The Pennsylvania State University

The Graduate School

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A CLOSER LOOK AT THE SECOND DEMOGRAPHIC TRANSITION IN THE

US:

**EVIDENCE OF BIDIRECTIONALITY FROM A COHORT PERSPECTIVE
(1982-2006)**

A Thesis in

Sociology and Demography

by

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Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Master of Arts

August 2008

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ABSTRACT

Second demographic transition theory argues that increased individualism and secularization has led to continued low fertility in Europe, but no study has directly tested this hypothesis with individual-level data in the US. Using longitudinal data from the NLSY79 cohort, this study explores the influences of several factors (secularization, egalitarianism, religious affiliation, and employment) on fertility behavior over time (1982-2006). Analyses draw on results from longitudinal and cross-lagged structural equation models. The findings lend support to the relevance of second demographic transition theory in the US, provide evidence of "American bipolarity," and reveal the bidirectional nature of these relationships over time.

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ACKNOWLEDGEMENTS

I would like to thank my family for their wonderfully supportive nature throughout this process, and my committee members for their willingness to invest time in this thesis, sharing their expertise with me from start to finish.

Chapter 1: Low Fertility within the Second Demographic Transition

Many researchers believe that the recent trend towards continued low fertility rates among industrialized countries signifies an entry into a second demographic transition (SDT). First introduced by Lesthaeghe (1983) and van de Kaa (1987) as a framework for new trends in European fertility, Lesthaeghe and Neels (2002) argued that this transition is in fact distinct from the first demographic transition in several ways. After exploring the nature of trends within the domains of union formation, fertility, and social or cultural elements they write, "…there are just too many pattern reversals to entertain the notion of a single transition" (336).

As identified by its proponents, the second demographic transition is characterized by several demographic and social structural/cultural indicators. The former include fertility and marriage postponement (leading to long-term sub-replacement fertility), decreasing rates of marriage and remarriage, as well as increases in cohabitation, divorce, nonmarital fertility, childlessness and successful contraceptive use. On the other hand, the latter involve increased emphasis on individualization, civic/religious disengagement, political distrust, egalitarianism, female participation in the labor force, and "flexible" sequencing of life course events. Thus, continued low fertility trends are not simply the result of shifting socioeconomic circumstances and increasing levels of female participation in the labor market. Rather, rising levels of secularization, egalitarianism, and individualism are paramount, leading to the postponement of family formation events as individuals spend more time attaining higher levels of education and achieving higher economic status (Lesthaeghe and Neels 2002, Lesthaeghe and Neidert 2006).

While empirical support for the SDT has been found in Europe, very little research has explored these relationships in the US. This study will provide such an examination.

The Second Demographic Transition in the US

Even though these trends were originally conceptualized to capture European fertility patterns, more recent questions have turned to its applicability within the context of the US. To a large extent however, fertility within the United States has exhibited slightly different patterns than other developed nations (particularly European nations). Over the last several decades, the total fertility rate in the US fell from 3.5 births per woman in the 1960's to 1.7 during the mid-1970's (Kent and Mather 2002), and then steadily rose to just above 2 births per woman in 1990 (Martin et al. 2006). The most recent World Population Data Sheet reported a total fertility rate of 2.1 births per woman in 2007 (www.prb.org), reflecting a sustained trend of replacement level fertility over the past 17 years. This pattern exemplifies its major distinction – that the US will avoid the problems facing many European nations of negative population momentum (Reher 2007). Some presume this growth is largely due to its influx of immigrant populations. However, Morgan (2003) showed that the US fertility differential is not entirely due to higher levels of fertility among the subpopulation of immigrants. Rather, the fertility of non-Hispanic Whites tends to be higher in the US than in Europe as well.

Others attribute this difference to higher levels of religiosity among non-Hispanic White Americans (Carlson 2005, cited by Lesthaeghe and Neidert 2006). Religious influences on fertility in the US have traditionally centered on Catholic vs. Protestant differentials, but these patterns have decreased in prominence. Rather, McQuillan (2004) argues that there are three

necessary conditions for any religion to influence fertility: 1) a religion espouses specific norms

governing behavior that impacts fertility, 2) the church has a means to communicate and enforce

these norms with its members, and 3) the individual is strongly attached to the church. This

brings other religions to the forefront of fertility research, as well as emphasizes the role of

religiosity in general – regardless of specific affiliation. Hayford and Morgan (2008) examined

the impact of religiosity on fertility intentions, and found that more religious individuals report

higher fertility intentions. Importantly, this difference was not explained by higher levels of

unintended fertility. They attributed these effects to "religious schemas" about broader family

values (about marriage, parenthood, nonmarital sex, and gender ideologies) – not just pronatalist

values. Overall, much research has explored the reasons for the differences in US fertility, but

less has focused on the extent to which these are linked with overall patterns of behavior, or the

extent to which these patterns of the SDT exist in the US.

To address this broad set of concerns, Lesthaeghe and Neidert (2006) considered whether

the US has followed the behavioral patterns identified within the European second demographic

transition. They concluded that, in many respects, the US is following the same trend. Further,

spatial analysis revealed that in only a few states did non-Hispanic Whites (at the aggregate

level) exhibit above replacement level fertility (including Utah, Alaska, Idaho and Kansas). This

supports that there may be specific characteristics of this subgroup of non-Hispanic Whites

determining this differential, rather than a more general trend.

Further, they identify two dimensions of state-wide trends: those following the second

demographic transition, and those who are not. They label the latter "vulnerable women and

children," since this group is differentiated by higher rates of nonmarital births, teen births and

divorce, as well as a higher prevalence of individuals living with grandparents who are

responsible for childrearing. These dimensions maintained unique relationships with religious and socioeconomic indicators. At the state level, the second demographic transition dimension was positively correlated with Catholicism, income and education, but negatively correlated with Evangelical Protestantism and Mormonism. On the other hand, the dimension of vulnerable women and children was positively correlated with Evangelical Protestantism and Mormonism, being in poverty and being Black, while it was negatively correlated with education, income, and being non-Hispanic White. Overall, they conclude that the US is not an exception to the second demographic transition, but introduce the term "American bipolarity" as a more appropriate means of describing these trends (although it is for the most part in accordance with patterns found in Europe and other developed nations).

Theoretical & Empirical Operationalization of Continued Low Fertility Trends

Over the past several decades, researchers have explored various facets of the second demographic transition within several different literatures. Lesthaeghe (1983) identified the broad-brushed family changes such as decreasing rates of marriage as well as increasing rates of cohabitation and nonmarital childbearing as part of a larger transformation – an "ideational shift" in which increased individualism and secularization influenced fertility in a downward direction. Thus, fertility declines are reflective of a more complex mechanism – the extent to which individualism is emphasized within the social context. Lesthaeghe and Surkyn (1988) provided aggregate-level empirical evidence of a single dimension of individualism/secularization underlying this ideational shift, and identified specific value domains correlated with one another

in the direction of higher individualism (including religion, "education-transmitted," political, work, and marriage and family values).

Preston (1987) conceptualized these changes slightly differently. He emphasized a dyadic framework of fertility behavior consisting of three elements representing the *changing social construction* of parenthood: economic changes, contraception, and changing values. For social and individual-level characteristics to interact with one another in a dyadic manner, childbearing must be seen as a social act to which individuals apply value systems. Social values then take on the ability to determine the *rate of acceleration* by which changes in fertility take place. He argued that decreased parity behavior became more socially acceptable as population growth became a topic of public concern, and that motivations to become a parent and remain in a given marriage weakened as the economic situation in the US became more favorable. While underscoring Lesthaeghe's finding that individualism has increased, Preston proposes an alternative explanation for its emergence. His perspective suggests that individualism as a more popular value system grew out of a reaction to "changed condition" in society instead of emerging independently. However, aside from these differences in its origin both focus on the ways in which societal-level forces are changing the way individuals consider having children and influencing the number of children they are willing to have.

Another substantial body of research focuses on economically driven theories of fertility decline. Classic contributions in this area support the notion that individual-level fertility behavior is determined by the three central elements of economics: cost, supply and demand. Children were identified as a "consumption good," and fertility intentions and behaviors were conceptualized as acting within economic boundaries including the utility, quality, supply, and cost of children (Becker 1960). Quantity and quality of children interact inversely with one

another – as one goes up, the other goes down (Becker 1991). Becker interprets this interaction as the key to solving the negative relationship between income and fertility – the rising cost of having many children stimulated individuals to seek fertility control methods, which in turn reduced fertility rates. Further, he argues that the relative price of children differs by family, since it is determined by market wages and time of parents (really of mothers). The higher the relative price of children, the lower the demand for children and the higher demand for other commodities. Interestingly, the number of children is inversely related to female wages but directly related to male wages.

Still other research has situated economic elements within the proximate determinants framework proposed by Bongaarts (Bongaarts 2001, 2003). Easterlin and Crimmins (1985) argue that social factors, or "modernization variables," including education, urbanization, ethnicity and religion (among others) influence three central variables: regulation costs, demand and supply. In turn, these effect the proximate determinants of fertility (mainly including deliberate methods of fertility control such as contraception and abortion, but also other determinants such as exposure to intercourse, fecundability, onset of sterility, age at first marriage, etc.), which then impact the final variable of interest: fertility behavior. Easterlin and Crimmins posit that education lowers cost and demand, but raises supply through increased public and individual health conditions.

