hold with respect to the various components of the SDT dimension. For instance, the percentage voting for Bush correlates strongly with the percentage of non-Hispanic white women never married at ages 25-29 (postponement of first marriages) ($r = -.84$) or with the percentage of non-Hispanic white women 25-29 without children (fertility postponement) ($r = -.80$), and even with the non-Hispanic white TFR in 2002 ($r = +.77$). The scatterplots for these relationships are also reproduced here in Figures 8 through 10.

Figure 7.

Relationship between the “Second demographic Transition” Dimension in the US 50 states and the % Vote for Bush 2004 ($r = -.88$)

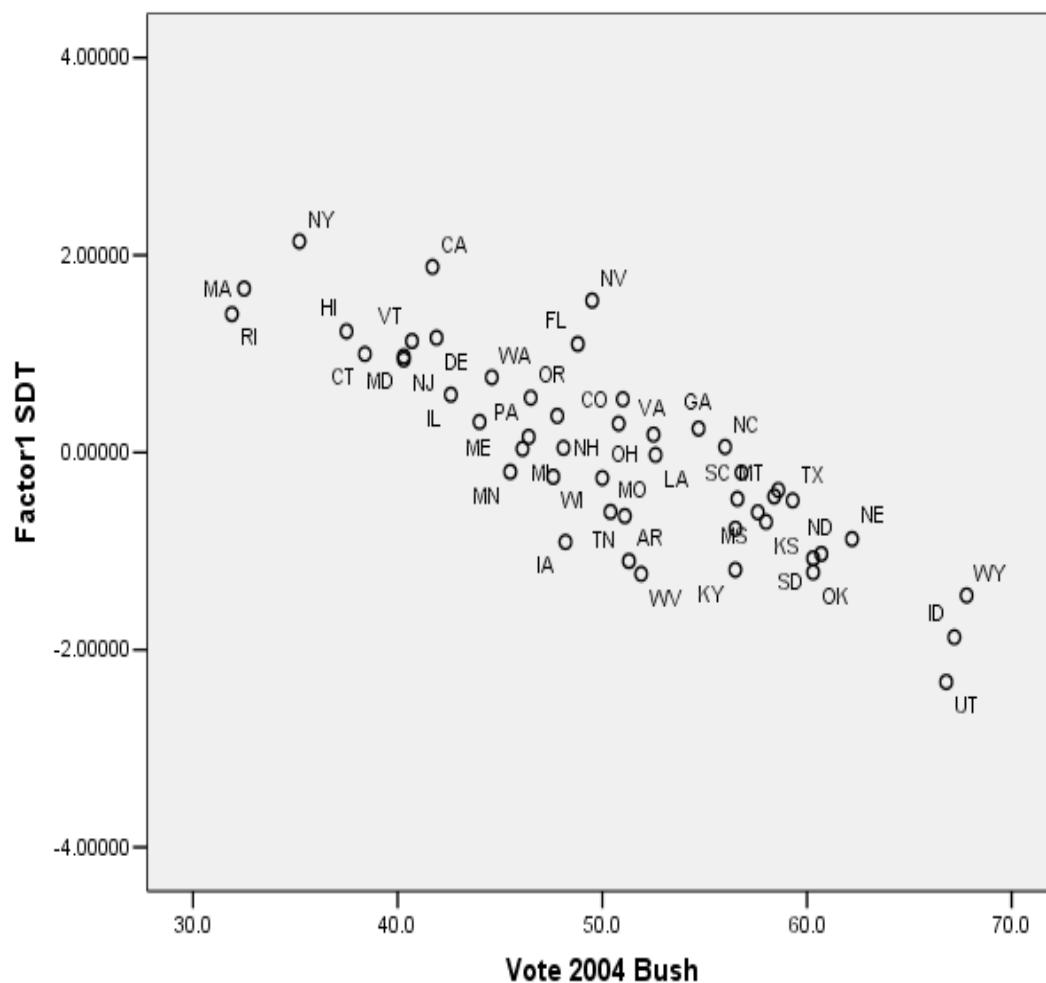


Figure 8: Relationship between Postponement of First Marriages among Non-Hispanic whites, 2000, and the Percent Voting for Bush, 2004 ($r = -.84$)

