Oral health is inextricably linked to overall health, though its relation and importance to general health and well-being is often underappreciated. Oral health is broad, and includes the proper functioning of the hard and soft palate, lips, salivary glands, jaws, chewing muscles, tongue, mucosal lining in the mouth, throat, teeth, and gums and all their supporting tissues in the mouth (U.S. DHHS, 2000). Untreated oral diseases can cause pain in the jaw, neck, or face and a host of other problems that may range from relatively mild (e.g., bad breath, tooth discoloration, hot/cold sensitivity) to severe (exposed nerve, cracked/broken teeth, tooth loss), and all negatively affect quality of life. Poor oral health can have a profound impact on many everyday life functions and interactions, including impairing the ability to taste, chew and digest all foods, and the ability to speak, laugh, kiss, smile, and communicate effectively. Dental status can also affect and be affected by other systemic health problems. Oral tissues are connected to the rest of the body by the alveolar, nervous, immune, and vascular systems, which are difficult systems to directly monitor. Thus, regular oral exams may yield information to help detect health problems early in other parts of our bodies, like immune system issues or nutritional deficiencies (HHS 2000- SG rpt; IOM2011). Oral diseases can also complicate the course of common conditions like heart disease and diabetes (Slavkin, 1999). Periodontal infections may account for about 18% of pre-term low birth weight babies delivered (Offenbacher et al., 1996). Clearly, the effects of poor oral health extend beyond the teeth and mouth.

Racial/ethnic minorities, who tend to be overrepresented among lower socioeconomic strata and exposed to greater health risks and fewer protective resources, experience worse oral health compared to their white counterparts {Beltran-Aguilar, 2005}. African-Americans, Mexican-Americans and other ethnic groups had a higher probability of tooth loss, gingival bleeding and periodontal disease, as well as worse perceived oral health status relative to whites based on national clinical exam and survey data from NHANES III, though adjustments for education and income reduced the risks of poorer oral health among the racial/ethnic minority groups (Sabbah, Tsakos, Sheiham, & Watt, 2009). Disparities by socioeconomic status (SES) and by race/ethnicity have been documented for edentulism and tooth loss (Cunha-Cruz, 2007; Drury, 1999; Gilbert, 2003; Jimenez, 2009; Nowjack-Raymer, 2003; Nowjack-Raymer, 2007; Wu, 2012; Wu, 2011), periodontal disease (Borrell, 2002; Borrell & Crawford, 2008), and dental caries (Adesanya, 1999; Brown, 1993; Drury, Garcia, & Reid, 2004; Wu, 2011). Disparities are also evident when examining adults' oral health status based on self-reported indices, including self-rated oral health as fair/poor (Centers for Disease Control and Prevention, 2003; Finlayson, 2010) presence of orofacial pain (Isong, 2008; Plesh, 2011a; Plesh, 2011b), and utilization of dental services. Notably, for the first time, an oral health objective (#OH-7: use of the dental care system), has been included as a Healthy People 2020 Leading Health Indicator, and is an important health marker for the nation. Regular access to services is important for disease prevention and for early diagnosis and treatment, before problems become more severe and costly and difficult to address. In 2009, less than half of adults of any age group had an annual dental visit, but this varied by sociodemographics. This research will examine temporal trends in oral health disparities.