In many ways, micro-economic theories of fertility complement ideational shift in that the introduction of "new goods" is a component of modernization that changes tastes – now the taste for children is competing with the taste for other goods, so the demand for children decreases. Easterlin and Crimmins (1985) also discuss the transition from social control of fertility (where demand > supply) to individual control of fertility (where supply > demand) as a

society progresses through the modernization process. Here, we see that continued low fertility

societies fit what they describe as supply exceeding demand: they are motivated to control

fertility.

Economic theory is not without its critics. Robinson (1997) emphasizes that while

Becker's theory has provided the useful element of rational choice to the demographers'

theoretical framework, it omits several important variables including: the dual nature of demand

(particularly that sexual relations are both pleasurable and produce children); the complex nature

of the services children provide; the competition to child-services (even poor individuals can

produce children); the permanent and thus, risky nature of children as an asset; the inability of

researchers to accurately identify the shape of the curve that fits the supply of children; the

ambiguous nature of the cost of children; as well as the cost of "non-children" (i.e., the

"negative" service of pregnancy prevention is less popular than the "positive" service of having

children).

However, these approaches need not be mutually exclusive. Robinson notes that

ideational changes can reduce two of the three costs of children – the social and psychological

costs (not the economic costs), and that these changes can occur in conjunction with either rapid

or moderate socioeconomic development. Further, Cleland and Wilson (1987) examined data to

support several economic and demand theories of fertility and concluded that both were

influential, but in many developing countries it was ideational factors – such as culture and

education – which represented a stronger contribution to the diffusion of new fertility ideals and

behavior as opposed to macro-structural or economic changes. Lesthaeghe and Surkyn (1988)

argued that both economic and ideational factors influence cohort-specific fertility in unique

ways, and that a combined approach to studying variation in fertility behavior can be productive.

Further, Caldwell (2001) emphasized the void in socioeconomic theories of global fertility decline, in that they do not account the simultaneous nature of the decline (in 1960) around the world. To fill this void, he highlights the role of ideological and attitudinal changes in any theory of fertility decline, in addition to other factors such as efforts to control population growth and access to contraception.

In general, we have seen that changes associated with ideational shifts tend to emphasize decreases in fertility. That is, as individuals focus more on their careers and self-fulfillment, they tend to have fewer children and delay childbearing. The observed decreases in fertility can either result from having a "taste" for a smaller family size, or by delaying fertility so much that there is little chance to recoup desired fertility later in the childbearing years due to decreased fecundity or competing preferences (Quesnel-Vallée and Morgan 2003). However, increases in individualism and secularization can exert an upward pressure on fertility in some circumstances as well. Morgan (2003) argues that as social norms about nonmarital childbearing and childbearing within gay or lesbian unions become more tolerant, fertility may increase. However, the general trend is typically conceptualized as an inverse relationship between the two.

So what is the current status of the second demographic transition in the demographic literature? Lesthaeghe (1998) pushed for the integration of the three overarching theories of fertility decline we have discussed: second demographic transition theory, economic theory, and ideational shift theory. Considering different scenarios under which these can be interrelated, he concluded that the most appropriate integration is a "multi-causal theory with strong contextual variations" (8). Essentially, this infers that the claims made by each as to the origin of fertility

decline can remain interconnected, but the context within which each is best applied can vary. In this way, he buttresses the utility of all three rather than pitting one against another.

Empirical support for the SDT has focused its efforts on Europe. Lesthaeghe and Neels (2002) provided a associative test of the second demographic transition in France, Belgium and Switzerland and found that 1) it is distinct in its behavioral patterns from the first demographic transition (as previously mentioned), and that 2) the social or cultural indicators of both transitions were correlated in a way that suggested a bottleneck condition has developed which impacted the spatial diffusion of behavioral innovations. Ogden and Hall (2004) operationalized the second demographic transition among French households using census data from 1980-2000. They found evidence of the SDT in terms of shifting household structure (more people living alone).

Most recently, Moors (2008) applied a unique approach to this area. Combining two approaches – SDT and the extension of Fishbein-Azjen theory of planned behavior proposed by Barber (2001) – he operationalized how attitudes influence the transition to parenthood at the individual-level. Using a dataset of over 2000 German women (age 18-30) containing a wide variety of attitude measures, he performed a latent class analysis to identify unique attitude profiles of women and used these to predict making the transition to motherhood (having a first birth). Importantly, he found that egalitarian women are least likely to make the transition while traditional women are most likely.

While Moors' work represents a pinnacle contribution to this literature, it also has two weaknesses. His data are lacking in that they are not longitudinal or nationally representative. Thus, he does not address the possibility that these influences exist in both directions. A consistent theme in the literature on social norms, individual-level attitudes and behavior is the

ways in which these interact with one another. Overall, this research has shown that social norms lag behind changes in behavior (Bumpass 1990), but constitute a major influence on the pace of the fertility decline through path dependence (referring to the difficulty of derailing a self-perpetuated trend once it gains momentum) and social influence (Casterline 2001). Importantly however, value systems and individual-level fertility behavior tend to influence one another in a dyadic manner (Preston 1987). Further, as changes in family behavior become more diversified, expectations of what family behaviors are considered "normative" change. A feedback loop develops in which social norms shift toward increasing tolerance, mutually reinforcing one another over time (Bumpass 1990, Smock 2000). Therefore, these conclusions suggest that any test of second demographic transition theory must consider longitudinal data and test for bidirectionality.

Despite the apparent salience of the second demographic transition, social science has failed to fully test this theory. In his consideration of future trends, Reher (2007) emphasizes the centrality of ideational shifts in terms of explaining the second demographic transition. He states, "Extremely low fertility has been around too long for it to portend anything other than major long-term social change" (194). Extending this social process, he argues that this social change has become "a structural aspect of the developed world" (194), indicating its reification in current society. In his view, individualization facilitated the transition of fertility decisions based on tradition, to those based on "social networks and by secular consumer society" (202).

Morgan and Taylor (2006) proposed a conceptual framework that categorizes various theories of the fertility transition by scope and content – scope, meaning the level of detail with which the theory has been explored (progressing from global to interactive to idiosyncratic), and content, referring to separate foundational categories upon which each theory places its

emphasis. Importantly, macro-level economic change has reached the idiosyncratic level while ideological change remains at the global level. In other words, the latter has not been explored to the extent that researchers have recognized specific interactions under which ideological change makes the most logical and practical sense. Nor has it reached the idiosyncratic level in which a theory is evaluated post hoc, simplified to its historical sequencing. This highlights two important facts – one, that specific interactive elements of ideational shift and second demographic transition theory have yet to be identified and two, that we are still amidst the time in which this theory is applicable to current fertility trends. Therefore, further exploration of the ways in which attitudes within the second demographic transition influence continued low fertility behavior represents a potentially substantial addition to this literature, particularly in terms of pushing this theory forward.

Changes in values can take place across the life course and interact with the historical and social context. Lesthaeghe and Surkyn (1988) highlight this problem, particularly as it relates to cultural values, and urge future research to use a cohort-based approach for this exploring the influence of ideational factors. Specifically, they emphasize that values remain consistent within a cohort over time, and that this acts as a "backdrop against which demographic and career decisions have to be projected" (23). Thus, it is most appropriate to study these relationships over the life course. Morgan and Taylor (2006) similarly argue that the SDT is "motivated by new ideas that place the individual and individual choice at the core of the unfolding life course" (388).

Based on these conclusions, this study uses the experience of a single cohort over time to directly test these relationships in new and innovative ways. While not without its limitations (Bhrolcháin 1992), a cohort approach is advantageous for several reasons. First, this allows for

comparison across time within individuals of these relationships. While values do not tend to fluctuate greatly within individuals over time, individuals are dynamic beings that interact with their social context creating the potential for change. Second, for factors that are difficult to measure and bear on fertility behavior (such as biological fecundity), individuals can act as their own control to a certain extent. In other words, unmeasured, time-invariant characteristics within individuals are the same over time, and thus drop out of the model. Third, the ways in which fertility plays out over time is a process best captured through longitudinal cohort-based research. Completed parity is often a better measure than cross-sectional fertility behavior since it avoids conflating individuals who desire to remain childless from those who are delaying childbearing (Quesnel-Vallée and Morgan 2003). Thus, due to the rising prevalence of delaying childbearing, this approach provides an extremely accurate and comprehensive picture of fertility behavior across the childbearing years. Lastly and most importantly, ideational shift theory was originally proposed under a cohort model. Testing the theory in this way maximizes its theoretical utility.

Little research has explored the extent to which the indicators of the second demographic transition predict fertility behavior over time. In response, this paper will contribute to this literature by further investigating these relationships. Utilizing longitudinal, nationally representative data from a single cohort in the US, this analysis will address the predictive nature of this framework as well as the possibility of bidirectional influences between indicators of the SDT and fertility. The results will contribute a deeper understanding of the strength, direction and significance of these reciprocal relationships within the context of continued low fertility within the US, perhaps shedding light on possible future trends in fertility based on these patterns.

