Structuring the Transition to Adulthood:

An Entropy Analysis of the Early Life Course in the United States, 1880 to 2000 *

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Abstract

Social institutions and norms structuring the transition to adulthood have changed significantly over the course of the 20th century in the United States. However, life course methodologies have not quantified these changes or evaluated differences in the structure of the transition to adulthood between gender, race, and nativity groups. In this article, I present a new method – the entropy analysis of status combinations of synthetic cohorts. I use indicators of school attendance, employment, household relationships, marriage, and parenthood from the 1880 through 2000 U.S. censuses to identify three distinct historical periods of the transition to adulthood. These periods are characterized by distinct age boundaries and levels of differentiation within age-segments of the young adult life course. During this period differences between men and women and race-nativity groups have converged over time. These results support the argument that the life course has become more standardized, as social institutions and norms became more uniform and widespread, and that more recently it has become more complex as these institutions have been restructured and social norms have relaxed.

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INTRODUCTION

Over the course of the twentieth century the social statuses that structure the transition to adulthood and the ages at which they exert their influence have been altered by the emergence and evolution of youth-defining social institutions and norms. Consequently social pathways through the early life course have become more standardized. However, methodological approaches for identifying and examining the influence of structural changes in the transition to adulthood have several shortcomings. The most commonly used methods typically focus on one or two transitions, thus misrepresenting a process in which multiple transitions are interrelated. In addition, the data used to study the transition to adulthood often are limited in their historical scope and minority group representation. In this research I present a new approach that remedies these shortcomings by describing the age boundaries of this critical life stage within synthetic cohorts derived from census data and determining which statuses are most influential in raising the intensity of transitioning at particular ages in distinct historical periods.

Social demographic research has typically defined the boundaries of the transition to adulthood by the age range at which young people finish their education, begin employment, leave the parental home, establish a new home, marry and become parents. Static measures, such as mean ages at a transition, age-specific rates, or the percentage having made a transition by a certain age, provide simple measures of the timing of single

transitions to compare across cohorts or periods (Modell, Furstenberg, and Hershberg 1976; Rindfuss 1991; Winsborough 1978, 1979). Age-period-cohort models improve on these measures, but they have not been as popular as multivariate analyses of individual life courses (Clogg 1982; Watkins, Menken, and Bongaarts 1987). Event history analyses allow scholars to understand sources of variation in the timing of individuals' transitions, although they focus most often on single events occurring in the lives of individuals within single or closely spaced cohorts (Mayer and Tuma 1990; Wu 2003). These efforts toward understanding single transitions do not fully address the issue of how transitions are interrelated.

Life course scholars have attempted to address the issue of the interrelationship of multiple transitions by studying the order in which they occur and how this affects later transitions or outcomes (Billari 2001; Billari and Piccarreta 2005; Hogan 1978; 1980; Marini 1984a,b; Mouw 2005; Rindfuss, Swicegood, and Rosenfeld 1987). Such analyses describe variation in the pathways of the transition to adulthood with longitudinal or retrospective survey data of individuals that typically is limited to post-1950s cohorts. As a result of the lack of historical sources of data on individual's lives, Rindfuss (1991: 501-2) points out, it is difficult to ascertain whether the diversity of pathways pursued in the early life course today represents a break from the past.

The question of whether pathways through the life course have become more or less diverse over time relates to three core life course principles. The age-stratification principle conceptualizes age as a social basis for differentiation; the heterogeneity principle theorizes that the age-graded process of differentiation places individuals on different life pathways; and the demographic principle posits that aggregate patterns of

lives are responses to changing historical circumstances and diverse institutional opportunities (O'Rand 1995). This middle-range theory links macro and micro-level processes by focusing on social pathways and how they have changed. These principles are incorporated into the research presented here, in which I introduce a new method for analyzing the structure of the life course which describes changes in the patterns of heterogeneity of status combinations with age – in other words, social pathways through the life course – and their changes over historical time. As a new method the best test of its utility is how well it describes well-documented social processes. The goal of this paper, therefore, is to draw a statistical portrait of the transition to adulthood in the U.S. during the 20th century. I find that my results correspond closely to the findings of historians, demographers, sociologists and others investigating changes in the process of transition to adulthood. In future work this method may be applied to other times and places with which life course scholars are less familiar.

To draw this statistical portrait of the transition to adulthood I apply an age-specific entropy analysis to synthetic cohorts derived from decennial census data to examine change in the age graded process of transition to adulthood in the United States over the 20th century. This provides us with an overview of the life course pathways followed by synthetic cohorts in distinct historical periods. The analysis proceeds with a review of the literature on the social institutions and norms which have shaped the transition to adulthood in the U.S. during this period of time. I then describe the U.S. census samples used in the analysis and introduce the entropy analysis of synthetic cohorts. In the next section I present the analysis which demarcates statistically the three periods of transition to adulthood and illustrates the variations within each period in the

timing and degree of heterogeneity in status combinations between gender, race, and nativity groups. I find that over time group differences have diminished but overall heterogeneity in status combinations has increased. I interpret these results as showing that even though in the post-WWII period social institutions – especially schools, employment, and households – strongly structure the life course up until age 18, since the 1970s young adults age 18 and older increasingly assume a greater variety of status combinations, reflecting the greater individualization of the life course.

LITERATURE REVIEW

It is difficult to determine when adulthood begins since no single event marks the passage. Rather, it is a gradual process which is experienced both subjectively by youth and objectively by others observing youth's involvement in the social institutions which define adult roles (Shanahan, Porfeli, Mortimer, and Erickson 2005). Demographers have observed changes in the transition to adulthood by examining the objective markers of adulthood – typically measured as leaving school, entering the labor force, leaving the parental home and forming a new home, marrying and having children – all of which are measured in censuses and demographic surveys (Fussell and Furstenberg 2005; Modell et al 1976; Stevens 1990). Thus the transition to adulthood is better described as a series of transitions which cumulatively constitute adulthood. However, this strictly demographic approach to the subject lacks an explanatory framework.

Scholars associated with the Bremen school of life course studies have advanced a theoretical explanation for the changes in the patterns of transition to adulthood that has come to be known as the standardization and individualization of the life course

(Marshall and Mueller 2003; Buchmann 1989; Kohli 1986; Mayer and Schoepflin 1989; Heinz 2003). They argue that as society becomes organized around the individual rather than the community or family, individuals' lives become more structured by collectively organized social institutions such as schools, labor markets, and the welfare state. A standardized life course, therefore, is segmented by ages and individuals' lives appear more similar within segments than between segments as a result of the influence of social institutions (Kohli 1986; Settersten 1997; 2002).

More recently, some have argued that the life course has become de-standardized as market-driven advanced industrial societies place more responsibility for life course decisions on individuals rather than structuring lives through age-graded institutions. Consequently traditional age and gender norms for life course transitions relax (Beck and Beck-Gernscheim 2002; Buchmann 1989; Heinz 2003; Settersten 2002). Similarly, Riley and others (Dannefur 2000; O'Rand 1995; Riley and Riley 2000) have argued the model of the life course as three age-differentiated "boxes" – exclusive periods of education, work, and retirement – has been replaced by a model in which the three boxes overlap, resulting in more age-integrated societies. The age-integration of work and education is widely attributed to the difficulty in entering into new occupations and maintaining skills necessary to remain competitive in a globalizing and technology-based economy (Dannerfur 2000). In these scenarios, age boundaries on life stages loosen and greater differentiation occurs within ages.

Thus, the standardization thesis and its corollary thesis of de-standardization propose three historical periods differentiating life course patterns (Heinz 2003). In the early industrial period prior to standardization the life course was weakly age-graded and

status combinations were regulated by local norms (Kett 1977). During industrialization age standardization within social structures made the life course more strongly age-graded with segments being distinguished by the combination of statuses individuals hold. A corollary of the thesis of standardization proposes that as social structures and norms become more pervasive differences between race, nativity, social class groups and genders will diminish. The post-industrial period is thought by some to have brought about a de-standardization of the life course in which age-bounded segments of the life course blur, which results in more differentiation of status combinations within segments. While there is general agreement regarding the characterization of the first two periods, there is debate over whether the life course has become de-standardized and more age-integrated in the last third of the twentieth century (Bruckner and Mayer 2004; Macmillan 2004).

Although North American scholars tend to focus on intra-cohort transitions rather than the influence of social structures on multiple cohorts, some literature on the transition to adulthood in the U.S. bears on this debate (Heinz and Kruger 2001; Marshall and Mueller 2003). Demographic research on life transitions shows that young adults coming of age in the 1970s were leaving school, entering employment, leaving the parental home and marrying at earlier ages and in a more standardized and condensed sequence than had earlier cohorts (Modell et al 1976; Rindfuss 1991; Modell and Goodman 1990). Modell, Furstenberg, and Hershberg (1976) concluded that the early twenties – the ages at which most of these transitions occurred – were stressful ages for young people in the 1970s, thereby suggesting that future cohorts might delay events, such as marriage and childbearing, to relieve some of that tension. Indeed, in longitudinal

studies of the early life course comparing the high school classes of 1960 and 1980, the latter cohort displayed greater variability than the earlier cohort in the timing of transitions (Buchmann 1989). The greater dispersion in the timing of events has focused recent debate on the prolongation of the transition to adulthood (Settersten, Rumbaut, and Furstenberg 2005).

By the 1980s and 90s, the general tendency was for young adults to experience an extended period of semi-autonomy, by staying in school longer, living independently in non-family arrangements and delaying family formation (Buchmann 1989; Fussell and Furstenberg 2005; Goldscheider and Waite 1991). A growing volume of literature treats pairs of transitions, and finds that in nearly every case, transitions from school-to-work, home-leaving, and the transitions to marriage and childbearing are all taking longer. These delays are often related to the prolonged duration of education and difficulty in achieving economic stability, making socio-economic status a more important source of differentiation even as gender and race differences are lessening (Clarkberg 1999; Cooney and Hogan 1991; Goldscheider, Thornton, and Young-DeMarco 1993; Gutman, Pullum-Piñon and Pullum 2002; Lichter, McLaughlin and Ribar 2001; Oppenheimer, Kalmijn, and Lim 1997; Shanahan, Miech, and Elder 1998). This large body of research supports the thesis that the social structures guiding the transition to adulthood have changed, though this is more often described at the individual rather than the cohort level.