In a seminal article recognizing the importance of social factors such as poverty, Link and Phelan (1995) argue that "social conditions are fundamental causes of disease." It follows then, that *social conditions are surely a fundamental cause of health disparities* because social and environmental factors differentially affect racial groups and race reflects the embodiment of social inequality. It is our intention to directly study the changing social conditions that lead to socioeconomic and racial/ethnic oral health disparities over time, by taking a unique demographic and methodological approach employing an **A**ge-**P**eriod-**C**ohort (APC) approach. This approach allows us to directly study period and cohort factors, while simultaneously accounting for age, which is not done in traditional trend analyses. Comparing disease burden statistics cross-sectionally across different points in time does not yield complete information about how disease levels are changing over time. Analyses of trends over time typically do not account for cohort effects, thus are missing a critical component of understanding changes in health. This analysis will identify which adult subgroups are most at risk for poor oral health outcomes, and on which social factors to intervene to make the largest positive impact on oral health. A few studies in other countries have employed an APC approach to examine dental utilization trends in Spain (Bravo, 2001) and Denmark, and changes in edentulism in Denmark (Li, Wong, Lam, & Schwarz, 2011) and Sweden (Ahacic & Thorslund, 2008). The Danish study results supported the positive impact of a national children's dental program developed in the 1970s on oral health in adulthood. The scarcity of work examining temporal dimensions in dental health within this framework in the United States highlights the importance of our study.

There is a need for disparities research that will illuminate the role of social determinants of health, rather than focus narrowly on individual determinants only. Our models will capitalize on available national clinical and self-reported oral health measures for adults of all ages, different race/ethnicities, and social statuses to fully understand and address the trends and changes in disparities and who is at risk for oral disease over time. Our work will produce new information about temporal trends in oral health disparities by accounting for cohort effects which are currently unknown. Further, our findings can quantify the contribution and impact of various social determinants to racial/ethnic and socioeconomic adult oral health disparities. Results can then be used to inform the development of broad intervention strategies or support policy changes aimed at changing upstream social determinants.

Temporal Dimensions: Age, Period, and Cohort. It is crucial to distinguish between age, period, and cohort when considering dynamic social change over time, but to date, period and cohort factors are often ignored in health disparities research. Our paper is innovative in that it is guided by a social demographic approach that appreciates the independent effects of age, period, and cohort on health. Each factor has a potentially dynamic and unique effect on population dental health and accounting for each while controlling for the other is an *essential* part of any analysis that investigates change over time and reflects these changes accurately. Extant population health and health disparities research has tended to focus on the aging process as it relates to health outcomes (e.g. Manton & Gu, 2001). One's age (A) is an indicator of the biological aging process which brings about internal physiological change due to an accumulation of exposure, genetic manifestation of disease, or the natural breakdown of the human body (Yang, 2007). Age may also be associated with changes in status, social roles, and social position (Yang & Land, 2008). Increasing age is associated with health declines at the individual level and an increase in mortality rates at the population level. This focus on aging is obvious and appropriate. However, given that aging is a proxy for accumulated exposure, stress, and disadvantaged social roles that stem from external sources shaped by the social-political and technological environment, individual aging processes can have differential impacts on population sub-groups (e.g. socioeconomic and racial groups) over time. Period (P) effects represent changes over time that affect the entire population, regardless of age, simultaneously, but perhaps not equally. Period effects include such historical events as wars, labor market characteristics, economic fluctuations, diffusions of new technology, the introduction of new social programs (e.g. Medicare, Medicaid) or other policy changes, and the development of new dental treatments and procedures (Yang, 2007). Past research has tended to focus on changes over *interview years* from longitudinal data as the only source that contributes to the temporal dynamics of health. Treating survey years (i.e., periods) as the marker of time seriously confounds age, period, and cohort and is not an appropriate representation of the full set of potential temporal changes in health disparities. Often absent in the extant literature are cohort trends. Individuals born during similar periods and entering into pre-existing social systems can be conceived of as a birth cohort. Cohort (C) effects—defined in this research proposal as *birth* cohorts—represent variation between time periods among individuals who are born in similar years and experience similar formative environments (Yang & Land, 2008). While birth cohorts move through life together and experience similar historical and social events, not all *members* of the same cohort experience the same social processes and interactions—as such, the US is wrought with persistent oral health disparities.