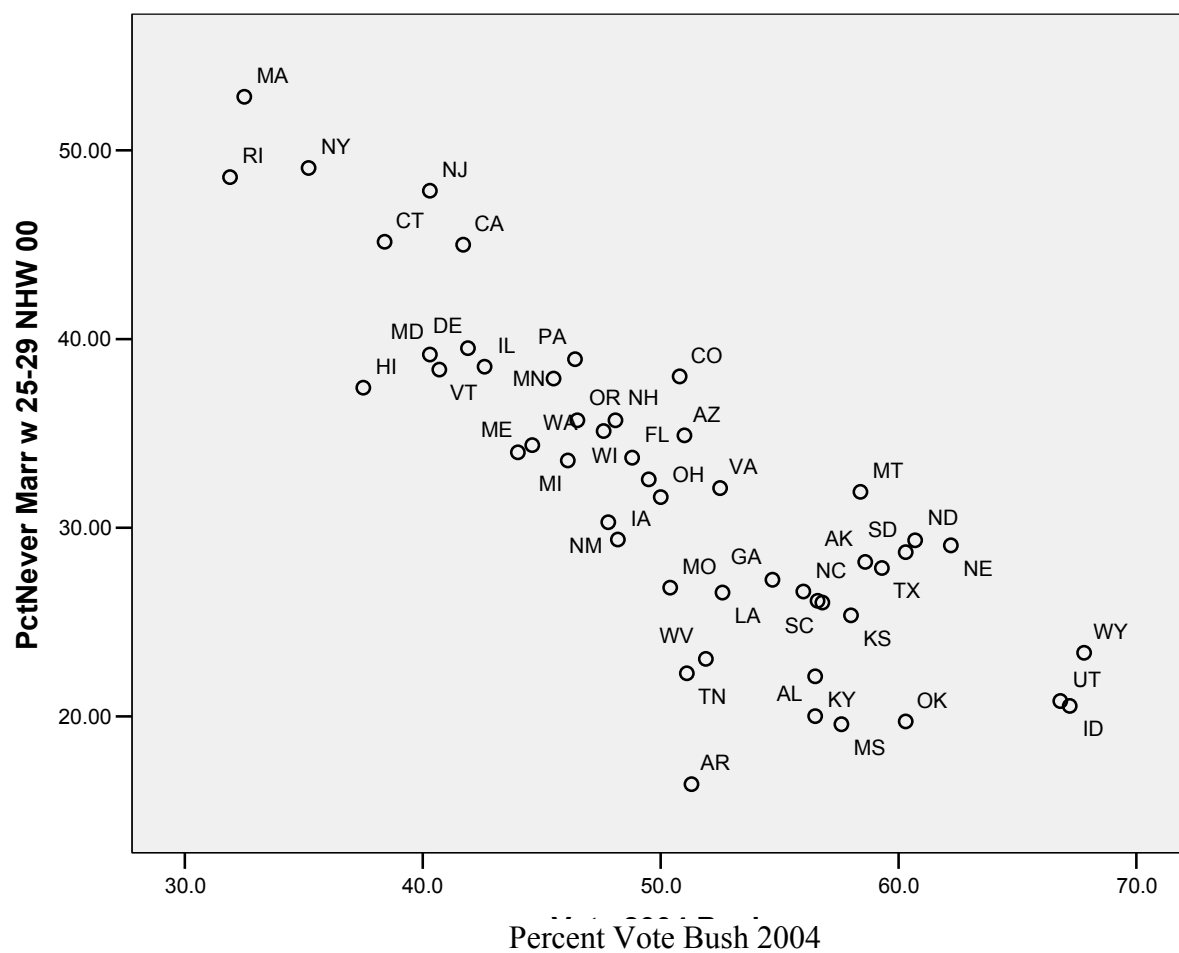


Figure 9: Relationship between Postponement of First Births among Non-Hispanic whites, 2000, and Percent Voting for Bush, 2004. ($r = -.80$)

% non-Hisp. white women
aged 25-29 without children
in their household.