In previous work I proposed a new summary measure – the entropy index of age-specific status combinations– that accomplishes several tasks of interest to life course scholars (self-identifying reference). The entropy index measures the degree to which individuals of a given age are similar in their combination of demographic statuses, thus

describing the age-graded stages of the life course. Comparing the entropy index at multiple points in time shows whether and how the age-gradedness of the life course has changed over a lengthy historical period. Furthermore, decomposing the entropy index according to the contribution of each status to total entropy shows the extent to which each status structures particular stages of the life course and for which groups they are more or less important. In accomplishing these tasks, the entropy index contributes a new method to the life course tool box and provides greater insight into how the life course has changed over time and differs between groups.

DATA AND METHODS

In order to examine the transition to adulthood during the twentieth century I use one-percent samples of U.S. census data from 1880 to 2000 made available from the Integrated Public Use Microdata Series (IPUMS) Database (Ruggles, Sobek, Alexander, Fitch, Goeken, Hall, King, and Ronnander 2004). I analyze each synthetic birth cohort's school attendance, employment status, relationship to household head, marital and parental statuses,[1] differentiating by gender, race, and nativity. Over the century the composition of the U.S. population has changed considerably with wide fluctuations in the percentage of the population that is foreign-born and with more gradual shifts in

[1] Marital status measures whether the individual was ever-married and does not account for separation, divorce, or widowhood. Parental status measures whether the individual resides with their own child(ren). This measure applies to both men and women which allows the entropy index to be comparable across genders.

racial composition. I analyze six groups within the U.S. population: native-born white and black and foreign-born men and women (Table 1). The relative size of other groups, such as American Indians, Hispanics, Asian-Americans and foreign-born groups, are quite small in some decades and inconsistently measured across census years. Since the entropy index requires a sizeable number of observations in each age-cohort group, I eliminated these groups from the analysis.

Table 1 about here

The analysis of the data proceeds in two steps. In the first step I construct the entropy measure of age-specific status combinations. Entropy is a measure of expected information, in this case, a combination of statuses. It has two components: information and expectation of observing information. Theil's (1972) general entropy index is calculated as:

$$E = \sum_{s=1}^{S} p_s \ln(1/p_s)$$

where S is the number of states and p_s is the proportion of the population in state s. The two components of the entropy measure are the natural log of the inverse probability of observing a particular status combination – information – and the probability itself – the expectation of information. In other words, the more unusual a particular status combination is the more we learn about the heterogeneity of the population by observing it. The summation of this measure gives us a number indicating the degree of heterogeneity of status combinations in a given age-cohort group.

To construct the entropy measure I code each individual in the census samples according to the scheme laid out in Appendix A to determine their status combination. There are 64 possible status combinations of the five variables that make up the status

combination code. I array all the possible combinations of the statuses used to constitute adulthood by age for each of the six gender-race-nativity groups in each census year and find the proportion in each cell.

These proportions are transformed using the entropy formula and summed across each age-gender-race-nativity-census year group to obtain the entropy measure. In this case maximum entropy is calculated as: $\max E = \sum_{s=1}^{S=64} (1/64) * \ln(1/(1/64)) = 4.159$.

Entropy ranges from 0 when there is perfect homogeneity (everyone is in a single status combination) to maximum heterogeneity which describes an equal distribution of cases in all the status combinations. To make the entropy measure more intuitively comprehensible I compute age-specific entropy as a percentage of maximum entropy so it represents the extent to which the status combinations are structured (closer to 0%) or not (closer to 100%) for a particular age group. For example, entropy for native-born white women in 2000 ranges from a minimum of 29.5% at age 16 to a maximum of 76.6% at age 22. In other words, at age 16 native-born white women were relatively concentrated in a few status combinations which represented only 29.5% of the maximum heterogeneity. By age 22 they were distributed into a greater number of status combinations, which represented 76.6% of maximum heterogeneity. Throughout the rest of the paper I refer to this measure as the entropy index.

To evaluate the sources of variation in the status combinations of youth the entropy index is used as the dependent variable in an ordinary least squares regression analysis. The entropy index ranges from 8.5 to 90.5 with a mean of 45.8 and a standard deviation of 14.4. It has a slight skewness of -0.08. In addition to age groups and census years, indicators of gender and race/nativity group membership are used as independent

variables. I present a main effects model and first-order interaction model to determine which differences between ages, periods, and groups are statistically significant.

In the second step of the analysis I evaluate how much a single status contributes to the entropy measure by calculating the difference between the total entropy (E_t) and entropy when one of the statuses is not included (E_r). This is divided by the difference between maximum total entropy and reduced entropy to present entropy change as a percentage of the total amount of change possible using the following formula:

$$P = \left(\frac{E_t - E_r}{\max E_t - \max E_r} \right) * 100$$

A large percentage change shows that the omitted status is relatively more important in creating entropy, either because it creates more status combinations or because a very large or very small proportion of the population holds that status. For example, at an age when student status is combined with few other statuses the distribution of the age cohort across status combinations is less than when school attendance is combined with more other statuses. In other words, if all students are single, childless, non-employed children of household heads and all single, childless, non-employed children of household heads are students then omitting student status would not change the entropy index at all since being a student completely coincides with holding the other statuses. However, if people with other status combinations are also likely to be students then the number of status combinations increases, thus increasing the entropy index. Entropy is also affected by the number of individuals holding a particular status combination; if there are very few or very many students at a given age, student status creates less entropy than if the age-group was more evenly divided by student status. Thus, the two components of the

entropy indicator become relevant to understanding how a given status is important in creating entropy. To analyze the extent to which a particular status is important in creating heterogeneity of status combinations within age-cohorts, I regress the percentage change between the full and reduced entropy, P, on all the terms in the interaction model including period, age, sex, race, and nativity and their interactions. The results of these models are graphed to facilitate interpretation.

RESULTS

Entropy analysis of status-combinations: a new approach

Static measures of the transition to adulthood show that over the course of the twentieth century there has been substantial change in the pace at which young adults proceed into adult roles. For example, the percentage of 20 year-olds holding a single status in each census year suggests that in recent years individuals experience, on average, longer duration school, later entry into the labor force among men and earlier and more entry into the labor force among women, a return to later movement out of the parental home and into one's own home, and later entry into marriage and childbearing (Table 2). This type of cohort measure, which has been used to good effect in life course research, is a useful starting point but it remains difficult to ascertain from such measures when the transition process begins and ends, and how these single statuses combine.

The entropy index of age-specific status combinations summarizes heterogeneity of status combinations at all ages to show when the process of transitioning begins, peaks, and slows down and how it has changed over time and varies between groups. Several observations can be made from the visual inspection of the graphs of the age-

specific entropy indices for men and women combining all race and nativity groups (Figures 1a and 1b). Notably, entropy ranges between 30 and 80% of maximum entropy, illustrating the degree of fluctuation in the heterogeneity of status combinations over the life course. The extent to which the life course is structured is evident in the regularity of the pattern of the entropy index: it increases after age sixteen, peaks in the early to mid-twenties, and declines thereafter, a pattern consistent with the concentration of status changes in young adulthood, thus marking the age bounds of the transition to adulthood. This age-specific pattern of the entropy index shows strong periodic tendencies demarcating three periods that correspond to those identified in the literature on the transition to adulthood. In doing so, it provides strong support for the utility of the entropy index to measure differences over time in the timing and degree of heterogeneity in the process of transitioning into adult statuses.

Three periods are evident from the clustering of lines in figures 1a and 1b. The first period lasts from 1880 to 1940, when there was relatively less heterogeneity in status combinations by age, especially for men. In these census years men's and women's entropy indices range from 25 to 55 and 62, respectively. There is a shallow peak for men in the mid-20s and for women in the early twenties. These results concur with Kett's (1977) characterization of the semi-autonomous stage of youth in the late-19th and early-20th century as reflecting an individual's attained statuses more than their chronological age. Consequently the degree of heterogeneity at any given age was relatively low since transitioning was more diffused through this age range.

The second period occurs from 1950 to1970 when the adolescent hiatus from work and family responsibilities became nearly universal through widespread secondary

school attendance and most transitions into adult statuses were highly concentrated in the early to mid-twenties (Modell 1989; Modell et al 1976; Rindfuss 1990). In this period the entropy index starts at age 16 from lower levels for men and women alike, peaks at higher levels, and returns to even lower levels than in previous decades as the transition into adult statuses became more concentrated into a short age range and the statuses associated with adolescence and adulthood were more strongly differentiated.

In the third period, lasting from 1980 to 2000, entropy levels are similar to the previous period during the teens and early twenties. However, higher entropy levels over a longer age span at ages beyond the early twenties suggest that there has been a relaxation of the structures that encouraged the early and orderly completion of the set of transitions experienced in the previous period (Buchmann 1989; Heinz 2003; O'Rand 1995). The prolongation of the transition to adulthood, in the sense that the heterogeneity of status combinations is greater for a longer age span, is clearly revealed in this graph.

From this simple inspection of the entropy index of age-specific status combinations we can see how concisely the measure summarizes the ages at which status combinations are most heterogeneous, thus approximating the timing of the period of transitioning into adulthood. However closer analysis is needed to get at several important concerns. First, are there statistically significant differences between historic periods and gender-race-nativity groups? If so, which statuses account for these differences? In the next step I use regression analysis to analyze differences between periods, age, gender, and race-nativity groups in order to address these concerns.

Differences between groups in the transition to adulthood

The regression analysis provides a simple test of whether differences between cohorts in terms of age-, period-, or group-specific heterogeneity are large enough to constitute an important change in the complexity of social pathways through the life course. The OLS regression model that contains only the main effects on the entropy index of age groups, historical period, and gender-race-nativity groups models the age distribution of entropy as constant across periods and for each gender-race-nativity group (Table 3, model 1).[2] This model is compared with a first-order interaction model in which the age-distribution of the entropy index is allowed to vary for each period and gender-race-nativity group (Table 3, model 2). Model 2 represents a statistically significant improvement over model 1, increasing the adjusted R-squared by about 12 percentage points to explain 84 percent of the variation in the entropy index. In other words, model 2 shows that the transition to adulthood was not the same for all groups in each time period. These interaction effects are best represented graphically by period (Figures 2a-c).