Chapter 2: Description of Study

Overall, it is clear that further exploration of the relevance of the second demographic transition in the US is warranted. From this foundation, this paper explores the influence of the SDT on fertility behavior in the US between 1982 and 2006. More specifically, I focus on several SDT factors that have been shown to influence fertility behavior: religiosity, religious affiliation, egalitarian attitudes, employment status, job satisfaction, and hours worked.

From this framework, the analysis will explore the following research questions:

1) How do indicators of the second demographic transition (including religiosity, religious affiliation, egalitarianism, and female participation in the labor market) impact final parity?

2) Which combinations of SDT indicators predict parity progression over time (from $0 \rightarrow 1+$, $1 \rightarrow 2+$, and $2 \rightarrow 3+$)? How do these inform the attitude profiles previously identified by Moors?

3) Is there a bidirectional relationship between SDT and fertility behavior across the reproductive life course? If so, which direction dominates this relationship and how does this inform the concept of "American bipolarity" identified by Lesthaeghe and Neidert?

First, I expect to find that each of these indicators – religiosity, religious affiliation, egalitarianism, employment, job satisfaction and hours worked – significantly impact completed fertility behavior, but that the employment-related variables will represent the strongest influences in both the longitudinal and bidirectional models. Second, I expect my results to both confirm and expand Moors' findings – that is, religiosity, religious affiliation and traditionalism will be most prevalent in higher order parity progressions, and female participation in the labor market will be stronger in lower order progressions. Further, I expect to find that these effects occur in both directions – SDT indicators influence parity and vice versa. In terms of which

direction will dominate this relationship, there is plausible evidence to expect either one. For example, Bumpass (1990) emphasized the mutually reinforcing nature of changes in family behavior. For example, as divorce and nonmarital childbearing become more pervasive within society, social norms begin to shift – particularly those governing what is considered as "normative" family behavior. Smock (2000) echoed this sentiment in her exploration of how the landscape of family formation and cohabitation in particular has shifted in recent decades. She finds that these divergent family behaviors are involved in a feedback loop where they mutually reinforce one other over time. Similarly, Cherlin (2000) argues that increasing individualism and decreasing fertility are major contributors of the cultural shift toward delaying marriage and increasing role symmetry.

From this framework, one can picture the canvas upon which these different domains of value-laden attitudes and behavior interact with one another, shaping changes in both individual-level behavior and social-level norms. More specifically, religiosity and traditionalism are positively related with family size (Lesthaeghe and Surkyn 1988), but the relationship also exists in the reverse direction. Stolzenburg, Blair-Loy and Waite (1995) demonstrated that having children leads to higher levels of church attendance. In terms of egalitarianism, McDonald (2000) hypothesized that increases would be associated with smaller family sizes, however Torr and Short (2004) found evidence that the effect also goes the other way. That is, in couples where there was either an egalitarian division (where the husband and wife shared chores equally) or traditional division of housework (where the wife did the lion's share), respond by having more second births.

Participation in the labor market is also subject to bidirectionality. Men's higher levels of participation in the labor market contribute to higher parities, while women's participation

confers the reverse relationship (Becker 1991). On the other hand, Barber (2001) characterizes

educational and career aspirations as competing behaviors that influence fertility behavior.

Specifically, she conceptualizes this process as an extension of Ajzen and Fishbein's theory of

planned behavior in that individuals who are more interested in furthering their education and

career have lower rates of fertility behavior. Similarly, Morgan (2003) proposed an integrative

framework that emphasizes the role of social context. He suggests that variation in low fertility

is not based on a lack of interest in having kids, but rather, 1) as women age, they face competing

demands which cause them to postpone fertility, and 2), as they postpone fertility this drastically

reduces overall fertility.

Thus, while there is clear evidence for bidirectionality within each of these relationships,

I anticipate the impact of SDT indicators on fertility will be stronger than the reverse

relationship. Lastly, I expect to find some measure of support for "American bipolarity" in both

the parity progression and cross-lagged models. The extent to which this will be supported

however is uncertain due to differences in aggregate- vs. individual-level data.

Data and Methods

This paper utilizes data from the National Longitudinal Survey of Youth (1979 cohort), a

longitudinal survey of over 12,000 male and female participants collected annually from 1979 to

1994 and biennially from 1996 to the present. The analysis utilizes data from two years: 1982

(participants were 17-25) and 2006 (participants were 41-50). To provide a more useful

contextual discussion of the findings as it relates to specific stages in the life course, throughout

this analysis I will refer to these time points as "emerging adulthood" (1982) and "mid-

adulthood" (2006). After selecting female respondents who completed a survey in each of these waves, the sample size was 3,729 individuals. Wave 1 control variables included union status (including marriage and cohabitation), parity, education, household income, and birth control use.

Further, to check for the necessity of weighting the data, I added the custom weight variable (created on the NLSY79 website for individuals completing both surveys) to each of the final models as an extra control variable. This approach detects if the weight variable is adding unique information to the regression due to omitted variables in the model. None of the equations exhibited significance for the weight variable[1]. Thus, all models were estimated using unweighted data.

Due to the age of respondents at the time of the last interview, the fertility histories are arguably close to complete. In 2006, 99.2% of respondents with, and 92.1% without children reported that they no longer expect to have any subsequent births. Further, of the remaining childless individuals who expect to have at least one child in the future, over half (5.2%) report being sterile in the final wave. This suggests that these individuals may be considering non-biological children in their responses (such as adoption). After accounting for this difference, we can now consider that 97.3% of childless individuals no longer expect to have any biological children. While fertility expectations are by no means a perfect measure of completed fertility, it suggests that these surveys likely capture a large proportion of the total reproductive life course of this cohort.

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[1] $b_{Model\ 1} = .999$, p=.445, $b_{Model\ 2a} = .999$, p=.266, $b_{Model\ 2b} = .999$, p=.726, and $b_{Model\ 2c} = .999$, p=.225.

To begin the analysis, a full model (Model 1) was estimated in STATA, predicting parity behavior (0, 1, 2, and 3+) from the set of SDT indicators using ordered logistic regression (see Figure 1). Next, these same set of predictors were used to estimate the probability of each of the following parity progressions (Model 2): going from 0 to 1+, 1 to 2+, and 2 to 3+ children. Then, a structural equation model (Model 3) was estimated in AMOS, which is a program that uses maximum likelihood estimation to identify parameters for each relationship within a path diagram. I estimated a cross-lagged model to address potential bidirectional causality – comparing data from 1982 to 2006. Both unstandardized and standardized coefficients are also provided in Models 1 and 3 to facilitate comparisons between measures across time.

Two goodness-of-fit statistics are provided for each AMOS model. Since the sample size is somewhat large, the chi-square statistic (which compares the observed and predicted covariances, testing the null hypothesis that the model fits the data perfectly) fails to provide the best measure of model fit.   Instead, I use the Tucker-Lewis Index (TLI), which performs well for large sample sizes and adjusts for model complexity. This statistic compares model fit between the given model and the independence model, and tends to range between 0 and 1 with higher scores conferring better model fit. Scores of 0.90 are required to accept the model as a good fit for the data. Second, the Root Means Square Error of Approximation (RMSEA) adjusts for error in the population, which makes it ideal for use with large population-level samples. Scores less than 0.05 indicate adequate approximation (AMOS Users Guide).

Egalitarian Beliefs

A set of eight questions regarding attitudes about women's role in the home and in the workplace were compiled into a scale representing egalitarian beliefs (i.e., "A woman's place is in the home," "A wife who carries out her full family responsibilities doesn't have time for

outside employment," etc.). Each question was rated on a 4-item scale (1=strongly agree, 4=strongly disagree), and alpha reliability score for this set of items was 0.758 in 1982 and 0.681 in 2004. The questions were recoded so that high scores reflect high levels of egalitarian beliefs about women's roles.

Secularization and Religious Affiliation

In 1982 and 2000, participants were asked about their religious affiliation and the frequency with which they attended religious services on a scale of 1 to 6 (1=not at all, 6=more than once a week). In terms of religiosity, scores were recoded so that high values indicate high levels of secularization (or correspondingly, low levels of religiosity). Responses for affiliation were originally recoded into dummy variables for Protestant (which is used as the reference group), Catholic, Jewish, Other, and No religion. However, the subsample indicating Jewish faith was quite small and the variable consistently exhibited skewness. Thus, it was recoded into the "Other" group, leaving three groups: Protestants, Catholics, Other and No Religion.

Employment-Related Variables

Participants were considered to be not employed based on a variable created by the Bureau of Labor Statistics which was collapsed to indicate any employment (0=employed or in active forces, 1=not employed or out of labor force). Employed individuals reported the number of hours they worked in the year prior to the survey. This question was recoded according to guidelines in the NLSY79 Users Guide (www.nlsinfo.org), and then divided by 52 to represent the average number of hours worked in a given week over the past year. Those who were unemployed received a value on this variable corresponding to the mean number of hours worked for employed individuals in the sample that year. This strategy allows for a straightforward interpretation of the effect of the number of hours worked net of employment

status. Lastly, in 1982, participants were asked about specific dimensions of their job

satisfaction and in both 1982 and 2006 they also responded to a single question about global job

satisfaction: "How do you feel about your job?" which included four responses (1=like it very

much, 4=dislike it very much). To facilitate the strongest comparison over time, the simplified

question regarding global job satisfaction was used. Again, unemployed individuals were

assigned the mean job satisfaction score of employed individuals to garner the effect of job

satisfaction net of being employed.