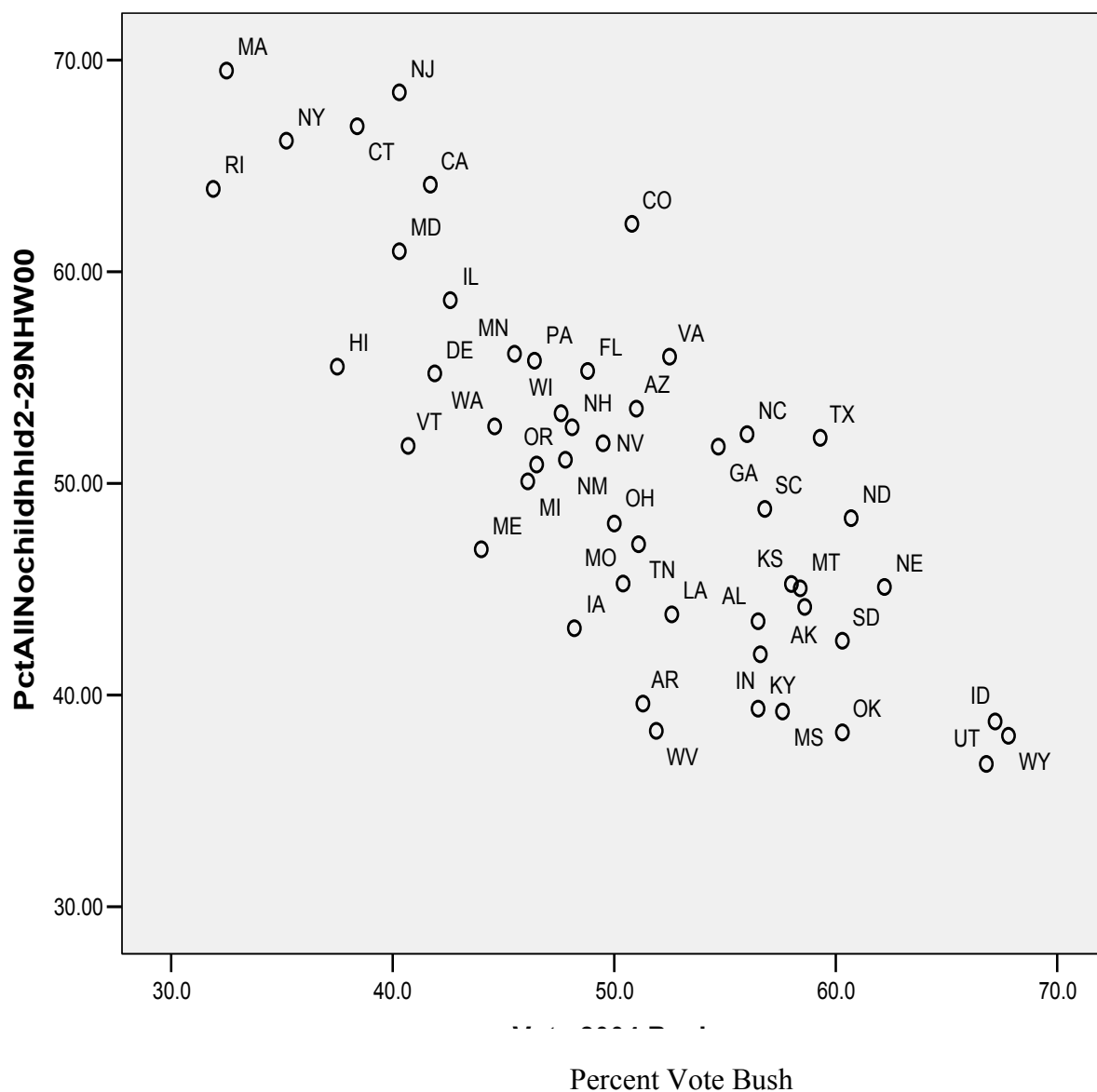