Table 3 and Figures 2a-c about here

Differences in the life course in the three periods are illustrated in the graphs of predicted entropy index values derived from the interaction model (model 2). These differences between periods are captured to a large extent in the distinct age-distributions of the entropy index. For example, in the first period (1880-1940) entropy values tended

[2] These models collapse age into short ranges and combine years into historical periods in order to simplify the model and preserve degrees of freedom. A full model was run with single ages and individual census years in order to determine which ages and periods were most similar. The three historical periods also were determined on the basis of the Figures 1a-b which shows three clear age-distribution patterns of the entropy index.

to be significantly higher at ages 16 and 17 and ages 26 through 45 relative to the second period (1950-1970), thus describing the flatness of the entropy measure across ages in the first period when there is less age standardization and the number of status combinations is limited relative to the second period. In contrast, the difference between the second (1950-1970) and third (1980-2000) periods is not evident as a period effect since the size of the coefficient for the third period falls to insignificance in model 2. Rather, the second and third periods differ in that the entropy index peaks at age 22 and remains higher at all older ages in the third period, reflecting the prolongation of the transition to adulthood in recent decades.

Women, on average, experience a higher level of entropy than men, though the gender gap varies by age. In general, the gap between men's and women's entropy is small at ages 16-17 when youth attend secondary school, and widens between 18 and 22, when young people elect to attend post-secondary education or not. After age 22 it narrows again and even disappears for some race-nativity groups, particularly in the first and third periods. This describes the earlier and higher peak in entropy among women that persists in each period, most likely as a result of women's earlier entry into marriage and childbearing relative to men. Native-born black women stand out with the highest levels of entropy in each period, though this gap is largest in the first period and becomes much smaller by the third period.

Race and nativity differences in entropy generally diminish, especially between the first and second periods as social structures became more universal. Generally the age distribution of entropy within periods is similar for native-born whites and the foreign-born, but native-born blacks show distinct patterns within each period. In the first period,

native-born black men experience significantly higher entropy at ages less than 23, while native-born black women experience higher entropy at these ages as well as throughout the rest of the age distribution. Native-born blacks also experience higher entropy at ages beyond 26 in the second and third periods relative to their native-born white counterparts indicating that blacks are more evenly distributed across more status combinations at these ages. The reason for these differences is likely a result of native-born black men and women's social and economic marginalization in American society and therefore their diminished access to many of the social institutions shaping the early adult life course.

Several conclusions can be drawn from the regression analysis of entropy. The three distinct historical periods observed in Figures 1a and 1b prove to be statistically significantly different from one another in the overall level and age distribution of the entropy index. Furthermore, the analysis shows that the age-distribution of heterogeneity differs between gender, race, and nativity groups in important ways that are not reflected in the literature on the transition to adulthood. Gender differences are especially evident in the first and second periods, with a convergence of men's and women's entropy levels in the third period. Nevertheless, women's earlier transitioning is consistent throughout the three periods. Age differences between race and nativity groups at young ages diminish over time, but overall differences in entropy persist, especially between native-born whites and blacks. Certainly, the fact that native-born white men experience the lowest levels of entropy in the second and third periods suggests that the experience of the transition to adulthood is more structured by social norms and institutions for this group than for others. Thus, the social science literature that focuses on native-born white

men's transition to adulthood certainly overstates the normative structure of this transition relative to other groups.

Sources of entropy

In the second step of the analysis I evaluate how much each status contributes to total entropy by analyzing the decrease in entropy when one of the status variables is removed from the index as a percentage of the maximum decrease associated with removing that status. I relate this to ages, periods, gender, race, and nativity using OLS regression to evaluate at what ages and periods and for which groups a status is more or less important in creating entropy (Table 4). From these analyses we can assess how much of total entropy is associated with school attendance, employment, household structures, marriage, and childbearing.

Table 4 about here

School attendance is a highly age-graded process that has expanded significantly over the course of the century. This is captured in the large and significant interactions between age and period which show that the age distribution of school attendance varies between periods, as can be seen in the graphs of the predicted difference in entropy between the full and reduced models (figures 3a-c). Between 1880 and 1940, school attendance contributes between 25 and 75% of the maximum possible contribution to entropy at ages 16 through 20, after which its contribution is trivial. In the 1950 to 1970 period the age distribution shifts with school attendance accounting for between 45 and 60% of maximum entropy possible at ages 16-17, rising to a peak of about 70 to 80% at ages 18, and decreasing steadily thereafter. This shift reflects the achievement of near

universal secondary education and growing participation in higher education at ages beyond 18. This pattern is enhanced in the 1980 to 2000 period, though these changes are not statistically significant. In this period school attendance contributes only 25 to 50% of maximum entropy possible at ages 16-17, but about 65 to 90% between ages 18 and 25 as higher education is undertaken by even more young people who combine it with a greater variety of statuses.

Figures 3a-c about here

Differences between gender-race-nativity groups in the amount of entropy change accounted for by school attendance are largest in the first period, but mostly disappear in the second and third periods. In the first period school attendance contributed less to entropy among blacks and the foreign-born, most likely because of their lower school attendance rates. In contrast, school attendance accounted for similar proportions of entropy for women and men within each race and nativity group. A gender gap in education opens up between men and women in the early-twenties in the second period when fewer women than men attended universities and colleges. However, this gap closes in the third period as women increasingly enter into higher education.

Unlike school attendance, employment creates entropy throughout the young adult life course, though it too is age graded. Each period is strongly marked as teenagers increasingly combine school and work and women increasingly enter the labor market (Figures 4a-c). In the first period, labor force participation among men in their late teens and early twenties is associated with a limited set of status combinations. In other words, the transition is highly structured with men establishing themselves in an occupation prior to taking on family responsibilities. Consequently labor force participation contributes

less to entropy as men move into their twenties. Even though contemporary values discouraged labor force participation among women, especially after marriage and childbearing, some women were nevertheless employed in this period. Therefore this status contributes to a greater percentage of entropy among women than men, especially among black women who were more likely to be employed at all ages.

Since secondary education became nearly universal in the post WW II periods, employment creates more entropy among teenagers as they are less evenly distributed among the various combinations of school and work (e.g., they are more likely to be only students or students and workers, and les likely to be only workers or neither student nor worker), particularly among native-born white men and women. In the second period, gender differences after the teen years are quite marked, with employment accounting for a decreasing proportion of entropy among men with age, but high levels of entropy among women at all ages. Women's higher levels of entropy at ages beyond 18 are most likely due to two patterns: lower levels of employment among women in general and the greater variety of family and non-family statuses they combine with employment.

In the third period, the greater variety of status combinations with employment is seen among men as well, particularly native-born black and foreign-born men. Notably, however, the contribution of employment to women's entropy fell significantly and continuously at ages beyond 23, suggesting that as women's employment becomes more normative, status combinations including employment are becoming more patterned, therefore they contribute less to entropy. This suggests that the social structures and norms guiding the transition to adulthood have relaxed for men and are increasingly

related to employment for women, resulting in a smaller gender gap and a greater variety of status combinations distributed more evenly across the age cohorts.

Figures 4a-c about here

Leaving the parental home, residing in non-family households, and forming new family households contribute more to entropy in the second half of the century as the possibilities for a variety of living situations have grown. Here, I evaluate the total contribution of different household relationship statuses (head of household or spouse, child, other relative, and non-relative of head) rather than evaluating each separately in order to be brief and discuss only the total effect of household relationships on entropy. As in the previous regressions, differences between periods are observed in distinct age patterns, with the first period differing most strongly from later periods (Figures 5a-c). As young people begin to leave their parents' homes and establish new residences, whether in family or non-family living arrangements, the contribution of household relationship to entropy rises, peaks, and declines. In the first period this pattern is relatively flat with a shallow peak at ages 21 to 22 among men and about 19 to 20 among women, for whom the pattern is even flatter. Race and nativity differences in the first period are mostly evident in the late teens and early twenties but diminish thereafter, particularly among men. Among the foreign-born and native-born blacks this is likely a result of the fact that many were lone young migrants, either from abroad or from southern states, and therefore were more likely to live in non-family households or with relatives at younger ages, before forming their own households.

In the later two periods, the contribution of household relationship statuses to entropy is especially intense and concentrated in the late teens and early twenties, though

there is a statistically significant shift toward later ages in the third period, as young people delayed leaving the parental home, or lived in non-family living arrangements for a longer period before becoming household heads or spouses of heads. In both post-WW II periods, native-born blacks and the foreign-born have higher levels of entropy due to household relationship statuses, however the age distribution of this gap differs from the first period; in these periods race-nativity gaps begin to widen in the early twenties and remain wide thereafter, suggesting that these groups are more likely to live in a wider variety of living arrangements after leaving the parental home. In general, the contribution of household relationship status to women's entropy is lower than it is for men's and peaks at younger ages, as a result of women's earlier ages at home-leaving and marriage. These gender, race, and nativity differences do not differ significantly between the second and third periods.

Figures 5a-c about here

The regression results for the change in entropy attributable to marital status and residence with own children reveal similar patterns to one another, therefore I examine the decrease in entropy when both these statuses are omitted in a single model (Figures 6a-c). Perhaps not surprisingly, age patterns of the contribution of marital and parental statuses to entropy differ most strongly between men and women and between periods. Since women enter into marriage and childbearing earlier than men, these statuses contribute more to total entropy in the women's teens and early twenties, though men catch up by ages 23 to 25 in the first two periods, and 26 to 27 in the third period. The gender gap between native-born black men and women is especially wide at ages less than 26 in the first and second periods but persists until ages 40 to 45 in the third period.

This is mainly a result of marital and parental statuses contributing more to entropy among black women than other women. Since parental status is measured by whether an individual lives with their own child(ren), this gap reflects the fact that native-born black men are less likely to live with their own children than other men while black women are more likely to enter into parenthood at younger ages. However, the main impression from this set of graphs is the delay in family formation – whether through marriage, residential parenthood, or both – that has occurred for men and women alike in the most recent period.

Figures 6a-c about here

The decomposition analyses provide a fuller explanation for why the three periods of the transition to adulthood appear so distinct. Differences between the three periods are strongly related to the standardization of the transition to adulthood through the nation-wide organization of secondary school systems during the first period (1880-1940), which made late adolescence nearly universal by the second period (1950-1970). The expansion of post-secondary education, especially public universities and community colleges, contributed to the de-standardization of the transition in the most recent period (1980-2000). The universality and prolongation of education made the school-to-work transition more age-graded as well. Furthermore, it placed women and minority groups in similar social pathways as native-born white men. Notably, the ages at transitioning out of the parental household and into new households consistently begins at the same ages in all three periods as a result of the process of differentiation due to school attendance and employment. But heterogeneity due to household headship status lasts longer in the most recent period (1980-2000). While causality cannot be established with the entropy

analysis of age-specific status combinations, the processes of greater differentiation for a more extended period of the early life course due to school attendance, employment, and home-leaving certainly appears to be linked to later transitioning into marriage and childbearing in the most recent period. These shifts are consistent with the thesis of standardization which argues that collective social institutions – particularly schools and labor markets – structure the life course by age. It also supports the theses of de-standardization and age-integration which suggests that the restructuring of these social institutions – particularly labor markets – results in a blurring of age boundaries and a greater differentiation within age-segments of the life course.