Parity

Parity is measured by the number of children ever born by both waves utilized in this

analysis, and is defined by the values of 0, 1, 2, or 3+. In these data, parity is limited to only

completed pregnancies since incomplete pregnancies are typically underreported and often

contain a unique set of contextual constraints. Excluding these simplifies the analysis by

utilizing the most reliable data.

Control Variables

Due to the divergence found by Lesthaeghe and Neidert (2006) as well as other research

in this area (Ventura et al. 1995, Forste and Tienda 1996), it is important to consider how these

relationships may differ according to several background factors. Therefore, I include controls

for education, income (here, I use the square root correction to account for skewness in

household income[2]), and race/ethnicity (coded for Black and Hispanic, with non-Hispanic White

as the reference group). In addition, I include whether the participant was currently married

(0=not married, 1=currently married) or cohabiting (0=not cohabiting, 1=currently cohabiting) at

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[2] Skewness statistic: income$_{82}$= 1.345, income$_{06}$= 3.095

each wave. Lastly, previous research suggests the necessity of including both age and birth

control use before each pregnancy (Mosher and Bachrach 1996). Contraceptive use in post-

industrialized countries such as the US is typically high (Ventura et al. 1995), which suggests a

strong social influence on fertility behavior. Here, birth control is measured by use within the

month prior to the interview (0=none used, 1=some form of birth control used). Age of the

respondent is critical to any analysis of fertility behavior due to differing age patterns of fertility

which becomes especially important to consider in low fertility societies.

Chapter 3: Findings

Both the descriptive statistics (for the full sample shown in Table 1 and by final parity in

Table 2) and correlation matrix (Table 3) were weighted to adjust for oversampling. Individual

difference scores were calculated between 1982 and 2006 to detect changes over time across

these variables. As expected, these remained quite consistent over time. On average, individuals

expressed similar religious affiliation and comparable levels of egalitarian attitudes,

secularization, and job satisfaction over time (never diverging more than 1 standard deviation in

each scale). As expected, hours of worked increased over time as did the proportion of

individuals involved in various union behaviors such as marriage, cohabitation, and divorce. By

2006, 10.7% of this sample had never married, 36.3% had experienced at least one divorce, 43%

had cohabited at least once, and 16.9% remained childless.

As we can see from Table 2, several interesting differences emerge based on comparing SDT variables by final parity.[3] There is a monotonic decline in both egalitarianism and secularization as parity increases, in both emerging and mid-adulthood. So, those who remained childless were the most egalitarian and the least religious. The proportions of the sample that were Protestant and Catholic at both waves does not appear to indicate a linear pattern, although overall there tends to be larger proportions of each group among higher parity women. Similarly, larger proportions of those associating with Other or No religion tend to be represented in lower parity women. Those who are married at either/both time points tend to have higher parities, while those who are cohabiting in mid-adulthood are likely to have no children. Women with higher parities showed the least participation in the labor market. Job satisfaction did not exhibit a linear pattern, but those with more children tended to work less hours at both time points. There was little difference in birth control use across parities, but those with no children tended to have higher levels of education. On the other hand, those with any children had lower levels of household income than childless individuals. The proportion of Black and Hispanic women was largest among women with 3 or more children. Lastly, age was evenly distributed across categories.

Table 4 shows the results of the ordered logistic regression predicting completed parity. Overall, these results support the tenets of second demographic transition theory and contribute new findings to this literature. First, the SDT indicators influence completed parity in both expected and unexpected ways. Higher levels of egalitarianism and secularization decrease the likelihood of a higher parity by mid-adulthood, while not being employed marginally raises the

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[3] Each of the following associations is statistically significant at the p<.01 level.

likelihood. Surprisingly, Catholics in this cohort are more likely to have higher parities than

Protestants, but there is little to no difference between those of No religion and Other religions

and the reference group. Also, job satisfaction and the number of hours worked – net of the

effect of being employed – do not have an impact on completed parity. This suggests that it its

simply being employed in any respect that makes a difference for fertility behavior (although this

difference is still only marginally significant).

In this model, the control variables play a somewhat important role. Higher parity at

$time_1$ and being married at $time_1$ increase the likelihood of a higher parity at $time_2$. Cohabiting in

emerging adulthood does not impact completed parity, but this may be due to the relatively

short-lived and transient nature of cohabitation in the US. On the other hand, birth control use,

education, income and race/ethnicity do not influence completed parity, net of the effects of

other variables included in the models.

These coefficients were also included in their standardized form to facilitate comparisons

of strength between variables. These estimates demonstrate that the strongest SDT predictors of

higher completed parity were traditional beliefs, higher levels of religiosity, and being Catholic

(compared to being Protestant). These effects were basically equivalent in strength in terms of

the largest absolute difference from the odds ratio of one. Having no religion and not being

employed were weaker, but also quite similar in strength to one another. As for the controls,

parity at $time_1$ exhibited the strongest predictive influence on the likelihood of higher parities.

Next, I examined how these relationships differentiated for specific parity progressions.

Although Moors (2008) advocates for the use of latent class analysis to determine attitude

profiles for the prediction of fertility behavior, these data do not include a sufficient number of

variables within each domain to adequately produce such profiles. Instead, this analysis utilizes

sparser, but broader data to examine the impact of SDT indicators on *multiple* parity progressions over time to determine a similar profile – that is, what SDT indicators are exhibited by those who progress from 0 to 1+ children, from 1 to 2+ children, and from 2 to 3+ children? Before considering the results, recall the timing of the surveys. Women progressing from 0 to 1+ children are the most likely to mirror the larger population. Having any birth by emerging adulthood (here, ages 17-25) represents only a somewhat early birth, but having two children at this time is much more nonnormative. Thus, the higher parity progressions are *less* likely to mirror the larger population. Table 5 presents the results.

Traditionalism, religiosity and being Catholic predict progressing from 0 to 1+ children between emerging and mid-adulthood. Similarly, being married, younger and not Black also predict membership in this progression. These results situate themselves logically within the literature on low parity women. Traditionalism pushes people to have children (as found by Moors 2008) as does high levels of religiosity. On the other hand, the profiles for the other two progressions are much different. Not much at all predicts progressing from 1 to 2+ children, with the exception of being employed and working fewer hours per week. In other words, those involved at all in the labor market are more likely to have more children, but those working more hours tend to stay at parity 1. Here, not having used birth control in the month prior to the interview predicts progressing to higher parities, as does being married and younger. Recall that the last profile represents individuals having two somewhat early births. Interestingly, progressing to 3+ children is most likely for individuals who are traditional but also secular. Also, not using contraception as well as being Black are key in this profile.

Importantly, these results suggest that the timing of births matters. Progressing from 0 to 1+ children across the reproductive life course represents a very different profile than the

progression from 2 to 3+ children. While secularization matters for the first and third groups, it

changes in direction: mothers delaying pregnancy are more religious while those having early

births are more secular. Lastly, Black women and non-contracepting women are more prevalent

in the higher parity progressions – meaning they have early births and tend to progress to higher

parities overall. To this end, an interesting dichotomy reminiscent of the "American bipolarity"

trend found by Lesthaeghe and Neidert (2006) does seem to emerge. That is, second

demographic transition followers and "vulnerable women and children" based on the timing of

first births. This finding will be further explored in more depth in the bidirectional models

below.

Bidirectional causality of values and fertility behavior

To test my final hypothesis that indicators of the SDT and fertility behavior reciprocally

influence one another over time, I estimated a cross-lagged structural equation model in AMOS.

This type of model structure isolates the additive causal effects of parity $_{time\ 1}$ on SDT indicators

$_{time\ 2}$, and SDT indicators $_{time\ 1}$ on parity $_{time\ 2}$. In addition, the error terms of all time$_2$ variables

were correlated with one another which essentially controls for any variables that are omitted

from this model (Bollen 1989), providing a more robust estimation of the given relationships.

Table 6 presents the results.

First, it is immediately apparent that there is evidence of a bidirectional relationship

between the two. In both directions, we see significant effects which – under this stringent cross-

lagged model structure – supports the notion of bidirectionality. However, it is important to note

a specific trend in significance. That is, not all effects were significant, but when they were they

tended to exist in both directions. Egalitarian beliefs, being of Other religion, and job satisfaction were never significant in either direction whereas secularism, being Catholic and employment were significant in both directions. Second, two categories of indicators emerged as most prominent. The overall pattern is that religious and employment-related indicators are involved in a reciprocal relationship with parity over time. More specifically, higher parity $_{time\ 1}$ (here, more early births) predicts lower levels of employment as well as higher levels of secularization and not being Catholic at $time_2$. In the other direction, higher levels of secularism, being Catholic or of No religion, not working and working fewer hours (of those who are working) at $time_1$ predict higher parities at $time_2$.