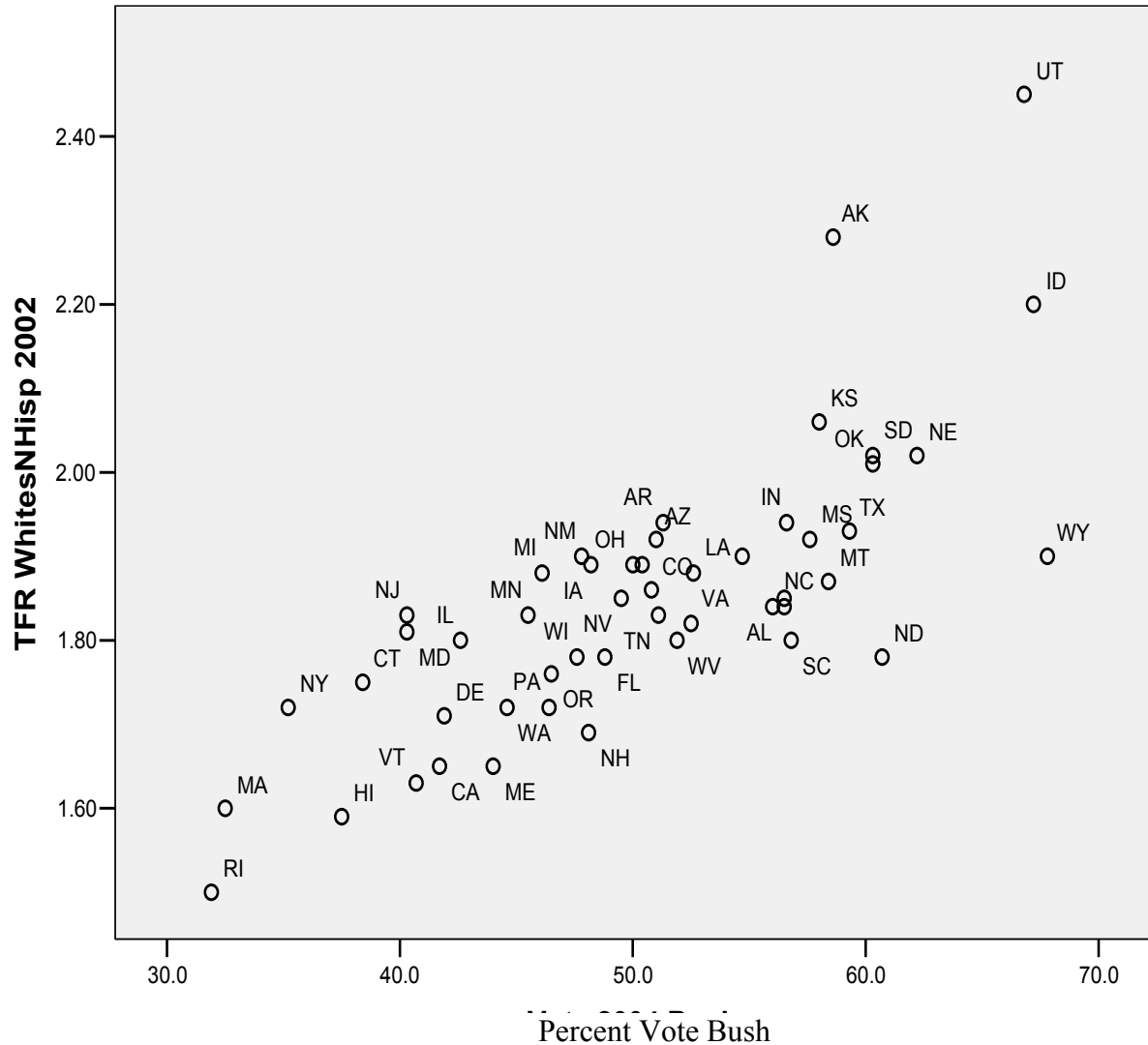