These analyses also demonstrate that although the differences between gender and race-nativity groups have closed for the most part – consistent with the thesis of standardization – some differences between native-born black men and women and their white counterparts persist. The contribution of employment to entropy reveals particularly wide gaps between race-nativity groups, with native-born black men and to a lesser extent their female counterparts experiencing relatively more entropy as a result of greater differentiation by employment status in the most recent period (1980-2000). These men also experience somewhat higher levels of entropy due to greater differentiation by their relationship to household head as well, suggesting that the transition to economic independence may be more difficult for them to achieve for reasons that are not evident from this analysis. Furthermore, differentiation by marital and parental statuses is significantly greater for black men and women in their late-twenties through their mid-forties. This combination of cohort differences in sources of entropy suggests that for native-born black men and women, the prolongation of the ages

at which entropy is high does not stem so much from freely elected innovative status combinations, but rather from difficulty adhering to structured pathways in the transition to adulthood.

CONCLUSION

Evolving social norms and institutions have reshaped the transition to adulthood, but the multiplicity of statuses constituting the process leaves scholars without a single definitive marker of adult status. Furthermore, life course scholars lack a methodological tool for examining cohorts' social pathways and their complexity and evolution. The entropy analysis of age-specific status combinations of synthetic cohorts which I have introduced and demonstrated in this paper addresses these concerns by focusing on twelve synthetic cohorts ranging from 1880 to 2000 and the heterogeneity of the statuses they hold at specific ages. This method provides a "big picture" of how the process of transition to adulthood has changed over the course of the 20th century.

The entropy analysis of age-specific status combinations of synthetic cohorts accomplishes several tasks. First, the ages at which the process of status transitioning begins, peaks, and slows are measured for the gender, race and nativity groups observed between 1880 and 2000, showing how transitioning became more intense and concentrated into the age range 18 to 22 between the 1880 to 1940 period and the 1950 to 1970 period, and then more prolonged in the 1980 to 2000 period. These results correspond closely to the historical and social demographic literature on the transition to adulthood demonstrating the robustness of the methodology. Furthermore, the results support the theses of standardization and de-standardization of the early life course

demonstrating the use of the method for evaluating theories of the life course. These results suggest that this method has wider applicability to other times and places.

The second task is to analyze differences between gender-race-nativity groups in the process of transitioning into adulthood. These analyses show that although generally there is convergence between groups over the three periods, some differences between groups persist or even have widened. This has several implications for current debates about the transition to adulthood. Scholars agree that the number of social pathways in the transition to adulthood has increased in the last three or four decades. However, some suggest that the multiplication of pathways results from a self-directed process of exploration of life's possibilities (Arnett 2000), while others argue that it results from the breakdown of social structures and safety nets that guide the transition (Beck and Beck-Gernscheim 1999; Buchmann 1989; Heinz 2003). Indeed, while the first explanation may apply to groups that receive the support of the social structures and norms that guide the transition, it is less easily applied to groups for whom those social structures and norms have broken down or never existed. The fact that race-nativity group differences persist, with native-born blacks experiencing more entropy in their status combinations for longer periods of the life course relative to native-born whites and that this is strongly related to their employment statuses, suggests that this is not a self-directed process but one which is tied to black's generally disadvantaged position in the labor market. Native-born whites, on the other hand, also experience entropy in their status combinations in the early to mid-twenties, but generally by later ages this entropy has diminished significantly as the social structures and norms guiding the life course have shaped their status combinations into more predictable patterns.

The third task is to decompose the sources of entropy at specific age and for specific gender-race-nativity groups. In doing so we can evaluate how the social institutions and norms indicated by individual statuses – schools, labor markets, households, and families – influence young people in each of these groups to a greater or lesser extent at specific age ranges. The historic view offered here shows how these social institutions and norms have changed over time and contributed to the standardization and de-standardization of the early life course. Closer analysis can be devoted to each of the statuses to better understand the roles of schools, labor markets, households and families in standardizing and de-standardizing the early life course.

In accomplishing each of these tasks we can better answer the question posed by Rindfuss in his 1991 Population Association of America address regarding whether the diversity of pathways followed in the early life course today represents a break from the past. Taking a long historical view we see that there were in fact three historical patterns of transition to adulthood which reflect the standardization and de-standardization of the life course through the evolution of social institutions and norms. The pattern in the latest period (1980 to 2000), the pattern to which Rindfuss refers, is indeed a break from the past. We have seen that this break has to do mainly with the ways in which social pathways are constructed after completion of secondary education. The longer period between finishing school, entering the labor force, and leaving the parental home and the entry into marriage and parenthood has been well established. However, what is evident here that is not evident from the study of single transitions is that throughout the young adult life course the heterogeneity of status combinations is simply much greater than it

has been in the past, reflecting the more flexible and de-standardized and perhaps uncertain lives of young people today.

Appendix A. Status combination variable

Status	Code
Relationship to household head: Head or spouse	1-------
Relationship to household head: Not head or spouse	0-------
Relationship to household head: Child	-1------
Relationship to household head: Not child	-0------
Relationship to household head: Other relative	--1-----
Relationship to household head: Not other relative	--0-----
Relationship to household head: Other non-relative	---1----
Relationship to household head: Not other non-relative	---0----
Marital status: Ever-married	----1---
Marital status: Never-married	----0---
Parental status: Has own child living in household	-----1--
Parental status: Has no child living in household	-----0--
Labor force status: In labor force	------1-
Labor force status: Not in labor force	------0-
School status: Attending school	-------1
School status: Not attending school	-------0

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Table 1. Frequency distributions of 1% census samples of those aged 15-45, 1880-2000

	Men				Women			
	N	% native-born white	% native-born black	% foreign-born	N	% native-born white	% native-born black	% foreign-born
1880	115,207	69.0	11.4	19.6	112,021	70.5	12.9	16.6
1900	182,712	70.6	105.0	18.8	173,405	72.5	11.6	15.9
1910	91,610	68.6	9.8	21.7	84,997	72.4	11.2	16.4
1920	248,457	72.2	9.5	18.4	242,258	74.4	10.7	15.0
1930	56,619	76.5	9.8	13.7	57,059	76.8	10.8	12.4
1940	95,224	82.9	9.5	7.6	94,005	82.5	10.2	7.3
1950	98,238	85.7	9.8	4.5	104,907	84.7	10.6	4.7
1960	343,021	86.7	9.9	3.4	358,243	85.2	10.8	4.0
1970	391,629	85.4	10.2	4.4	411,478	83.5	11.3	5.2
1980	502,929	81.9	10.8	7.2	512,296	80.5	13.3	7.3
1990	555,544	77.7	11.1	11.3	564,124	77.3	12.2	10.4
2000	565,437	70.7	12.0	17.3	565,367	70.7	12.3	16.0

Note: Percentages are weighted

Table 2. Percentage of 20-year-olds in individual statuses in each census year, 1880-2000

	1880	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Men												
% household heads	7.8	7.6	8.2	9.4	9.3	7.4	12.4	19.8	20.8	20.8	14.0	15.0
% child of head	46.2	47.4	43.1	49.2	51.0	58.2	27.1	31.6	30.8	35.9	41.4	34.9
% other relative of head	7.0	7.2	7.7	8.1	8.0	8.0	4.2	6.6	4.2	5.5	7.5	8.7
% non-relative of head	25.4	22.6	23.8	15.9	12.2	11.1	50.6	28.5	30.1	18.4	19.3	20.2
% ever-married	7.7	7.9	9.3	12.9	12.9	11.8	17.7	24.6	21.9	15.0	9.4	11.9
% with own child in hh	3.1	3.0	3.5	4.3	4.8	3.9	4.4	10.9	9.3	6.1	4.2	4.2
% in labor force	86.9	88.3	90.1	84.3	82.5	82.3	72.6	80.1	71.4	75.7	73.6	72.7
% in school	10.1	5.7	9.8	10.1	15.6	15.0	31.0	27.8	38.2	34.0	45.3	45.5
Women												
% household heads	32.5	29.8	28.3	29.5	29.1	27.9	41.1	47.0	40.2	35.1	25.4	25.2
% child of head	33.7	37.2	37.1	37.0	38.1	38.2	19.0	20.3	21.9	26.1	33.4	29.3
% other relative of head	8.3	7.7	8.3	8.9	9.7	9.0	5.3	6.5	5.0	4.5	5.9	6.7
% non-relative of head	15.1	14.1	13.4	9.7	10.3	10.0	28.1	14.2	15.4	13.8	15.3	16.9
% ever-married	38.1	35.6	35.0	39.4	40.1	39.4	49.3	54.3	44.0	31.1	19.8	19.1
% with own child in hh	24.5	20.7	21.0	21.6	21.1	19.9	21.0	35.0	25.0	19.7	16.8	14.7
% in labor force	29.8	34.4	43.8	43.2	44.1	46.9	46.0	48.8	55.9	63.7	66.6	68.9
% in school	4.2	4.4	8.3	8.8	11.7	9.4	25.9	19.6	29.0	35.2	50.1	55.0

Note: Data are weighted.