Third, one direction does appear to dominate this relationship. Initially, I hypothesized that SDT factors would have more influence on parity behavior. This conjecture is supported in these data, as they exert a more consistent and substantial impact on parity than the reverse relationship. Fourth, of these two domains, employment behavior trumps religiosity in terms of its relationship with fertility. The standardized coefficients show that the strongest relationship in both directions is exerted by an employment-related variable. Higher parity at $time_1$ most strongly predicts not being employed at $time_2$, and working fewer hours at $time_1$ most strongly predicts higher parity at $time_2$. Overall, the summation of these results show that egalitarianism and job satisfaction are not involved in a reciprocal relationship with parity, but secularization, employment and religious affiliation are.

Chapter 4: Discussion and Conclusions

Second demographic transition theory was originally formulated in the 1980's as an explanation for the trend of continued low fertility in industrialized nations, focusing on the rising prevalence of individualization and secularization in Europe (Lesthaeghe 1983, van de Kaa 1987). Later, this was characterized as a transition distinct from the first demographic transition based on substantial differences in the attitudes and behaviors involved (Lesthaeghe and Neels 2002). Indicators of the second demographic transition include delaying fertility, increasing nonmarital fertility and childlessness, as well as numerous changes in union formation such as less marriage and remarriage, and rising levels of cohabitation and divorce. Other factors include an increased emphasis on individualization, as well as higher levels of civic and religious disengagement, political distrust, egalitarianism, and female participation in the labor force.

Research has provided empirical tests of SDT theory in European nations (Lesthaeghe and Neels 2002, Odgen and Hall 2004, Moors 2008) but only one has explored the relevance of this transition in the US (Lesthaeghe and Neidert 2006). Further, Lesthaeghe and Neidert identified one important distinction between the European and US examples – the existence of "American bipolarity." That is, two separate groups that diverged from one another with respect to their participation in this transition. These authors label the non-followers "vulnerable women and children" indicating high levels of both teen and nonmarital fertility, as well as a larger proportion of grandparents acting as caretakers of children.

While previous research has demonstrated the general utility of this theoretical framework in several ways, it has failed to provide a full test utilizing longitudinal, nationally representative data in the US. This analysis utilizes such data from two waves of the NSLY79:

1982 ("emerging adulthood") and 2006 ("mid-adulthood"). Overall, the findings provide

evidence to support the relevance of second demographic shift theory in the US in several ways.

First and most importantly, SDT indicators in emerging adulthood persist in their influence on

completed parity but relationships are both in the expected an unexpected directions. Higher

levels of egalitarianism, secularism and employment lead to a higher likelihood of having a

lower final parity. That is, individuals who hold egalitarian attitudes, attend church less

frequently, and are employed are likely to have lower parities than their counterparts.

Unexpectedly however, Catholics have higher fertility than Protestants in this sample, and both

job satisfaction and the number of hours worked (net of being employed) did not significantly

impact fertility. Therefore, it is simply women's *involvement* in the labor market that makes a

difference, rather than how satisfied they are with their jobs or the number of hours they spend a

week working.

Further, being married and having at least one child at time$_1$ contribute to higher overall

parities. Other control variables did not tend to diminish the significance of the main effects

which suggests other mechanisms should be explored in the future. Interestingly, younger

individuals in this cohort were more likely to have higher parities, but this effect was not

significant after weighted models were estimated. This is likely indicative of two possible

trends: that younger individuals in this cohort might be postponing their fertility more so than

others, or this simply reflects the feature of the NLSY79 sample that it includes a larger

proportion of individuals who had early births. In either case, since they do not remain

significant after weighting they are likely not an important feature of these relationships.

Overall, this analysis contributed to this literature by providing individual-level evidence

of the aggregate-level trends found by Lesthaeghe and Neidert: higher parity individuals tended

to be more traditional and religious. However this analysis diverged from their findings in one interesting way – that being Catholic was associated with higher, rather than lower parity. This may be indicative of a cohort phenomenon. That is, the Catholic/Protestant differential diminished in the past several decades across the entire population, but perhaps the socialization of this specific cohort is a remnant from the time where the old nature of these relationships existed.

Third, two distinct profiles emerged from the exploration of specific parity progressions (those who transition from 0 to 1+ children, 1 to 2+ children, and 2 to 3+ children between emerging and mid-adulthood). Childless females were characterized by high levels of egalitarianism and secularization, as well as not being married, Catholic or Black. On the other hand, those who had early births were most likely to have more children if they were traditional, secular, non-contracepting and Black. In all progressions, being younger predicted moving into higher parities but again these results were not significant after weighting. Overall, this dichotomy provides only some evidence to support the divergence suggested by Lesthaeghe and Neidert (2006) in that two groups of individuals in the US are emerging – those following the second demographic transition and those who are not. The most salient features of the more "vulnerable" group of women are having early births, being of a minority status, and being traditional.

Fourth, this analysis extends previous research by observing these relationships in a bidirectional manner. Estimates from a cross-lagged structural equation model support the hypothesis that these factors are involved in a reciprocal manner, and highlight specific SDT indicators as more important than others in terms of fertility behavior. Specifically, religious and employment indicators were salient in both directions whereas egalitarianism was not. Higher

parities at time $_1$ (or more early births) were predictive of unemployment and secularization at time$_2$. On the other hand, more church attendance, being Catholic or of No religion, unemployment and working fewer hours (of those who were working) at time$_1$ pushed final parity upward at time$_2$. Also of importance is that employment was stronger in its influence on fertility than religion (as seen in the standardized coefficients).

Overall, this supports the divergence of two groups of women but also provides stronger emphasis on the importance of birth timing. While those with higher *earlier* parities are less involved in the labor market over time (thus the more "vulnerable" group), they are also less engaged in church which suggests some measure of compliance with the second demographic transition. On the other hand, women *ending up* at higher parities are more engaged in church and less involved in the labor market which support the notion that these attitudes and behaviors go hand in hand (as opposed to the other extreme of these behaviors which correlate with lower parity).

Fifth, standardized coefficients in the longitudinal and cross-lagged models portray different stories of the strongest predictors of higher completed parities for females in this cohort. The longitudinal model suggests that traditional beliefs, religiosity and Catholicism are the most important SDT factors that lead to higher overall parities. However, the cross-lagged model suggests two trends: that employment-related factors hold the strongest reciprocal relationship with parity and that egalitarianism is not significant at all. How can these differences be reconciled? The key to deciphering these trends may also lie in figuring out the puzzle of the diverging dichotomy. That is, egalitarianism may be so intertwined with low parity that it is not differentiated once egalitarianism at time$_1$ is included as a control. Rather, the constraining effect of employment on fertility and vice versa emerges as the strongest reciprocal

influence, and this persists regardless of fertility timing. Here, the same pattern emerges in both directions: having higher parities early on (in emerging adulthood) predicts less employment in mid-adulthood, and less employment in emerging adulthood predicts higher parities in mid-adulthood. This indicates the importance of female participation in the labor market in terms of determining completed fertility level. Situated with the family literature, this supports previous research revealing these different patterns. Individuals who tend to have earlier births also tend to have less education and employment, whereas those who delay births tend to be more highly educated and more heavily involved in the labor force (Rindfuss, Morgan and Offutt 1996).

Lastly, this reciprocal relationship seems to be dominated by the influence of SDT indicators on parity rather than the opposite direction. Church attendance, Catholicism, and unemployment exert a stronger and more consistent influence on parity than the reverse. This suggests that SDT indicators and parity are involved in a mutually reinforcing relationship over time. While this confirms my initial expectation, the fact that bidirectionality exists does emphasize the importance of taking the reverse equation into account. Fertility researchers may find great utility in adding this element to future models in order to more fully examine low fertility within the second demographic transition.

Another important dimension of these relationships that was not the main focus of this analysis is the role of fertility intentions within these relationships. Initial models included fertility intentions, but results showed that they did not mediate the impact of SDT indicators on parity. Thus, they were not decisive in terms of explaining the mechanism by which these relationships exist. However, they are not altogether irrelevant to this discussion. Since most individuals in the NLSY79 cohort have completed their fertility behavior by the final wave of data (2006), we can explore how fertility intentions have been revised across the life course in

relation to completed parity. Morgan (2003) finds that individuals tend to revise their intentions downward at older ages. Indeed, there is evidence of downward revision between emerging and mid-adulthood in these data as well. Over a third of women revised their intentions downward (38.1%) over time, but another quarter revised upward (27.9%) and the remaining third met their original intention (34.1%). Not surprisingly, the trend of downward revision was especially marked for childless individuals. For women at parity 0 in the final wave, 83% originally expected to have children. Therefore, while fertility expectations represent independent influence in the SDT relationships, like any other factor they are subject to timing influences.

Further, such revision may differ by religious indicators. Hayford and Morgan (2008) hypothesized that more religious women would be less prone to downward revision since they hold more traditional attitudes about the family. Comparing fertility intentions across the life course by religiosity in this sample somewhat supports this hypothesis. About a third of "more religious" individuals (defined as those with scores higher than the sample mean) revised their intentions downward (36.6%) while 40.4% of "less religious" individuals did the same. This difference is not as large as perhaps expected. Repeating this comparison by religious affiliation, Catholics and those of Other and No religion revised their intentions downward more often than Protestants. So, if Protestants represent the most religious group, or those holding most traditional attitudes about the family, these also support their contention. However, in this cohort, Catholic women had higher fertility than Protestant women which goes against their assumptions. Comparisons with more recent cohorts that explicitly test this mechanism may be very profitable.