Figure 10: Relationship between the non-Hispanic white Total Fertility Rate, 2002, and the Percentage Vote for Bush, 2004. ($r = +.77$)



These findings beg the question whether the zero-order correlations just reported are spurious or not. More specifically, it would be dangerous to give them a direct causal interpretation, since they could be the product of the action of a common set of other variables that causally influence both demographic behavior and voting pattern. In other words, two variables that are themselves causal results of the same determinants must of necessity be correlated. In order to check this hypothesis, a number of partial correlation tests were performed. The zero-order correlation between voting and SDT will be spurious if the partial correlations are zero or are drastically reduced. The outcomes of the test are reported in Table 5 for the correlation between the votes for Bush and the Non-Hispanic white TFR and the SDT factor as identified in Table 2.

Table 5

Partial Correlations : are the zero order correlations between the 2002 TFR (NHWhites) or the SDT dimension and the vote for Bush in the 50 US States resistant to controls ?

<u>ZERO ORDER r % VOTE BUSH 2004 with</u>	<u>Nhw TFR 2002</u>	<u>SDT-factor</u>
	.771	-.880
After controls for:		
A. Three structural vars : disp. personal income 2001, Pct pop with BA 1990, Pct pop. Metropolitan	.755	-.787
B. Same structural + 2 Ethnic: Pct Black & hispanic 2000	.755	-.840
C. Same structural + 2 Religion: Pct Evangelic/ Morm. And Pct Catholic	.686	-.734
D. ONLY 2 Religion vars: Pct Evangelical/Mm 2002 + Pct Catholic 1990	.654	-.788

The first partial correlation test is performed starting from the idea that the common causal factors producing a high zero order correlation between the demographic and the voting variables are of a structural nature, and are related to the states' average disposable household incomes, educational levels or degrees of urbanization. If the three best correlates of these independent dimensions are controlled for, then the partial correlation is barely reduced, and still stands well above .70. Evidently, the regional patterns related to income, education and urbanity fail to account for the Bush-SDT or the Bush-TFR (non-Hisp. white) correlation. We hardly do better if we add two more variables related to the ethnic composition. The percentages black or percentages Hispanic in the total population in tandem with the three structural variables fail to reduce the partial correlation. A third try consists of adding two variables related to religion to the structural ones. These are the percentages Evangelical + Mormon and the percentages Catholic. The result is better, but the partial correlations are still in the neighborhood of .70, and hence far from zero. In fact, if we omit the three structural variables and only make use of the two religious predictors, the results are even better in reducing the Bush-white TFR partial correlation to .65. With the Bush-SDT correlation, the best result is achieved by leaving in the three structural predictors (- .73).

The outcome of these tests is that the zero order correlation between the SDT variables and the voting for Bush in the 2004 elections cannot be considered as spurious or as the mere outcome of the operation of common causal determinants. The control variables simply fail to reduce the zero order correlation coefficients to a significant extent to warrant such a conclusion. *This leaves us with no alternative other than maintaining the hypothesis that the spatial pattern of the SDT in the US was a major determinant of the voting results at the level of states in the 2004 elections.*