Methodological Approach: Age, Period, and Cohort Models. In spite of the conceptual relevance of APC analysis to studying health disparities, this framework has not been widely used previously due to the statistical difficulty of simultaneously disentangling the effects of age, period, and cohort. However, through the use of repeated cross-sectional national surveys and the application of new analytical techniques that allow us to specify a cross-classified random effects model (CCREM), we are able to overcome the limitations of conventional APC analyses. Models can be specified that include individual demographic characteristics and health behaviors as well as period factors. We will be able to explore and account for dynamic change in the composition of individuals in a population subgroup (i.e., white females) *and* social change and the implications of social changes on each new generation. It will be possible to examine disparities for different subgroups and explain gaps across cohorts and the contribution of different covariates to those disparities. This methodology will allow us to use APC models to investigate the ebb and flow of disparities over time and make three innovative improvements to the study of oral health disparities by race and socioeconomic status. First, disentangling age, period, and cohort will allow us to model temporal trends by following successive birth cohorts and investigating the specific time periods when cohorts were able to minimize disparities as well as time periods when disparities were largest. Second, we can explore both demographic and behavioral explanations for these disparities. In short, we can determine which known risk factors were most important in explaining disparities for each successive birth cohort and explore the historical conditions that each cohort was subject to. Third, and most importantly, we can include a host of potential period and cohort characteristics in an attempt to explain oral health disparities as a function of social determinants in the broader socio-economic environment. The products of this innovative approach will tell us: 1) when racial and socioeconomic disparities were largest and smallest, 2) which behavioral and demographic factors were most important and how these may have changed over time, and 3) which social conditions are most important in increasing and decreasing oral health disparity.

Potential Social Determinants of Oral health (Period and Cohort Characteristics). Societal and environmental influences are simultaneously experienced by all members of the population and they are often associated with shifts in population health including oral health. Very few studies, segregation/health studies notwithstanding, directly model the effects of larger social conditions on individual-health outcomes as we propose to do here. Linking the changes in societal influences such as prejudice, segregation, socio-economic conditions at birth, for example, will help to determine whether some of these factors influence the changes in oral health rate across years and whether these factors are at least partially responsible for socioeconomic disparities in oral health. It is our intention to collect data from various sources and merge them by either survey year (period—aggregated to the years of NHANES data collection) or birth year (cohort—aggregated if necessary by 5-year cohort bands).

Economic Conditions at Birth. Extant literature suggests that poor economic conditions early in life negatively impact health, cognitive functioning, and survival at older ages (Case & Paxson, 2009; Doblhammer, van den Berg, & Fritze, 2011; van den Berg, Doblhammer, & Christensen, 2009; van Den Berg, Lindeboom, & Portrait, 2006). Specifically, it is hypothesized that poor macro-economic conditions at the time of birth, such as periods of recession, can act as a household stressor, reducing available resources, medical care and nutrition and increasing exposure to diseases. On the other hand, boom periods may ensure optimal infant (or fetal) nutrition, health and development. This early health then, in turn, is expected to have long-term implications for survival. Related to household stressors, Miller and Chen (2010) find that being raised in harsh family environment is associated with a greater pro-inflammatory phenotype over time. Doblhammer and colleagues (2011) argue that the pro-inflammatory phenotype can create an allostatic toll resulting, long-term, in a higher risk of chronic diseases. As they are exogenous at the individual level, business cycle effects at birth on later health and mortality avoid the simultaneity bias of individual level socio-economic conditions and health and are argued to be causal in nature (van Den Berg et al., 2006). It is also well known that recessions disproportionately affect Blacks and using this cohort measure may help to explain disparities.

Relative Cohort Size. Members of larger cohorts are expected to experience persistent disadvantages stemming, in part, from the consequences of increased economic competition once the cohort enters the labor market (e.g. higher unemployment and lower wages) (Easterlin, 1978, 1987). O'Brien and colleagues (1999) also argue that large cohorts put extreme demands on the school system and community resources. Beyond the stressors of economic competition on cardiovascular health, a natural extension is that larger cohorts also stress the health care system, having consequences for the quality and quantity of medical care available. Research indicates that cohort size is associated with a number of indicators of disadvantage, from homicide and property crime rates to individual earnings (R. M. O'Brien, et al., 1999; R.M. O'Brien, 1989; Welch, 1979).

