The Shifting Geography of Divorce:
Divorce Rates Across Counties and States 2000-2010

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Americans divorce rates remain high and stable with nearly half of marriages ending in separation or divorce, but divorce has not been accurately charted at the local level. Our capacity to understand variation in divorce is hindered by the deterioration of the marriage and divorce vital statistics system. At the federal-level, at least six states do not provide their state-level divorce counts to the National Center for Health Statistics (NCHS), representing one-fifth of the U.S. population. Moreover, there is no central depository of county-level marriage and divorce data. Our goal is to examine the changing geography of divorce from 2000 to 2010 by drawing on National Center for Family and Marriage Research (NCFMR) data from 2000 and 2010 complied at the county-level. We examine the associations between changing divorce rates and the unemployment to population ratios. We demonstrate the value of county-level data by examining these associations at both the state- and local-level.
Marriage and divorce in the United States have been undergoing rapid transformations (Cherlin 2010). A growing share of Americans are forgoing and delaying marriage (U.S. Census Bureau 2014). At the same time divorce rates remain high and stable with nearly half of marriages ending in separation or divorce (Cherlin 2010; Kennedy and Ruggles 2014). Clearly rapid family change has occurred, but it has not been accurately charted at the local level. Our capacity to understand variation in divorce is hindered by the deterioration and defunding of the marriage and divorce vital statistics system. At the federal-level, at least six states do not provide their state-level divorce counts to the National Center for Health Statistics (NCHS), representing one-fifth of the U.S. population. Moreover, there is no central depository of county-level marriage and divorce data. This prevents researchers from addressing questions about the geographic concentration and/or variation of marriage and divorce and incorporating local level marriage and divorce indicators as contextual factors. This is a notable shortcoming as Lesthaeghe and Neidert (2006) state, “the overall American pattern hides large spatial differentials” (p. 5).

Our goal is to examine the changing geography of divorce from 2000 to 2010 by drawing on National Center for Family and Marriage Research (NCFMR) data from 2000 and 2010 complied at the county-level. We have just completed compiling the divorce data for every county in the United States. We move beyond prior work that has considered state-level change. We examine the associations between changing divorce rates and the unemployment to population ratios. We demonstrate the value of county-level data by examining these associations at both the state- and local-level.
**Background**

There is limited data on divorce at the county level in the United States. The 2010 Decennial Census cannot be employed to determine county-level marriages and divorces; it only permits assessment of the percent of household heads that are married at the county level. Starting in 2008 the American Community Survey (ACS) included measures of marriages and divorces in the last 12 months (U.S. Census Bureau 2008). The 1-year ACS data files cannot provide county-level estimates for rural areas (or those counties having fewer than 65,000 inhabitants). Thus, the 1-year ACS is only able to provide estimates of county-level divorce rates for approximately one-quarter of all counties in the US. Although the ACS provides complete coverage of all U.S. counties in the five-year estimates released in 2012, these estimates represent marriages and divorces that occurred over a six-year time frame (2007-2012). The six year time range exists because the questions ask about events in the last 12 months. The period 2007-12 represents a time span with an immense economic crisis with potentially grave consequences for marriage and divorce. The margins of error are quite substantial making it challenging to use these data for smaller counties. Thus, it is important to have a single point estimate of 2010 that can be used to monitor changes in divorce which the ACS cannot provide.

The divorce data reported directly by the states to the National Center for Health Statistics are incomplete. The systems involved in the collection and accumulation of marriage and divorce records used to be akin to the birth and death records. State marriage and divorce statistics are typically part of state vital or health statistics systems and are reported to the National Center for Health Statistics (NCHS). They include data from marriage and divorce certificates filed and collected at the local and state levels through the vital statistics system by the NCHS. The federal funding for data aggregation was discontinued in 1996 in part because of
budget cuts, incomplete reporting by many states, and questions about the centrality of these data
to the NCHS mission (The Lewin Group 2008a; Ratcliffe, Acs, Dore & Moskowitz 2008). The
NCHS continues to provide a report of state-level counts (http://www.cdc.gov/nchs/mardiv.htm).
The collection and maintenance of marriage and divorce data is determined by state laws,
resulting in wide variation across states in the type and content of data (The Lewin Group
2008a). The data range from the basic counts of marriages and divorces to more detailed
demographic indicators of both members of the couple.

Elliott et al. (2010) evaluated the marital events items on the 2008 ACS at the national
level finding comparable estimates of crude divorce rates (number of divorces per 1,000
population) between the ACS and tabulations provided to the NCHS as part of the vital statistics
data at the national level. Certainly, differences in the state reports, ACS, and data reported to the
NCHS vital statistics data are expected. The ACS establishes the number of divorces based on
residence of the respondents. State marriage and divorce records determine marriage based on
the filing of a marriage certificate. Most states and counties have residence requirements for
divorce so the estimates of county-level divorce data may mirror closely those in the ACS.