Overall, these findings provide evidence of the indicators of the second demographic transition in terms of predicting continued low fertility trends, and contribute greater

contextualization to the nature of these relationships by observing these in longitudinal and bidirectional manner utilizing nationally representative data. Perhaps the most significant substantive findings garnered through these analyses are that, 1) there is evidence of "American bipolarity" in the US second demographic transition and that these two divergent groups of women are separated by birth timing and 2) the relationship between SDT indicators and fertility is reciprocal in nature. These represent an important addendum to the empirical literature on second demographic transition theory in that diverging trends exist, and while individualistic and secularized attitudes and behaviors predict lower fertility behavior, they become involved in a mutually enforcing relationship over the life course. This both supports dynamic models of these relationships (proposed by Preston 1987, Bumpass 1990, and Smock 2000), and extends current fertility research focusing on explaining continuing low fertility trends in industrialized nations such as the US. Researchers would benefit from a more comprehensive picture of these patterns by adding reciprocal effects to standard models of fertility behavior as well as separating out diverging subgroups in their analysis.

Limitations

As with any study, this is not without its limitations. To the best of my knowledge, no dataset currently exists that contains a more sufficient list of variables within each domain of second demographic transition theory. The NLSY79 is the only longitudinal dataset that follows a specific cohort throughout the reproductive life course, gathering information about fertility intentions and behavior, values, attitudes and other behaviors of interest. The World Values Survey affords other advantages such as a broader range of variables that address specific values,

but it is not longitudinal in nature. Further, I measure secularization only through frequency of

attending religious services. A more in-depth series of questions regarding various dimensions

of religiosity and secularization is desirable, but again, unavailable in the NLSY79 data.

Similarly, a more detailed series of questions regarding attitudes towards abortion, cohabitation,

same-sex partnerships, etc. would provide important information about how attitudes and

behavior relating to the same topic differ from one another. Furthermore, information regarding

same-sex partnerships was not asked until 2000, so there is not enough history to provide a basis

to compare these relationships for heterosexual versus homosexual couples. Overall, the dataset

used here is advantageous for several reasons and richer in data than other available datasets, but

is still limited in terms of its ability to provide a fully comprehensive test of second demographic

transition theory.

Next Steps in Research

Overall, this analysis contributes to this literature in three key ways. First, by tracking

the relationship between SDT indicators and parity across the reproductive life course of a single

cohort, it provides the most thorough test of second demographic transition theory since its

original introduction to the literature in the 1980's. Second, the results provide evidence of

"American bipolarity" within the US at the individual-level. Third, it contributes a new finding

to this literature: SDT indicators and parity influence one another over time in a dyadic manner.

While it is dominated by the impact of SDT indicators on parity, this suggests future research

may benefit from estimating the other side of the equation – that is, to investigate how parity

influences job behavior, egalitarianism, union behavior, family formation behavior, etc. This

provides a unique perspective that may bring further clarity to the explanation of low fertility

trends in industrialized nations that demographers have yet to explore in any depth.

In addition, future research should begin exploring the mechanisms through which this

dynamic relationship between SDT indicators and fertility takes place. Since the control

variables (included here) nor fertility intentions (not included here) did not explain these

mechanisms, future research should consider new variables that may link these together.

Further, explorations of differences in these mechanisms by gender and race/ethnicity will likely

be fruitful. Future data collection efforts should seek to include the variables omitted from this

analysis (namely political values, civic engagement, etc.) in order to facilitate more in-depth tests

of this theoretical perspective. In addition, richer comparisons of fertility timing can highlight

useful differences. While this analysis provides an introductory look into these comparisons,

data involving these indicators at additional time points throughout the life course would

facilitate the use of event history analysis to more fully discuss these different mechanisms.

Lastly, these relationships should continue to be explored across countries for multiple cohorts.

Cultural factors play a significant role in second demographic transition and have the potential to

diversify the contexts in which this theory is best applied. Exploration of more recent cohorts

that have been subject to different historical and social context may yield very different results.

Insofar as this study answers Lesthaeghe's call for empirical research based on "multi-

causal theory" incorporating second demographic transition, economic and ideational shift

theories, this provides a "jumping off point" for researchers to being exploring other contextual

elements of this transition within the US and within cross-comparative contexts.

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Figure 1. Conceptual Diagram, Second Demographic Transition Variables (Wave 1) on Parity (Wave2)
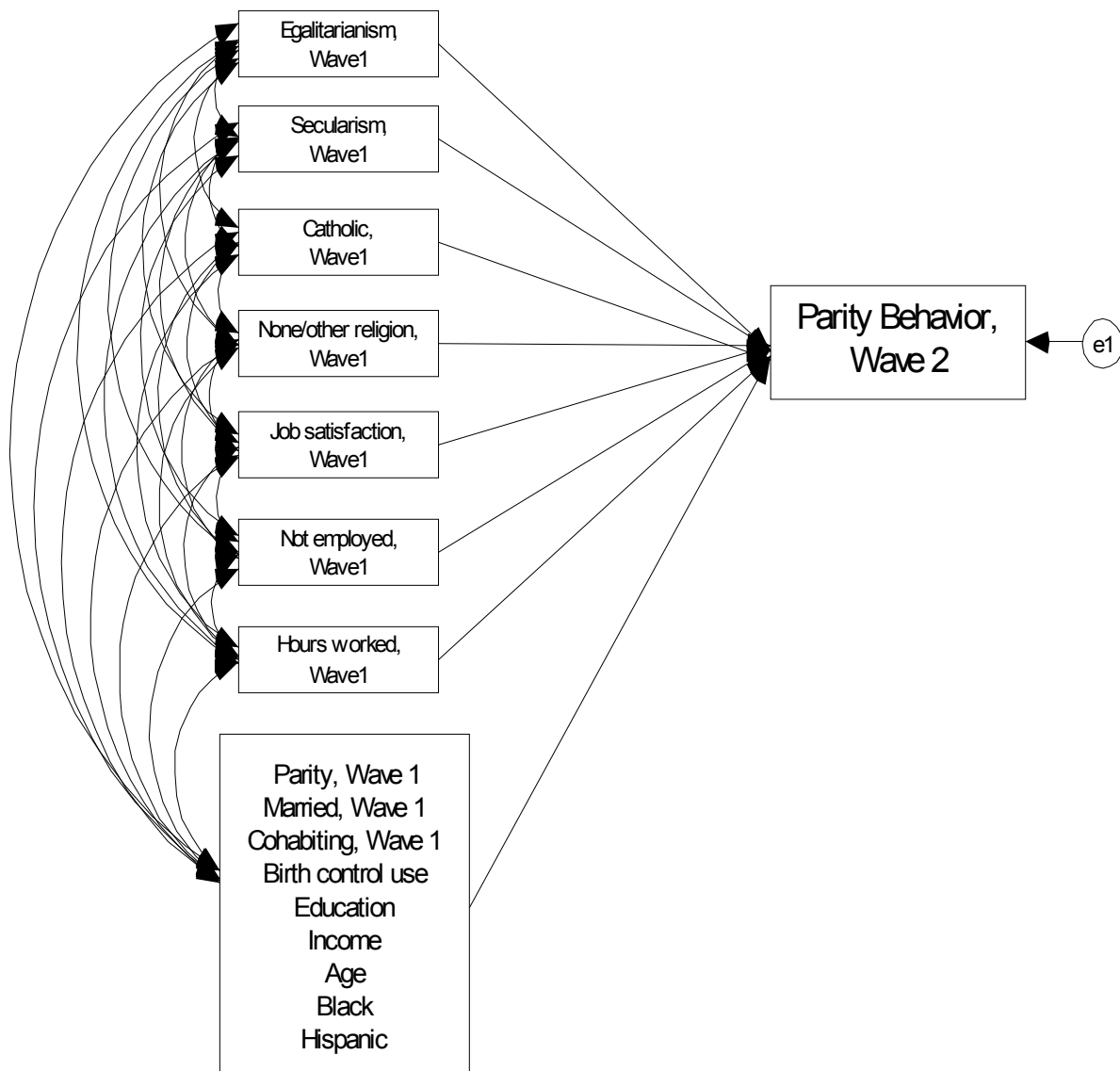
Table 1. Descriptive Statistics by Year (n=3,729)