6. Does it all hold at the county level ?

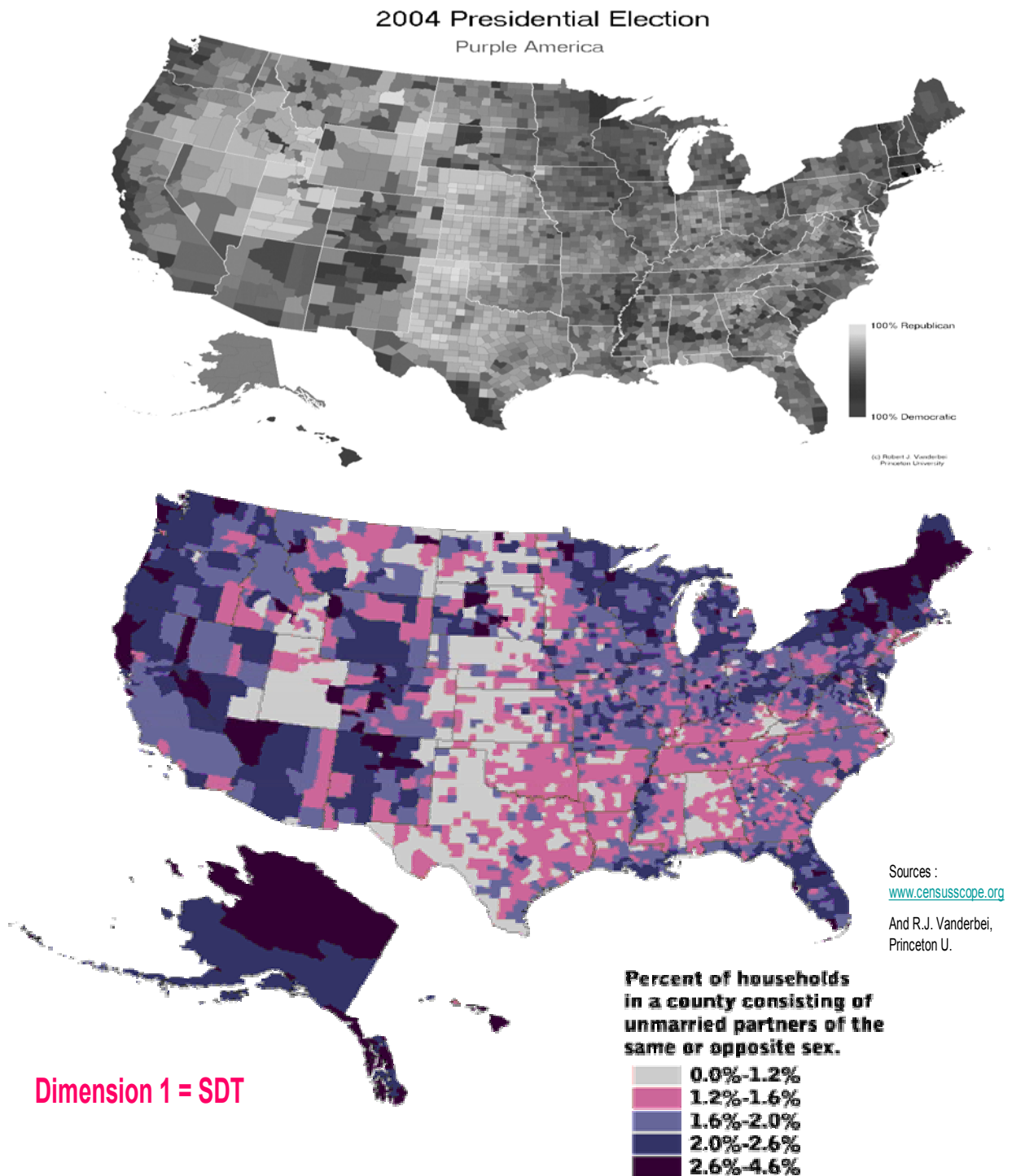
Obviously, correlations coefficients can turn out to be considerably weaker than at the state level when the maps are compared for the 3141 counties in the US. This part of the analysis is still in progress, since many of the demographic indicators have to be calculated now for all these counties. But, judging from relevant maps produced by others (R.Vandebei's voting map and several Censusscope maps), there is indeed a striking spatial correlation at the county level. For instance, the Censusscope provides a 2000 census map of the percentage of households with unrelated adult cohabitators and one of percentage persons aged 30+ co-residing and responsible for grandchildren. Obviously the former should be negatively correlated with the voting for Bush and the latter should be correlated positively with the map of poverty. These expectations can be checked visually on the next two pages (Map 1 and Map 2). Note, however, that the voting map has a light shading for high percentages Republican and a dark one for higher percentages Democrat.