Table 3. Main effects and interaction model predicting percentage of maximum entropy

	Model 1			Model 2. Interaction Model											
	Main effects			Main effects			* Black			* Foreign-born			* Female		
	B	s.e.		B	s.e.		B	s.e.		B	s.e.		B	s.e.	
Intercept	51.2	0.8	***	50.6	1.8	***									
1880-1940	-7.3	0.3	***	-10.9	2.5	***	-0.9	3.1		-5.8	3.1		2.6	2.5	
1950-1970	-	-		-	-		-	-		-	-		-	-	
1980-2000	10.7	0.5	***	-0.9	4.5		4.8	5.5		8.4	5.5		-4.1	4.6	
Female	3.8	0.3	***	11.0	1.9	***	-0.4	0.8		-2.9	0.8	***			
Black	8.7	0.3	***	5.8	2.3	*									
Foreign	1.5	0.3	***	4.7	2.3	*									
Female															
* 1880-1940				1.9	2.0		7.3	1.1	***	-0.7	1.1				
* 1950-1970				-	-		-	-		-	-				
* 1980-2000				-2.5	3.7		-2.4	2.0		0.1	2.0				
Age 16-17	-11.8	0.9	***	-17.3	2.2	***	2.8	2.7		3.3	2.7		-7.2	2.2	**
Age 18	-	-		-	-		-	-		-	-		-	-	
Age 19-20	5.1	0.9	***	7.6	2.2	***	0.5	2.7		-0.8	2.7		-0.9	2.2	
Age 21-22	7.3	0.9	***	11.5	2.2	***	0.8	2.7		0.9	2.7		-5.6	2.2	*
Age 23-25	5.1	0.9	***	7.8	2.1	***	3.8	2.6		3.9	2.6		-10.6	2.1	***
Age 26-27	0.8	0.9		1.1	2.2		6.3	2.7	*	5.7	2.7	*	-11.5	2.2	***
Age 28-29	-2.5	0.9	**	-4.3	2.2	*	8.8	2.7	**	6.1	2.7	*	-10.9	2.2	***
Age 30-32	-6.9	0.9	***	-10.9	2.1	***	9.1	2.6	***	4.9	2.6		-8.5	2.1	***
Age 33-35	-10.6	0.9	***	-15.8	2.1	***	9.2	2.6	***	3.8	2.6		-6.5	2.1	**
Age 36-39	-14.1	0.9	***	-19.2	2.0	***	9.0	2.5	***	1.6	2.5		-4.9	2.0	*
Age 40-45	-14.9	0.8	***	-19.4	2.0	***	6.7	2.4	**	-0.7	2.4		-2.2	2.0	
1880-1940															
* Age 16-17				15.2	3.0	***	-2.1	3.7		-0.4	3.7		0.2	3.0	
* Age 18				-	-		-	-		-	-		-	-	
* Age 19-20				-5.1	3.0		-0.4	3.7		0.6	3.7		1.1	3.0	
* Age 21-22				-4.1	3.0		-1.8	3.7		-0.4	3.7		-0.2	3.0	

* Age 23-25		2.5	2.8		-6.3	3.5		-4.0	3.5	-1.3	2.8
* Age 26-27		7.3	3.0	*	-9.9	3.7	**	-5.4	3.7	-2.6	3.0
* Age 28-29		10.5	3.0	***	-11.6	3.7	**	-5.6	3.7	-4.6	3.0
* Age 30-32		13.6	2.8	***	-11.7	3.5	***	-5.0	3.5	-6.1	2.8
* Age 33-35		15.1	2.8	***	-12.3	3.5	***	-4.2	3.5	-7.1	2.8
* Age 36-39		14.5	2.8	***	-12.6	3.4	***	-1.7	3.4	-7.6	2.8
* Age 40-45		12.9	2.7	***	-10.6	3.3	**	0.2	3.3	-8.1	2.7
1980-2000											
* Age 16-17		-1.4	5.5		-2.8	6.7		-2.2	6.7	2.4	5.5
* Age 18		-	-		-	-		-	-	-	-
* Age 19-20		5.4	5.5		-4.4	6.7		-4.2	6.7	3.1	5.5
* Age 21-22		7.3	5.5		-7.0	6.7		-6.2	6.7	7.2	5.5
* Age 23-25		10.0	5.1	*	-8.3	6.3		-7.2	6.3	9.3	5.1
* Age 26-27		13.7	5.5	*	-8.0	6.7		-7.8	6.7	7.0	5.5
* Age 28-29		14.8	5.5	**	-7.1	6.7		-7.5	6.7	5.5	5.5
* Age 30-32		16.1	5.1	**	-5.5	6.3		-7.5	6.3	3.1	5.1
* Age 33-35		15.9	5.1	**	-2.7	6.3		-6.7	6.3	0.1	5.1
* Age 36-39		15.7	5.0	**	-0.1	6.1		-6.3	6.1	-1.7	5.0
* Age 40-45		12.9	4.8	**	3.2	5.9		-6.0	5.9	-2.6	4.8
N	2159	2159									
df	15	137									
P	<.00	<.00									
	1	1									
adj. R-2	0.724	0.841									

Table 4. Regression equations predicting the percentage contribution of statuses to entropy

	School attendance			Employment			Household relationships			Ever-married and co-resident parent		
	b	s.e.	Prob.	b	s.e.	Prob.	b	s.e.	Prob.	b	s.e.	Prob.
Intercept	76.7	4.1	***	80.1	3.1	***	50.8	2.6	***	9.5	2.2	***
1880-1940	-14.4	5.5	**	-18.1	4.2	***	-9.5	3.5	**	-6.6	3.0	*
1950-1970	-	-		-	-		-	-		-	-	
1980-2000	-4.5	9.9		6.0	7.6		-2.1	6.3		3.6	5.5	
Age 16-17	-27.4	4.9	***	7.5	3.8	*	-28.2	3.1	***	-5.2	2.7	
Age 18	-	-		-	-		-	-		-	-	
Age 19-20	-3.5	4.9		-17.2	3.8	***	12.7	3.1	***	12.3	2.7	***
Age 21-22	-12.1	4.9	*	-30.4	3.8	***	12.3	3.1	***	29.3	2.7	***
Age 23-25	-22.1	4.6	***	-44.4	3.6	***	1.7	3.0		43.7	2.6	***
Age 26-27	-30.3	4.9	***	-51.6	3.8	***	-9.5	3.1	**	46.9	2.7	***
Age 28-29	-35.8	4.9	***	-55.4	3.8	***	-16.4	3.1	***	44.8	2.7	***
Age 30-32	-48.8	4.6	***	-56.1	3.6	***	-22.1	3.0	***	40.2	2.6	***
Age 33-35	-55.5	4.6	***	-57.3	3.6	***	-26.8	3.0	***	36.3	2.6	***
Age 36-39	-62.1	4.5	***	-57.4	3.5	***	-30.0	2.9	***	33.9	2.5	***
Age 40-45	-65.2	4.3	***	-55.1	3.3	***	-31.7	2.8	***	37.0	2.4	***
Female	-4.2	4.2		9.6	3.2	**	2.7	2.6		15.1	2.3	***
Black	1.9	5.0		6.9	3.8		9.7	3.2	**	4.5	2.8	
Foreign	-1.8	5.0		1.1	3.8		11.5	3.2	***	0.1	2.8	
1880-1940												
* Age 16-17	37.3	6.7	***	-2.3	5.1		19.5	4.2	***	2.8	3.7	
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	-16.0	6.7	*	6.3	5.1		-2.1	4.2		-3.3	3.7	
* Age 21-22	-28.9	6.7	***	6.5	5.1		6.9	4.2		-4.7	3.7	
* Age 23-25	-29.1	6.3	***	9.2	4.8		17.7	4.0	***	-4.4	3.5	
* Age 26-27	-25.4	6.7	***	10.5	5.1	*	22.0	4.2	***	-1.6	3.7	
* Age 28-29	-21.4	6.7	***	11.6	5.1	*	24.8	4.2	***	2.2	3.7	

* Age 30-32	-8.9	6.3		11.0	4.8	*	24.4	4.0	***	5.3	3.5	
* Age 33-35	-3.0	6.3		11.7	4.8	*	23.8	4.0	***	8.0	3.5	*
* Age 36-39	2.8	6.1		10.2	4.7	*	21.7	3.9	***	8.0	3.4	*
* Age 40-45	6.0	5.9		10.4	4.5	*	19.1	3.7	***	4.9	3.3	
1980-2000												
* Age 16-17	-14.8	12.1		-2.5	9.3		1.7	7.7		-1.0	6.7	
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	19.2	12.1		3.1	9.3		8.8	7.7		0.6	6.7	
* Age 21-22	25.3	12.1	*	6.8	9.3		17.1	7.7	*	-2.4	6.7	
* Age 23-25	19.4	11.4		7.6	8.7		20.8	7.2	**	0.8	6.3	
* Age 26-27	12.8	12.1		9.0	9.3		20.8	7.7	**	9.9	6.7	
* Age 28-29	10.0	12.1		12.0	9.3		17.9	7.7	*	14.5	6.7	*
* Age 30-32	15.4	11.4		11.5	8.7		14.9	7.2	*	16.5	6.3	**
* Age 33-35	13.9	11.4		13.9	8.7		13.2	7.2		15.4	6.3	*
* Age 36-39	17.5	11.0		14.5	8.5		12.3	7.0		14.0	6.1	*
* Age 40-45	17.0	10.6		12.8	8.2		9.9	6.8		9.1	5.9	
1880-1940												
* Female	2.3	5.6		-4.1	4.3		-2.3	3.6		3.3	3.1	
* Black	-15.9	6.8	*	-21.2	5.2	***	7.0	4.3		5.9	3.8	
* Foreign	-24.3	6.8	***	-11.9	5.2	*	3.7	4.3		-0.9	3.8	
1980-2000												
* Female	-4.2	10.2		3.5	7.8		4.2	6.5		-7.0	5.6	
* Black	9.2	12.3		6.5	9.4		4.1	7.8		-2.5	6.8	
* Foreign	9.8	12.3		2.1	9.4		10.0	7.8		9.0	6.8	
Female												
* Age 16-17	0.2	4.9		-15.1	3.8	***	-1.8	3.1		-7.4	2.7	**
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	-6.2	4.9		9.7	3.8	*	-7.7	3.1	*	0.7	2.7	
* Age 21-22	-8.8	4.9		17.7	3.8	***	-12.1	3.1	***	-4.3	2.7	
* Age 23-25	-12.0	4.6	**	27.9	3.6	***	-12.5	3.0	***	-14.2	2.6	***
* Age 26-27	-10.4	4.9	*	36.7	3.8	***	-11.3	3.1	***	-21.7	2.7	***