Other cohort and period characteristics. Related to the pathways we discussed for economic conditions at birth, early exposure to infectious diseases can also lead to chronic inflammation which in turn influences health, including the risk of cardiovascular disease, and mortality (Crimmins & Finch, 2006; Finch & Crimmins, 2004; McDade, Rutherford, Adair, & Kuzawa, 2010). Research finds that infant mortality rates generally, or at least those directly due to infectious diseases are related to a host of adult health conditions (Case & Paxson, 2009; Forsdahl, 1977). Thus, we will examine cohort measures of the infant mortality rate and the rate due specifically to infectious diseases as a marker of the infectious disease climate at birth—we can use race-specific rates to determine its effect on disparities. Our current project is also exploring a host of other potentially important social conditions (i.e., period and cohort measures) that could ultimately account for racial disparities in oral health prevalence, including: Social Attitudes (fairness, meritocracy); Macro-Economic Effects (Consumer Price Index, food costs, inflation, unemployment, and income inequality as measured by the Gini coefficient); Medical Technology (introduction of new dental therapies, spending on advertising); and Medicaid/SCHIP expansion. Having considered a host of factors that may determine socioeconomic disparity in oral health, we now turn to a discussion of our data and selected variables.

Data. We use the Integrated National Health Interview Series (IHIS) compiled by the University of Minnesota as our primary data source. NHIS contains a normalized set of National Health Interview Survey (NHIS) variables that have consistent coding across each survey year to facilitate temporal analysis. The NHIS respondents consist of a nationally representative sample of non-institutionalized adults in the U.S. The NHIS is a sample of nearly 100,000 adults per year and currently includes more than 30 waves of data collection. Cohorts span between 1895-1975 are represented in this data set, also allowing for a rich comparison of cohorts across time. While survey year was clearly identified in NHIS, we were able to precisely estimate the period (survey year) and the cohort (year when the respondents were born). This is an advantage over the NHANES data which exact period and cohort cannot be precisely estimated. We also use NHANES, to check the robustness of self-reported measures with clinical ones as well as the explanatory power of a richer set of controls, an integrated NHANES data set (IHANES) which combined multiple NHANES waves into a single analytical file by normalizing variable definitions across waves.

Measures. Although our paper will eventually include other outcome measures of dental health, we begin with a measure of whether the respondent was completely edentulous. This variable is available in both NHIS and NHANES datasets. In NHIS, the edentulism variable is self-reported. Individuals who reported loss all upper and lower natural teeth were considered edentulous. For NHANES, we determined the edentulous status by counting the number of teeth that were "not present" or "replaced (including implant)." Regardless of the reason (e.g. decay, periodontal disease, or implant) for missing a tooth, as long as the total count for missing teeth is 32, we considered a person is edentulous. We use a continuous measure of age as well as an age squared term. Age was top-coded in all waves to eighty-five[1]. The mean age of our sample is approximately 48 for men and 49 for women; Blacks are, on average, approximately one to two years younger (46.9 and 47.2, for men and women, respectively). Period, defined as survey year, is measured as a series of dummy variables with 1972—the first available year of oral health data—as the omitted category. We group individuals into 5-year cohort bands based on their year of birth to break the linear dependence between age, period and cohort. We define these cohorts by their midpoint; for example, the "1950 cohort," which is used as the reference category, includes individuals born in 1948, 1949, 1950, 1951, and 1952. The average respondent comes from the 1940 cohort (born in 1938-1942).