On Map 1 the high percentages of cohabitators in the northeastern states and especially New England are reflected in the higher proportions of votes for the Democrats, and a similar correspondence holds in the area around the great lakes and down the Mississippi River. Further to the West, the correspondence is again present along the Pacific coast and in Arizona, New Mexico and Colorado. The opposite, low percentages cohabitators corresponding with a low Democratic vote, is typical for the large "horseshoe" around Colorado, i.e. from Utah and Idaho eastward to Montana and the Dakotas and down all the way to Texas. Finally, also southern Florida fits the expected picture. The main exception to the non-Bush and cohabitation link is to be found along the Mexican border in Texas: evidently the large Hispanic population in these counties votes Democrat and does not cohabit. One would indeed expect this population to be in the phase of the FDT and not yet in that of the SDT. A second exception is found in the largely black counties east of the Mississippi, who equally vote Democrat without having high proportions of cohabiting households.

On Map 2 we find a striking correspondence between the best indicator of the second demographic factor extracted in Table 2, i.e. persons 30+ responsible for grandchildren, and the county level of poverty. That also corresponds with high proportions black (Mississippi and East) and high proportions Hispanic (West of the Mississippi). The exception here is that the Appalachian region has high percentages in poverty, but not such particularly high teenage or non-marital fertility.

Map 1: Incidence of cohabitation in 2000 and the percentage not voting for Bush (Democrat = darker) in 2004 at the county level.

Sources : Robert Vanderbei, Princeton University, and Censusscope, University of Michigan.