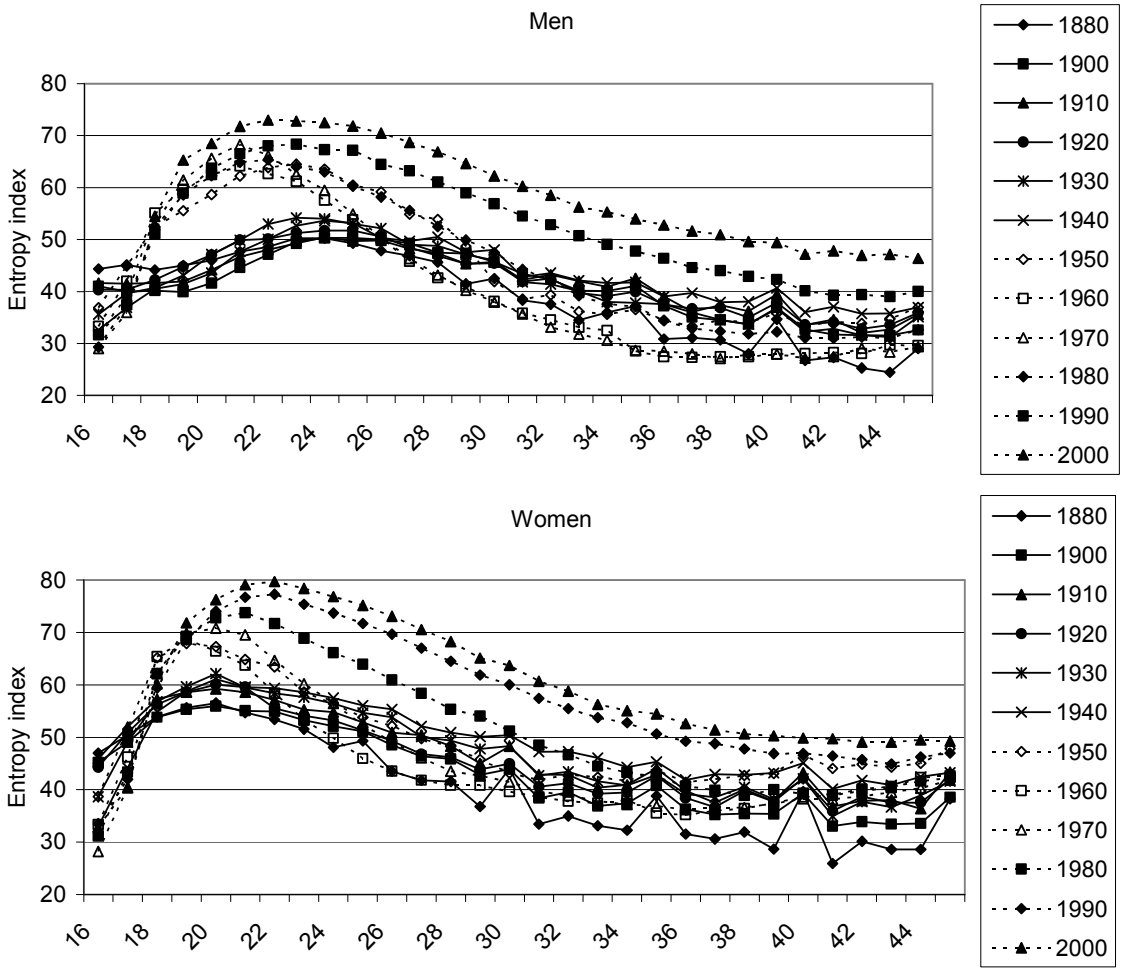
* Age 28-29	-8.2	4.9		42.4	3.8	***	-10.1	3.1	***	-24.4	2.7	***
* Age 30-32	-1.0	4.6		46.5	3.6	***	-8.2	3.0	**	-24.7	2.6	***
* Age 33-35	2.6	4.6		51.4	3.6	***	-7.0	3.0	*	-24.4	2.6	***
* Age 36-39	5.4	4.5		53.5	3.5	***	-6.2	2.9	*	-22.8	2.5	***
* Age 40-45	5.8	4.3		54.0	3.3	***	-3.8	2.8		-18.0	2.4	***
Black												
* Age 16-17	5.3	6.0		-15.5	4.6	***	10.4	3.8	**	-1.6	3.3	
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	-2.2	6.0		11.0	4.6	*	0.6	3.8		1.0	3.3	
* Age 21-22	-9.6	6.0		13.1	4.6	**	5.0	3.8		1.1	3.3	
* Age 23-25	-9.6	5.7		15.9	4.4	***	8.2	3.6	*	-1.3	3.1	
* Age 26-27	-8.2	6.0		15.7	4.6	***	10.1	3.8	**	0.5	3.3	
* Age 28-29	-5.4	6.0		16.4	4.6	***	11.4	3.8	**	2.7	3.3	
* Age 30-32	-4.5	5.7		13.8	4.4	***	10.3	3.6	**	5.2	3.1	
* Age 33-35	-3.0	5.7		11.6	4.4	**	9.7	3.6	**	6.2	3.1	*
* Age 36-39	-2.6	5.5		11.4	4.2	**	8.7	3.5	*	6.7	3.0	*
* Age 40-45	-2.6	5.3		9.6	4.1	*	7.1	3.4	*	2.5	2.9	
Foreign												
* Age 16-17	3.5	6.0		-9.2	4.6	*	9.9	3.8	*	-0.8	3.3	
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	5.1	6.0		4.1	4.6		-0.6	3.8		-3.2	3.3	
* Age 21-22	6.5	6.0		6.1	4.6		1.2	3.8		-3.0	3.3	
* Age 23-25	8.6	5.7		8.2	4.4		2.4	3.6		-1.1	3.1	
* Age 26-27	11.1	6.0		6.1	4.6		2.8	3.8		2.8	3.3	
* Age 28-29	11.6	6.0		6.6	4.6		2.6	3.8		4.9	3.3	
* Age 30-32	9.0	5.7		6.3	4.4		-0.7	3.6		6.7	3.1	*
* Age 33-35	8.2	5.7		4.0	4.4		-1.5	3.6		6.4	3.1	*
* Age 36-39	5.9	5.5		4.0	4.2		-3.8	3.5		4.4	3.0	
* Age 40-45	5.0	5.3		2.1	4.1		-5.0	3.4		0.6	2.9	
Black*Female	5.1	1.8	***	-12.4	1.4	***	-2.0	1.1		9.5	1.0	***
Foreign*Female	-1.6	1.8		-4.9	1.4	***	-6.1	1.1	***	-0.9	1.0	

1880-1940*Female											
* Age 16-17	4.3	6.7		1.3	5.1		1.5	4.2		-1.1	3.7	
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	5.3	6.7		-0.9	5.1		1.6	4.2		-0.5	3.7	
* Age 21-22	7.6	6.7		-3.4	5.1		-0.3	4.2		-3.8	3.7	
* Age 23-25	10.5	6.3		-8.5	4.8		-2.5	4.0		-4.5	3.5	
* Age 26-27	11.1	6.7		-16.1	5.1	**	-1.5	4.2		-1.6	3.7	
* Age 28-29	9.2	6.7		-20.1	5.1	***	-3.1	4.2		-2.2	3.7	
* Age 30-32	1.9	6.3		-22.4	4.8	***	-1.7	4.0		-2.0	3.5	
* Age 33-35	-1.2	6.3		-25.9	4.8	***	-0.5	4.0		-2.7	3.5	
* Age 36-39	-3.4	6.1		-24.7	4.7	***	-0.2	3.9		-3.3	3.4	
* Age 40-45	-4.5	5.9		-25.8	4.5	***	1.6	3.7		-6.1	3.3	
1980-2000*Female											
* Age 16-17	2.0	12.1		11.7	9.3		-3.2	7.7		1.9	6.7	
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	9.4	12.1		-6.5	9.3		3.7	7.7		3.3	6.7	
* Age 21-22	18.4	12.1		-12.8	9.3		2.1	7.7		8.2	6.7	
* Age 23-25	23.0	11.4	*	-20.8	8.7	*	-3.1	7.2		16.8	6.3	**
* Age 26-27	22.1	12.1		-23.9	9.3	*	-7.1	7.7		16.7	6.7	*
* Age 28-29	21.1	12.1		-28.2	9.3	**	-7.1	7.7		16.0	6.7	*
* Age 30-32	14.0	11.4		-26.7	8.7	**	-6.0	7.2		12.7	6.3	*
* Age 33-35	11.0	11.4		-30.7	8.7	***	-7.5	7.2		9.6	6.3	
* Age 36-39	7.5	11.0		-33.5	8.5	***	-7.9	7.0		8.1	6.1	
* Age 40-45	6.9	10.6		-36.6	8.2	***	-8.0	6.8		7.6	5.9	
1880-1940*Black											
* Age 16-17	4.0	8.2		22.2	6.3	***	-10.9	5.2	*	-4.6	4.5	
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	1.0	8.2		-10.0	6.3		-2.7	5.2		3.1	4.5	
* Age 21-22	12.3	8.2		-9.4	6.3		-12.9	5.2	*	4.9	4.5	
* Age 23-25	17.2	7.7	*	-4.1	5.9		-20.7	4.9	***	4.4	4.3	
* Age 26-27	18.9	8.2	*	-0.9	6.3		-25.1	5.2	***	-2.1	4.5	

* Age 28-29	17.2	8.2	*	1.5	6.3		-26.7	5.2	***	-4.4	4.5	
* Age 30-32	16.6	7.7	*	4.1	5.9		-26.0	4.9	***	-8.0	4.3	
* Age 33-35	15.7	7.7	*	5.4	5.9		-26.5	4.9	***	-9.5	4.3	*
* Age 36-39	15.0	7.5	*	4.9	5.7		-26.7	4.7	***	-10.7	4.1	**
* Age 40-45	15.7	7.2	*	4.5	5.5		-25.7	4.6	***	-7.3	4.0	
1980-2000*Black												
* Age 16-17	-14.0	14.8		1.3	11.4		-0.9	9.4		2.4	8.2	
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	-6.1	14.8		-2.3	11.4		-9.1	9.4		-4.2	8.2	
* Age 21-22	-6.2	14.8		-2.3	11.4		-16.8	9.4		-5.9	8.2	
* Age 23-25	-5.1	13.9		-0.3	10.7		-15.4	8.9		-8.0	7.7	
* Age 26-27	-3.2	14.8		-0.2	11.4		-13.5	9.4		-8.3	8.2	
* Age 28-29	-4.6	14.8		-2.0	11.4		-10.0	9.4		-6.3	8.2	
* Age 30-32	-3.8	13.9		-0.6	10.7		-8.7	8.9		-6.1	7.7	
* Age 33-35	-3.5	13.9		1.4	10.7		-4.6	8.9		-2.0	7.7	
* Age 36-39	-3.4	13.5		2.1	10.4		-0.1	8.6		1.2	7.5	
* Age 40-45	-3.9	13.0		7.9	10.0		2.9	8.3		6.5	7.2	
1880-1940*Foreign												
* Age 16-17	4.9	8.2		17.7	6.3	**	-11.5	5.2	*	2.1	4.5	
* Age 18	-	-		-	-		-	-		-	-	
* Age 19-20	6.4	8.2		-5.9	6.3		-2.3	5.2		2.2	4.5	
* Age 21-22	14.0	8.2		-6.4	6.3		-7.7	5.2		0.4	4.5	
* Age 23-25	15.3	7.7	*	-6.1	5.9		-14.9	4.9	**	-0.6	4.3	
* Age 26-27	14.2	8.2		-0.8	6.3		-17.0	5.2	**	-4.5	4.5	
* Age 28-29	15.3	8.2		1.5	6.3		-19.1	5.2	***	-6.0	4.5	
* Age 30-32	17.2	7.7	*	0.7	5.9		-16.6	4.9	***	-7.0	4.3	
* Age 33-35	18.3	7.7	*	3.9	5.9		-16.9	4.9	***	-6.8	4.3	
* Age 36-39	20.9	7.5	**	5.3	5.7		-15.0	4.7	**	-4.7	4.1	
* Age 40-45	21.0	7.2	**	6.5	5.5		-13.3	4.6	**	-1.7	4.0	
1980-2000*Foreign												
* Age 16-17	6.8	14.8		-5.2	11.4		-6.3	9.4		-0.4	8.2	