To capture the importance of county- rather than state-level estimates of divorce rates, we
examine the level of divorce rate variability within states. We consider the absolute range in
divorce rates as well as the average percentage and absolute difference in county and state
divorce rates. A fundamental question is whether the variability in divorce rates is best identified
between rather than within states. In other words, is the state a geographic unit that best
encapsulates divorce rates or are counties?

To further assess the value of the county-level marriage data, we use these county data to
determine the associations between unemployment and changing divorce rates. The recent
economic recession initiated in December 2007 represents the most consequential economic crisis since the Great Depression. A central indicator of the economic recession is the employment to population ratio. The advantage of the aggregate indicator is that this captures the economic context and does not require singles to actually have experienced unemployment. Calls for small geographic units of analysis in analysis of family patterns support our focus on county-level marriage rates. “Moreover, states are large entities, and the use of smaller geographical units of analysis (such as cities or counties) would be useful” (Amato and Beattie 2011, p. 714). Schaller (2012) reports that state-level increases in unemployment are also associated with statistically significant decreases in the marriage rate. Our analysis considers the associations between unemployment and divorce rates at both the state- and county level, and will provide insights into the importance of the level of geographic aggregation.

Data and Methods

To date the 2010 county-level marriage and divorce data have not been amassed in one location. There were 3,143 counties or county equivalents. The number of counties within a state range from 1 in District of Columbia and 3 in Delaware to 159 in Georgia and 254 in Texas. Unlike census tracts the population of counties ranges widely from 82 in Loving County, Texas to 9,818,605 in Los Angeles County, California. We obtained from each state separately their State Marriage and Divorce Records (SMDR). Counties or county equivalents are where marriage and divorce certificates are filed and are collected by the state. We obtained data from each state. Some data are paper based while others have developed electronic recording systems. In some cases we contacted state and local (county or town) offices directly as well as made in-person visits to obtain data. From about 1960 until 1988 these data were accumulated and

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1 Please note analyses presented herein do not include Indiana as the Indiana office of Vital Statistics requested we not share preliminary estimates. They have agreed to send us the finalized data once it has been compiled.
reported by the National Center for Health Statistics in the “Vital Statistics of the United States” volume on marriage and divorce. A series of reports includes these data from over 25 years ago but no recent data are available. The Glass NSF-funded project (“Red States, Blue States and Divorce” based on 2000 county data http://www.bgsu.edu/ncfmr/resources/data/original-data/county-level-marriage-divorce-data-2000.html) accumulated the 2000 county marriage and divorce data and the National Center for Family & Marriage Research helped to complete the data collection, check data quality, produce the database, map the findings, and release the data. These data provide the best and most comprehensive overall assessment of county-level marriage and divorce in the United States.

We estimate rates based on the U.S. Census population estimates for the population for each county. We produced overall or crude marriage and divorce rates as well as refined indicators which included the population at risk in the denominator. We present the general divorce rates based on the number of divorces per 100,000 married population. The denominator for the crude rates is based on the 2000 and 2010 Decennial Census and for the general rates are based on Decennial Census for 2000 and for 2010 the ACS, as marital status is not available in the 2010 Decennial Census.

We note above that the ACS 2010 county level divorce data are available for a limited set of counties. The ACS data are tabulated and made publically available via American FactFinder (AFF) and Public Use Microdata Sample (PUMS) files for a number of different geographic levels. Counties are identifiable via American Factfinder but not via PUMS. The ACS one-year estimates are limited to places with 65,000 or more population (26% of counties), the ACS three-year estimates include areas with 20,000 or greater population (57% of counties) with the five-year estimates including all counties. Because measures of marriage and divorce were not asked
until 2008, the first data file to include these measures for all counties is the 2012 five-year file (spans years 2008-2012). Further, because the ACS asks about marital events occurring in the past 12 months, events could have occurred any time between 2007 and 2012 (a six-year time frame). Unfortunately, these data tables for marriage and divorce in the last year are not yet available at the county level in AFF (indicators such as marital status, births, population are available). While not the main focus here, we compare the NCFMR data to the ACS data based on the Minnesota Population Center (MPC) IPUMS-USA files for 375 (12%) counties by utilizing Public Use Microdata Areas (PUMA) if the counties were coterminous with a single identifiable PUMA or they contained multiple identifiable PUMAs that did not extend into other counties. PUMAs are always nested within states, have populations of at least 100,000 people, and are built on census tracts and counties.

**Planned Analysis**

We will start by comparing the state general divorce rate based on the National Vital Statistics reports (NVS GDR), our aggregated county levels (NCFMR GDR), and estimates from the American Community survey (ACS GDR). The ACS data are based on the one-year estimates for 2010. The ACS estimates will include the margin of error. We expect that at the state-level the NVS and ACS will be typically similar to one another, but there will be some variation. Using NCFMR county data we can aggregate up to fill in the 6 states that are not available in the NVSS data.