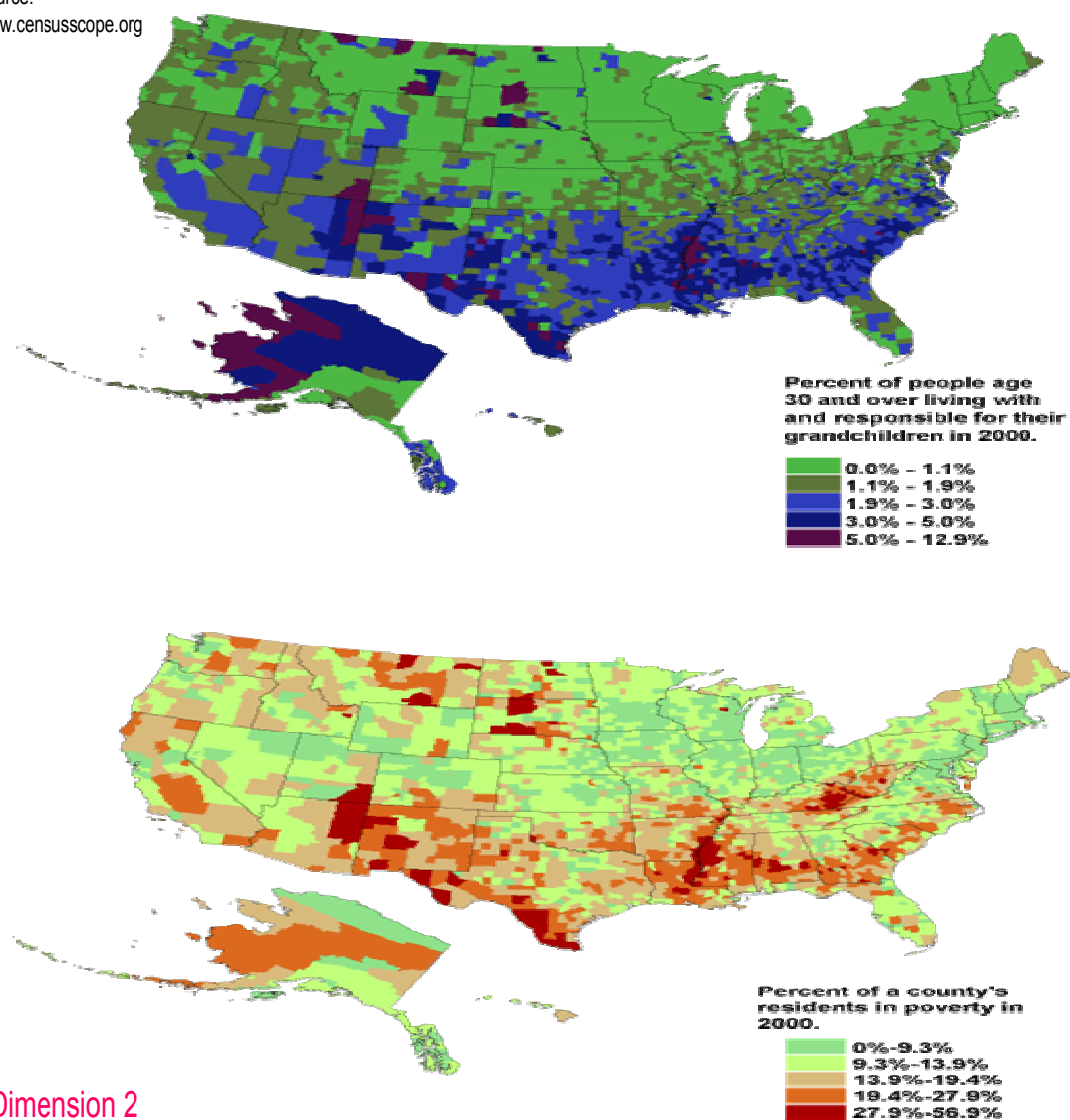


Map 2: Percentage of Persons 30+ responsible for Grandchildren and Percentage in Poverty, Census 2000.

Source : Censusscope, University of Michigan.

Source:

www.censusscope.org



Dimension 2

7. Conclusions.

In a very recent article on the website of the Family Research Council (Dec. 14, 2005), Allan C. Carlson argues that, in comparison to the rest of the industrialized world, the US pattern of family formation and fertility is unique in several respects and mainly because of its maintenance of fertility at replacement level. This would not be due to the contribution of ethnic minorities, black or Hispanic, but to white fertility itself. This, in its turn, is caused by the fact that the US retained religious ethics to a much higher degree than the others. In other words, according to Carlson, there is an “American Exceptionalism”, which is furthermore rooted in the ideology of the nation’s founding fathers, and could possibly be the cause of the US political and economic, not to mention military, supremacy today (Carlson, 2005: 8-10).

Is there an “American Exceptionalism”? Firstly, the fact that the American TFR is so close to 2 children is the result of two things: non-Hispanic white fertility did drop below replacement, but stayed in the vicinity of 1.80, and that was high enough for the contribution of the black and especially of the Hispanic populations, which together form about a quarter of the total US population, to raise the TFR for the US as a whole to replacement level. Hence, the contribution of especially the Hispanic group and immigrants has been important, and non-Hispanic white fertility has *not* recovered to replacement level. Moreover, the contribution of the black TFR is of lesser importance since it has been so close to replacement fertility during the last decade, whereas that of the Hispanic population has remained consistently high around 2.7 to 2.9 since 1990. The TFR of Asians, Pacific Islanders and American Indians has been almost exactly that of non-Hispanic whites. (Sutton and Mathews, 2004: 31).

Is there “American Exceptionalism” among the non-Hispanic white population? If judging solely on the basis of TFRs, the answer is negative since only 4 states with small populations have fertility levels above replacement. But if we take a more balanced view based on multiple indicators, the answer is a double one. Yes, there is an “American Exceptionalism” among a considerable section of the population. That section is mainly located in the mid-west, the great plains and the south. It is much more rural than metropolitan, lower educated, adheres to Evangelical Christianity, and tends to have high teenage fertility (also whites !), and more divorce. And “No” there is no or little “American Exceptionalism” in the remainder of the US, mainly residing along the northern Atlantic, the Pacific, the great lakes and the less religious west (Arizona, Colorado). This is America where the SDT features such as lower and later fertility and tolerance for cohabitation have been emerging in very much the same way as in western Europe and Canada (see Juby and Le Bourdais, 2005, for recent Canadian figures). This is the America with higher education and higher incomes, more concentrated in metropolitan areas, with high abortion figures but also much lower teenage fertility.

Hence, the bottom line of this investigation is that the picture in the US would be described much better by the term “American Bipolarity” than by “American Exceptionalism”. The strong correlation between this demographic duality and the current political one is just a striking illustration of this point.

8. Acknowledgements.

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