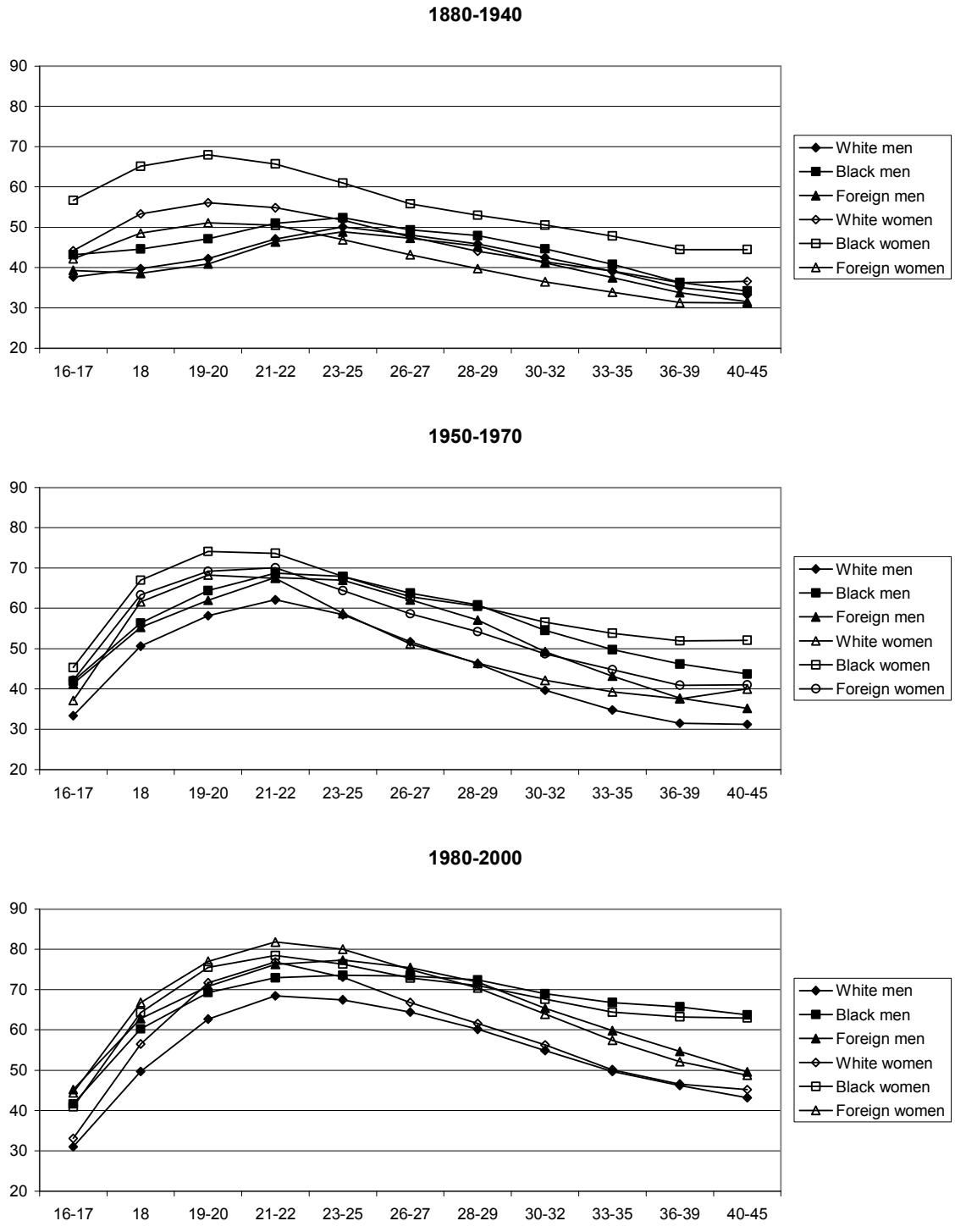
* Age 18	-	-	-	-		-	-		-	-	
* Age 19-20	-14.4	14.8	5.9	11.4		-7.4	9.4		0.0	8.2	
* Age 21-22	-21.7	14.8	8.7	11.4		-11.2	9.4		0.7	8.2	
* Age 23-25	-18.8	13.9	16.0	10.7		-9.2	8.9		-6.8	7.7	
* Age 26-27	-15.6	14.8	19.4	11.4		-7.3	9.4		-12.9	8.2	
* Age 28-29	-12.9	14.8	18.1	11.4		-6.8	9.4		-15.0	8.2	
* Age 30-32	-10.4	13.9	17.5	10.7		-7.5	8.9		-16.1	7.7	*
* Age 33-35	-6.6	13.9	18.3	10.7		-8.3	8.9		-16.2	7.7	*
* Age 36-39	-5.5	13.5	17.1	10.4		-7.8	8.6		-17.0	7.5	*
* Age 40-45	-5.4	13.0	16.9	10.0		-8.1	8.3		-15.6	7.2	*
Black female											
* 1880-1940	-4.2	2.4	47.3	1.9	***	4.6	1.6	**	-5.6	1.3	***
* 1950-1970	-	-	-	-		-	-		-	-	
* 1980-2000	0.5	4.4	-8.4	3.4	*	-4.3	2.8		1.7	2.4	
Foreign female											
* 1880-1940	1.2	2.4	5.6	1.9	**	-0.6	1.6		-3.4	1.3	*
* 1950-1970	-	-	-	-		-	-		-	-	
* 1980-2000	3.2	4.4	-1.5	3.4		0.5	2.8		-2.3	2.4	
N (d.f.)		2159 (137)		2159 (137)			2159 (137)			2159 (137)	
Prob.		< .0001		< .0001			< .0001			< .0001	
Adjusted R-square		.8118		.8743			.8346			.8612	

Figures 1a and 1b. Men's and Women's entropy indices, 1880-2000.

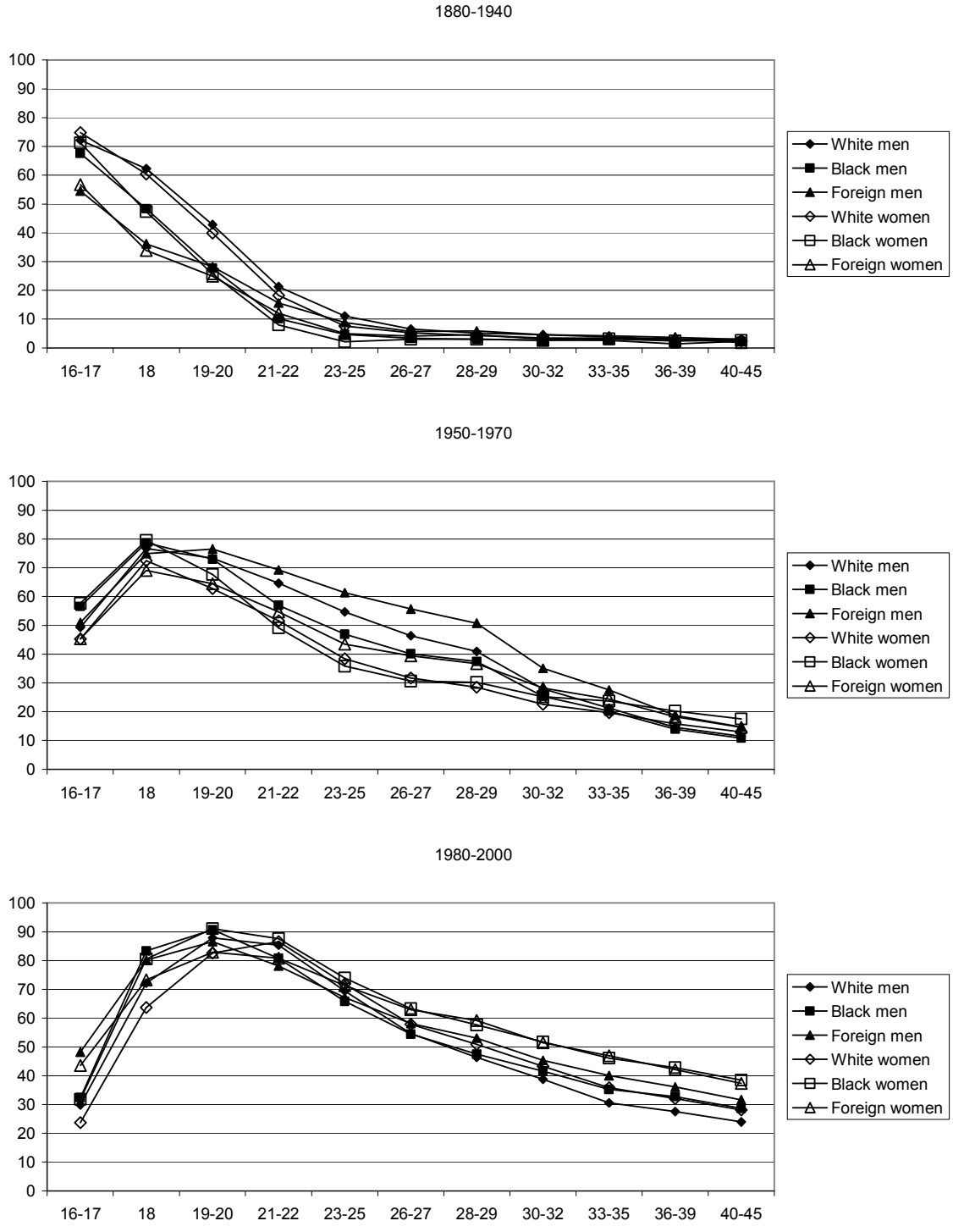


Note: Years 1880 through 1940 are marked with solid lines, while years 1950 through 2000 are marked with broken lines. The years 1950 to 1970 are indicated with unfilled markers, while the years 1980 through 2000 are indicated with filled markers.