Time 1	Min.	Max.	Mean	Std. Dev.
Parity	0	3	0.407	0.740
Parity progression (0-1)	0	1	0.131	0.337
Parity progression (1-2)	0	1	0.072	0.259
Parity progression (2-3)	0	1	0.044	0.205
Egalitarianism	1.25	4	3.044	0.440
Secularization	1	6	3.957	1.654
Protestant	0	1	0.575	0.494
Catholic	0	1	0.305	0.460
No religion	0	1	0.091	0.287
Other	0	1	0.029	0.168
Job satisfaction	1	4	3.254	0.574
Not employed	0	1	0.417	0.493
Hours worked per week	0	81.65	21.064	12.645
Married	0	1	0.292	0.455
Cohabiting	0	1	0.043	0.204
Time 2				
Parity	0	3	1.802	1.051
Egalitarianism	1.25	4	3.012	0.413
Secularization	1	6	3.674	1.727
Protestant	0	1	0.577	0.494
Catholic	0	1	0.236	0.425
No religion	0	1	0.101	0.301
Other	0	1	0.085	0.280
Job satisfaction	1	4	3.435	0.456
Not employed	0	1	0.226	0.418
Hours worked per week	0	148	35.087	12.591
Married	0	1	0.644	0.479
Cohabiting	0	1	0.062	0.241
Controls (time 1)				
Birth control use	0	1	0.538	0.489
Education	1	18	12.227	1.763
Household income (actual)	0	75001	22608.72	15455.37
Household income (sq. root)	0	273.86	140.934	52.406
Age	17	25	20.844	2.286
Black	0	1	0.152	0.359
Hispanic	0	1	0.065	0.247
Non-Hispanic White	0	1	0.783	0.412

Table 2. Descriptive Statistics, by Parity

	Parity 0		Parity 1		Parity 2		Parity 3	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Egalitarianism t_1	3.141	0.432	3.087	0.423	3.046	0.444	2.963	0.432
Secularization t_1	4.171	1.656	4.146	1.565	3.933	1.639	3.766	1.695
Protestant t_1	0.622	0.485	0.543	0.498	0.580	0.494	0.560	0.496
Catholic t_1	0.243	0.429	0.307	0.461	0.317	0.465	0.325	0.468
No religion t_1	0.100	0.297	0.120	0.319	0.080	0.278	0.080	0.274
Other t_1	0.040	0.191	0.040	0.184	0.020	0.138	0.030	0.178
Job satisfaction t_1	3.261	0.651	3.280	0.589	3.248	0.568	3.244	0.523
Not employed t_1	0.320	0.467	0.390	0.488	0.392	0.488	0.514	0.500
Hrs worked per wk t_1	22.580	13.225	22.255	13.089	21.280	12.702	19.317	11.767
Married t_1	0.104	0.305	0.219	0.413	0.330	0.470	0.391	0.488
Cohabiting t_1	0.039	0.193	0.048	0.214	0.041	0.199	0.046	0.209
Egalitarianism t_2	3.092	0.380	3.055	0.394	3.021	0.417	2.933	0.422
Secularization t_2	4.121	1.707	3.836	1.646	3.581	1.718	3.450	1.737
Protestant t_2	0.556	0.497	0.541	0.498	0.608	0.488	0.572	0.495
Catholic t_2	0.202	0.402	0.276	0.447	0.220	0.414	0.253	0.435
No religion t_1	0.140	0.352	0.100	0.305	0.100	0.301	0.080	0.264
Other t_2	0.100	0.296	0.080	0.269	0.070	0.257	0.100	0.299
Job satisfaction t_2	3.400	0.521	3.460	0.443	3.435	0.454	3.441	0.424
Not employed t_2	0.185	0.388	0.189	0.392	0.222	0.416	0.273	0.446
Hrs worked per wk t_2	37.633	12.546	35.457	11.840	34.888	12.665	33.706	12.694
Married t_2	0.454	0.498	0.574	0.494	0.735	0.441	0.678	0.467
Cohabiting t_2	0.105	0.306	0.062	0.241	0.047	0.212	0.056	0.231
Birth control use	0.463	0.489	0.560	0.480	0.557	0.488	0.547	0.490
Education	12.655	1.813	12.244	1.644	12.280	1.640	11.915	1.877
HH income (actual)	25014.331	15300.995	21820.305	15232.531	22676.369	15138.293	21608.774	15883.852
HH income (sq. root)	149.781	50.795	137.938	52.852	141.560	51.353	136.854	53.663
Age	20.749	2.253	20.658	2.283	20.887	2.287	20.945	2.297
Black	0.137	0.344	0.157	0.363	0.121	0.327	0.193	0.395
Hispanic	0.041	0.198	0.055	0.227	0.062	0.240	0.089	0.285
White	0.822	0.383	0.789	0.408	0.817	0.387	0.718	0.450

Table 3. Correlation Matrix

	1	2	3	4	5	6	7	8
1. Parity - 1982	1							
2. Parity - 2006	.361**	1						
3. Egalitarianism - 1982	-.166**	-.139**	1					
4. Secularization - 1982	.057**	-.093**	.126**	1				
5. Protestant - 1982	.085**	-.029**	-.064**	-.126**	1			
6. Catholic - 1982	-.077**	.055**	.047**	-.050**	-.771**	1		
7. No religion - 1982	-.014**	-.030**	.042**	.282**	-.368**	-.210**	1	
8. Other - 1982	-.016**	-.015**	-.014**	.023**	-.201**	-.115**	-.055**	1
9. Job Satisfaction - 1982	-.019**	-.016**	-.008**	-.059**	.008**	-.014**	.003**	.009**
10. Not employed - 1982	.231**	.129**	-.156**	.018**	.012**	-.039**	.036**	.010**
11. Hours worked - 1982	-.152**	-.093**	.063**	.053**	.020**	-.008**	-.007**	-.024**
12. Married - 1982	.398**	.221**	-.163**	.023**	.045**	-.036**	-.009**	-.020**
13. Cohabiting - 1982	.037**	.007**	.008**	.126**	-.028**	.019**	.028**	-.017**
14. Egalitarianism - 2004	-.035**	-.134**	.326**	.100**	-.060**	.042**	.036**	.000**
15. Secularization - 2000	.073**	-.135**	.066**	.406**	-.108**	-.010**	.181**	.035**
16. Protestant - 2000	.090**	.022**	-.041**	-.081**	.531**	-.486**	-.080**	-.093**
17. Catholic - 2000	-.091**	.023**	.011**	-.056**	-.548**	.698**	-.125**	-.085**
18. No religion - 2000	-.008**	-.073**	.044**	.213**	-.103**	-.083**	.311**	.000**
19. Other - 2000	-.011**	.005**	.009**	-.001**	.007**	-.112**	-.004**	.294**
20. Job Satisfaction - 2006	-.009**	.020**	-.021**	-.072**	.011**	.008**	-.026**	-.012**
21. Not employed - 2006	.100**	.078**	-.124**	.019**	-.001**	-.029**	.030**	.030**
22. Hours worked - 2006	-.003**	-.101**	.074**	-.037**	.060**	-.036**	-.019**	-.045**
23. Married - 2006	-.043**	.171**	-.005**	-.099**	-.044**	.082**	-.079**	.038**
24. Cohabiting - 2006	.020**	-.063**	.003**	.082**	-.022**	.004**	.047**	-.024**
25. Birth control use - 1982	.245**	.048**	.025**	.151**	-.008**	-.016**	.033**	.011**
26. Education - 1982	-.275**	-.131**	.206**	-.098**	.045**	-.022**	-.079**	.062**
27. Household Income - 1982	-.231**	-.068**	.074**	-.096**	-.071**	.126**	-.099**	.032**
28. Age	.328**	.039**	-.053**	.083**	.043**	-.027**	-.043**	.020**
29. Black	.159**	.044**	.051**	-.060**	.196**	-.211**	.017**	-.028**
30. Hispanic	.087**	.066**	-.043**	-.021**	-.229**	.282**	-.044**	-.024**
31. White	-.190**	-.078**	-.018**	.065**	-.033**	.014**	.011**	.039**

Note: **p<.01, *p<.05 (two-tailed)

Table 3, continued

	9	10	11	12	13	14	15	16
1. Parity - 1982								
2. Parity - 2006								
3. Egalitarianism - 1982								
4. Secularization - 1982								
5. Protestant - 1982								
6. Catholic - 1982								
7. No religion - 1982								
8. Other - 1982								
9. Job Satisfaction - 1982	1							
10. Not employed - 1982	-.006**	1						
11. Hours worked - 1982	.053**	-.502**	1					
12. Married - 1982	.006**	.065**	.032**	1				
13. Cohabiting - 1982	-.009**	.026**	.004**	-.125**	1			
14. Egalitarianism - 2004	.026**	-.033**	.045**	-.031**	.010**	1		
15. Secularization - 2000	-.016**	.055**	-.001**	.025**	.106**	.163**	1	
16. Protestant - 2000	.000**	.062**	-.019**	.038**	-.033**	-.111**	-.176**	1
17. Catholic - 2000	.041**	-.069**	.028**	-.053**	.019**	.065**	-.019**	-.650**
18. No religion - 2000	-.031**	.016**	-.006**	.011**	.025**	.109**	.395**	-.392**
19. Other - 2000	-.030**	-.022**	-.003**	.002**	.002**	-.021**	-.086**	-.357**
20. Job Satisfaction - 2006	.102**	-.036**	.042**	.028**	-.002**	.010**	-.061**	.049**
21. Not employed - 2006	-.012**	.111**	-.081**	.008**	.017**	-.221**	.020**	.013**
22. Hours worked - 2006	.012**	-.029**	.039**	.003**	.005**	.167**	-.014**	.029**
23. Married - 2006	.025**	-.090**	.045**	.101**	-.038**	-.076**	-.128**	-.021**
24. Cohabiting - 2006	.012**	.013**	-.013**	.009**	.022**	.075**	.159**	-.062**
25. Birth control use - 1982	-.026**	-.017**	.096**	.224**	.095**	.007**	.088**	.005**
26. Education - 1982	.036**	-.228**	.175**	-.067**	-.047**	.095**	-.150**	.013**
27. Household Income - 1982	.014**	-.198**	.141**	-.021**	-.253**	.023**	-.071**	-.075**
28. Age	-.013**	-.146**	.324**	.326**	.042**	-.019**	-.006**	.013**
29. Black	-.031**	.144**	-.093**	-.142**	.004**	.033**	-.145**	.187**
30. Hispanic	.001**	.057**	-.029**	.036**	.013**	-.018**	.001**	-.162**
31. White	.026**	-.159**	.098**	.102**	-.011**	-.018**	.126**	-.066**