We will compare the county data for the 375 counties in which PUMAS are identifiable and reported by IPUMS USA. We anticipate that the ACS and NVS estimates will be more similar for counties with larger populations than those with smaller populations. We will
determine whether the level of concordance belies a large amount of variation given the margin of errors.

Table 1 will organize states based on region and present the state divorce rate in 2000 and in 2010 and the next columns present the range within the state. We will highlight those with high and low ranges. We will estimate the mean percentage difference between the county and state divorce rates for the nation and states. We will feature counties with the lowest percentage difference and the greatest gap in the county and state marriage rates. A similar approach will be adopted to compare the absolute differences in divorce rates across counties within states. Consideration of the mean difference between county and marriage rates and its standard deviation gives some indication of how prominent outliers are for each state.

For example in Ohio the divorce rate declined from 18.6 in 2000 to 16.4 in 2010, representing a 12% decline. In Ohio there are 88 counties with divorce rates in 2010 ranging from 7.1 in Stark County to 32.3 in Vinton County. Over the decade in Ohio the majority of counties (77%) experienced a decline in divorce rates, 9% virtually no change, and 14% an increase. The decline in divorce ranged from 61% decline to a 67% increase.

We will summarize these differences by estimating the percent of variation occurring between versus within states. The ICC (intraclass correlation coefficient) values from multi-level, unconditional means models will indicate whether there is significant variation between states in the U.S. and within all regions. We expect there will be significant variation between states, but that the vast majority of the variation will occur within states. We will determine the region with the greatest between-state variation and the lowest.

The final set of analysis relies on changes in county-level divorce rates. We estimate changes in divorce rates at the county level and present the range of differences within states.
We next examine the associations between unemployment rates and divorce rates at the state-level and county-level. Correlations are estimated as well as regression models with changing divorce rates as the dependent variable and employment to population ratios as the independent variable. We will estimate these results at the state-level and county-level to illustrate the importance of county (rather than state) variation. Ultimately, we expect that county-level estimates that are not aggregated up to the state level provide the best portrait of divorce rates in the United States.

**Discussion**

The National Vital Statistics system is critical for tracking marriage in the United States. These estimates provide opportunities to analyze county-level marriage patterns at single points in time that are not available in the American Community Survey data. It is important the federal government continues to invest in the NVS.

Our first goal is to assess the divorce rate data quality of the NVS and ACS. We will compare all states and the county level comparisons are limited to those where ACS data are available, 375 or 12% of counties. County level contrasts are not available with the PUMS files provided by the Census, because they do not provide a county-level identifier in the data file, and American FactFinder has not provided county level tables identifying those who married or divorced in the last twelve months. Even if the AFF data were available the 2010 estimates would be for only 25% of counties with populations over 65,000. Further large margins of error associated with those counties.

The second goal is to assess how well the state divorce rate represents divorce rates at the county-level. We will showcase the value of county-level data by demonstrating whether there is a high level of marriage rate variability within states. We expect that states may not appear to be
the best geographic units to describe divorce rates. Based on the findings we will be able to assess whether using state-level indicators of divorce rates, the field overlooks considerable heterogeneity across counties in a given state.

Indeed, our application of 2008 unemployment and changing 2000 to 2010 divorce rates illustrates “real world” implications underscoring the importance of these methodological concerns. We expect that consideration of a more specific geographical unit will better measure the associations between unemployment and divorce. We expect that within many states the associations between divorce and unemployment rates vary considerably.

Despite the multiple advantages of obtaining the county-level data we acknowledge there are some limitations. Historically, marriage and divorce rates reference different-sex couples. Same-sex marriage is now legal in all states, but in 2010 five states (Connecticut, Iowa, Massachusetts, New Hampshire, Vermont) and DC had legal same-sex marriages (Badgett and Herman 2011). We will include, if provided, data on counts of same-sex marriages and specifically consider same-sex couples. Another shortcoming is that the county is not a uniform geographic unit in terms of population or land mass. The county or county equivalent is a legal unit and offers an improvement beyond state-level indicators.

In sum, despite investment in marriage and divorce data in earlier time periods, the vital statistics system has lapsed so our approach is one of the few ways to track the geographic concentration of divorce. The ACS provides the only data to track socioeconomic differences as well as marital history distinctions, but the ACS are not the best data to assess single point in time local level divorce rates for the nation. Our work will demonstrate whether the best portrait of divorce rates in the United States relies on county-level rather than state-level measures.
References


Figure 1. Percentage of state population living in a county that is not identifiable in the ACS

Source: U.S. Census Bureau, American Community Survey, 2010