Figures 2a-c. Entropy predicted by OLS regression for sex and race/nativity groups

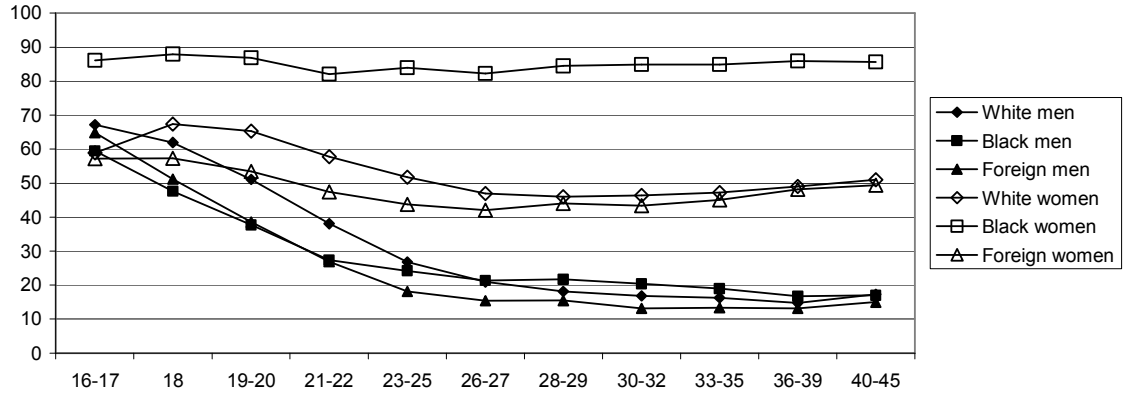


Figures 3a-c. Contribution of school attendance status to entropy index, 1880-2000.

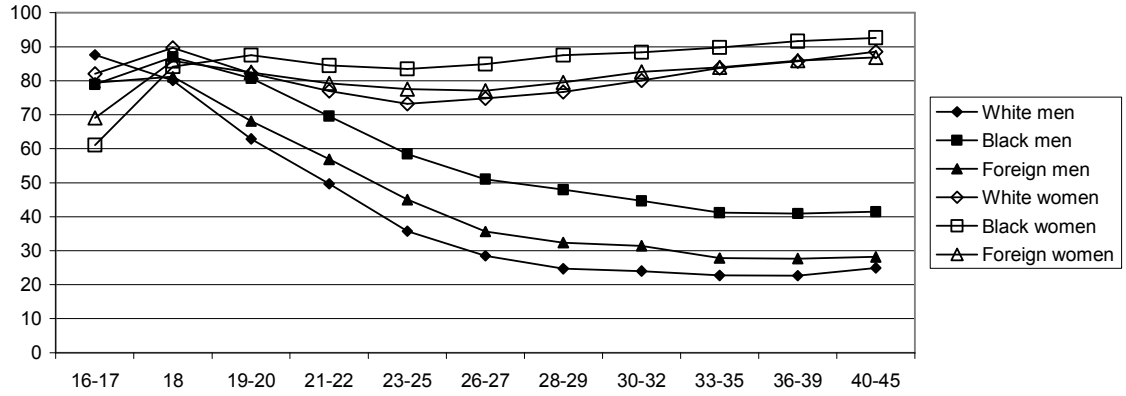


Figures 4a-c. Contribution of employment status to entropy index, 1880-2000.

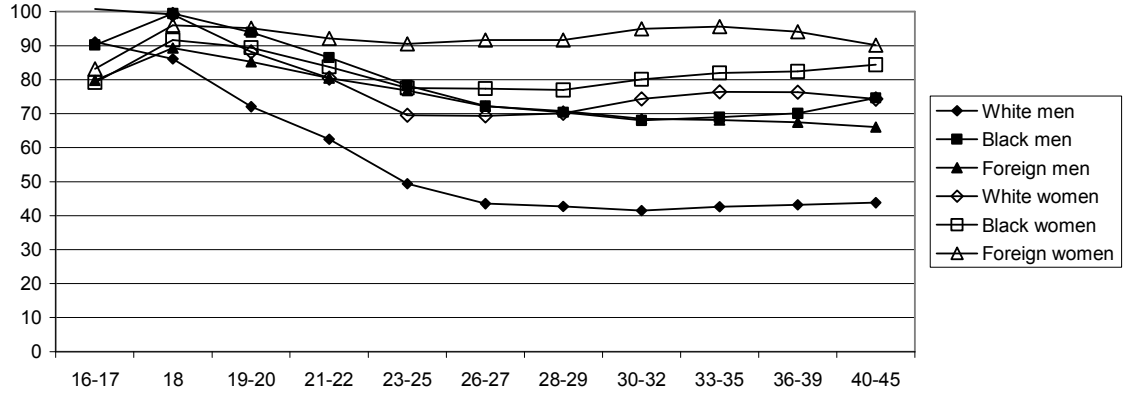
1880-1940



1950-1970

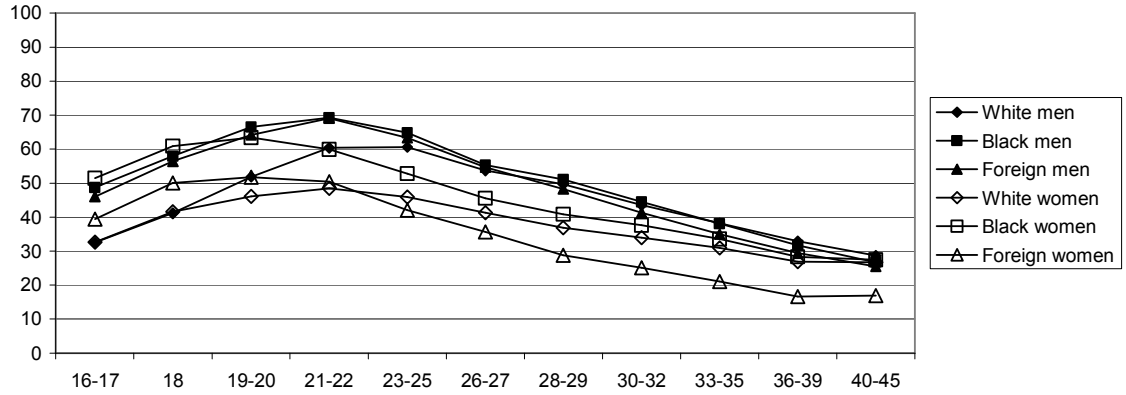


1980-2000

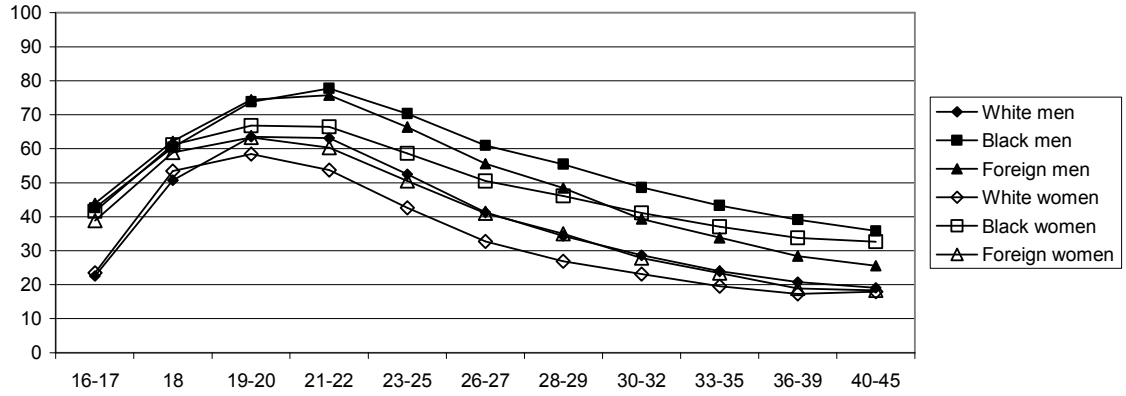


Figures 5a-c. Contribution of household headship statuses to entropy index, 1880-2000.

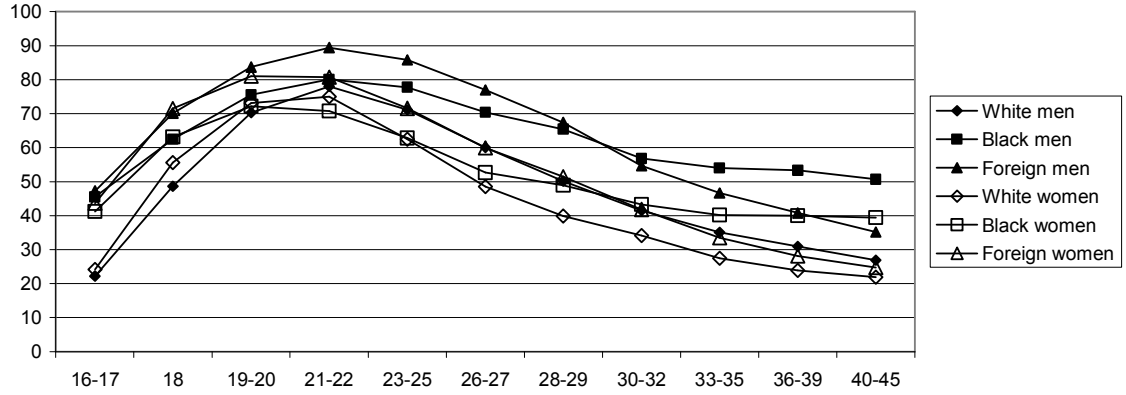
1880-1940



1950-1970



1980-2000



Figures 6a-c. Contribution of ever-married and living with own kids statuses to entropy index, 1880-2000.