Note: **p<.01, *p<.05 (two-tailed)

Table 3, continued

	17	18	19	20	21	22	23	24
1. Parity - 1982								
2. Parity - 2006								
3. Egalitarianism - 1982								
4. Secularization - 1982								
5. Protestant - 1982								
6. Catholic - 1982								
7. No religion - 1982								
8. Other - 1982								
9. Job Satisfaction - 1982								
10. Not employed - 1982								
11. Hours worked - 1982								
12. Married - 1982								
13. Cohabiting - 1982								
14. Egalitarianism - 2004								
15. Secularization - 2000								
16. Protestant - 2000								
17. Catholic - 2000	1							
18. No religion - 2000	-.186**	1						
19. Other - 2000	-.170**	-.102**	1					
20. Job Satisfaction - 2006	.001**	-.050**	-.034**	1				
21. Not employed - 2006	-.033**	-.007**	.034**	-.006**	1			
22. Hours worked - 2006	-.019**	.000**	-.022**	.011**	-.284**	1		
23. Married - 2006	.073**	-.052**	-.017**	.053**	-.031**	-.071**	1	
24. Cohabiting - 2006	.012**	.096**	-.013**	-.032**	.007**	-.005**	-.297**	1
25. Birth control use - 1982	-.048**	.028**	.034**	-.012**	.042**	-.014**	-.013**	.025**
26. Education - 1982	-.015**	-.061**	.066**	.015**	-.126**	.040**	.122**	-.096**
27. Household Income - 1982	.129**	-.053**	-.007**	.047**	-.092**	.030**	.146**	-.018**
28. Age	-.018**	-.027**	.032**	-.004**	.032**	-.017**	.019**	-.051**
29. Black	-.181**	-.085**	.036**	-.023**	.043**	.040**	-.260**	-.013**
30. Hispanic	.217**	-.015**	-.027**	.003**	.015**	.002**	-.038**	.029**
31. White	.028**	.083**	-.015**	.018**	-.046**	-.036**	.249**	-.006**

Note: **p<.01, *p<.05 (two-tailed)

Table 3, continued

	25	26	27	28	29	30	31
1. Parity - 1982							
2. Parity - 2006							
3. Egalitarianism - 1982							
4. Secularization - 1982							
5. Protestant - 1982							
6. Catholic - 1982							
7. No religion - 1982							
8. Other - 1982							
9. Job Satisfaction - 1982							
10. Not employed - 1982							
11. Hours worked - 1982							
12. Married - 1982							
13. Cohabiting - 1982							
14. Egalitarianism - 2004							
15. Secularization - 2000							
16. Protestant - 2000							
17. Catholic - 2000							
18. No religion - 2000							
19. Other - 2000							
20. Job Satisfaction - 2006							
21. Not employed - 2006							
22. Hours worked - 2006							
23. Married - 2006							
24. Cohabiting - 2006							
25. Birth control use - 1982	1						
26. Education - 1982	.063**	1					
27. Household Income - 1982	-.132**	.165**	1				
28. Age	.280**	.362**	-.069**	1			
29. Black	.060**	-.061**	-.208**	-.007**	1		
30. Hispanic	-.032**	-.152**	-.072**	.006**	-.112**	1	
31. White	-.034**	.145**	.225**	.003**	-.803**	-.502**	1

Note: **p<.01, *p<.05 (two-tailed)

Table 4. Odds Ratios of the Ordered Logistic Regression Estimation of Completed Parity, 1982-2006

	Unstandardized		Standardized	
	1	2	1	2
Egalitarianism	0.587***	0.694***	0.792***	0.852***
Secularization	0.971	0.923***	0.952	0.875***
Catholic	1.241***	1.424***	1.106***	1.177***
No religion	1.081	1.232†	1.022	1.059†
Other religion	0.845	0.966	0.968	0.971
Job satisfaction	0.921	0.922	0.956	0.957
Not employed	1.526***	1.14†	1.236***	1.068†
Hours worked per week	0.993*	1.002	0.917*	1.026
Parity, Wave 1		3.459***		2.701***
Married, Wave 1		1.555***		1.214***
Cohabiting, Wave 1		1.281		1.053
Birth control use		0.904		0.952
Education		1.032		1.06
Income (sq. root)		1.001		1.011
Age		0.87***		0.734***
Black		1.026		1.011
Hispanic		1.1		1.038
Likelihood ratio chi-square	177.79***	913.54***		
-2 log likelihood	9652.14	8916.39		
Pseudo R^2	0.018	0.093		
Note: ***p<.001, **p<.01, *p<.05 (two-tailed). N=3,729.				

Table 5. Odds Ratios of the Logistic Regression Estimation of Each Parity Progression, 1982-2006

	Parity 0 → 1+		Parity 1 → 2+		Parity 2 → 3+	
	1	2	1	2	1	2
Egalitarianism	0.739**	0.759*	0.89	0.884	0.505*	0.47**
Secularization	0.929*	0.922*	0.878*	0.898	1.171*	1.17*
Catholic	1.662***	1.549***	1.86**	1.527	1.318	1.929
No religion	1.363†	1.334	1.762	1.793	1.114	0.899
Other religion	0.933	0.969	0.522	0.502	0.694	0.775
Job satisfaction	0.934	0.913	1.022	0.95	0.787	0.78
Not employed	1.14	1.116	0.519*	0.539*	1.279	0.962
Hours worked per week	0.999	1.005	0.965**	0.97*	1.011	1.006
Married, Wave 1		2.489***		1.979**		1.211
Cohabiting, Wave 1		1.261		1.046		0.88
Birth control use		1.152		0.596*		0.501*
Education		1.057		1.108		0.908
Income (sq. root)		0.999		1.003		1.005
Age		0.84***		0.888*		0.799**
Black		0.755*		1.427		2.72**
Hispanic		1.046		1.666		1.083
Likelihood ratio chi-square	40.06***	108.14***	22.14**	44.48***	15.41*	47.62***
-2 log likelihood	2656.96	2588.88	694.3	671.96	450.07	417.87
Pseudo R^2	0.015	0.04	0.031	0.062	0.033	0.102

Note: ***p<.001, **p<.01, *p<.05 (two-tailed). N=3,729. Females progressing from parity 0→1+ =1,904 (compared with 579 remaining at parity 0), from parity 1→2+ =630 (compared with 136 remaining at parity 1), and from parity 2→3+ =224 (compared with 130 remaining at parity 2).

Table 6. Structural Equation Model Results, Cross-lagged Model between 1982 and 2006

			Unstdzd	Stdzd
Parity - 2006	←	Egalitarianism - 1982	-0.004 (0.046)	-0.002
Parity - 2006	←	Secularism - 1982	-0.058*** (0.012)	-0.091***
Parity - 2006	←	Catholic - 1982	0.128** (0.04)	0.056**
Parity - 2006	←	No religion - 1982	0.133* (0.058)	0.035*
Parity - 2006	←	Other religion - 1982	0.032 (0.104)	0.005
Parity - 2006	←	Job satisfaction - 1982	-0.023 (0.028)	-0.012
Parity - 2006	←	Not employed - 1982	0.123*** (0.039)	0.059***
Parity - 2006	←	Hours worked - 1982	-0.01*** (0.002)	-0.118***
Egalitarianism - 2004	←	Parity - 1982	0.002 (0.008)	0.005
Secularism - 2000	←	Parity - 1982	0.077* (0.033)	0.037*
Catholic - 2000	←	Parity - 1982	-0.019** (0.006)	-0.036**
No religion - 2000	←	Parity - 1982	-0.004 (0.005)	-0.01
Other religion - 2000	←	Parity - 1982	-0.003 (0.006)	-0.009
Job satisfaction - 2006	←	Parity - 1982	-0.003 (0.009)	-0.006
Not employed - 2006	←	Parity - 1982	0.056*** (0.009)	0.105***
Hours worked - 2006	←	Parity - 1982	-0.394 (0.263)	-0.025

Note: ***p<.001, **p<.01, *p<.05 (two-tailed); all coefficients are standardized. Model fit indices: RMSEA=.033, TLI=.923. Squared multiple correlation of final parity=0.139.