We also include a number of indicators of socioeconomic status and household structure as well as a control for geographic residence. A series of dichotomous indicators capture marital status, including: *married*, *never-married* and *other* (widowed, separated, or divorced). A continuous measure of household size was also included; on average family size is approximately 3 individuals. Regional indicators control for residence in the West, South, Northeast, and North Central/Midwest (West=reference). An individual's highest level of education is captured by: less than a high school degree, high school degree, some college, and college degree or higher. Respondents were asked whether they were part of the labor force during the preceding one to two weeks (before 1997 the reference period is two weeks, thereafter it is one week). From this question we created indicators of employment: employed (includes "has a job but is not currently working"), unemployed but looking, and unemployed, not looking for work. We also consider anyone sixty-five and older who is not employed or looking for work retired. We also include a measure of family income adjusted for household size and Consumer Price Index[2]. We include indicators of missingness for marital status and income. We also examine a richer set of behavioral measures using NHANES as part of our robustness checks (See Appendix Table 1).

We examine six measures of cohort characteristics (See Appendix Chart 1): relative cohort size, health and economic conditions at birth. Following O'Brien and colleagues (1999),

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[1] We also estimated age-restricted models to age 84 which showed a similar pattern of results. Models without a standardized top code yielded slightly more modest age disparities among men, but all other results were similar.

[2] As only interval level family income is available for the range of years we utilize, we first recode each category to its midpoint. Unfortunately, the top code for family income changed over time. Until 1981, the highest possible income category was "$25,000 or more"; whereas in later waves the top code was $50,000 or more (through 1996), $75,000 or more (through 2006), and $100,000 thereafter. We allowed top codes to vary over time; results with a consistent top code ($25,000) yielded similar results. We then adjust income for economies of scale by dividing family income by the square root of household size. We then rescale for inflation dividing income by ($CPI_{\text{year of survey}}/100$), with 1982-1984 as the reference point (Bureau of Labor Statistics, 2010).

we measure relative cohort size by the percent of those 15 to 64 who are 15-24 when the cohort entered the labor market (age 15 to 19). This captures the relative size of the cohort to the overall labor force pool as well as accounting for crowding or competition for jobs from those slightly older. This measure is limited in that we cannot capture the extent to which blacks and whites may not be competing for the same jobs or the same pool of resources within any given cohort size (i.e. for school funding, hospitals, etc). Following Doblhammer, van den Berg, and Fritze (2011) and a broader literature on measures of aggregate economic conditions, we capture economic conditions at birth using the natural logarithm of the cyclical component of the real GDP per capita. To obtain these estimates we apply the Hodrick-Prescott filter with smoothing value of 500 to time series data derived from historical GDP estimates (Maddison, 2010). Using IPUMS decennial census data (Minnesota Population Center) from 1900 through 1980, we create race-specific measures of the percent of children under a year old whose parents report they were born in the South, the percent living in large families (6 or greater members), and the percent living on a farm. We linearly interpolate measures between censuses. We also used historical infant mortality rate tables from the National Vital Statistics System (CDC/National Center for Health Statistics, 2012; Grove & Hetzel, 1968; Lindner & Grove, 1943) to construct our cohort measures of infant mortality rates. Before 1933, rates include only those states that had death registrations, thereafter all states are included. Rates specific to the black population are not available before 1960, available inconsistently during the 1960s, and consistently after 1968. Although there is not a sizable discrepancy between rates in 1959 when all non-Whites were aggregated and 1960 when Blacks were listed separately, the infant mortality rates that we use to approximate black IMRs before 1960 are biased by the inclusion of other non-White infants. For each cohort characteristic, we standardized the measure to allow comparisons across measures. Our final paper will also examine the role of period characteristics which we are currently developing.

Method.

Cross-classified random effect models. The first strategy will be to examine oral health disparities by SES as well as gender and race for each of the temporal dimensions (APC). In order to do this, we will specify a cross-classified random effect model (Yang and Land 2006) that directly models age, but nests each individual into their appropriate year of interview (period) and year of birth (cohort). We have specified models in the past by using multi-year groupings of both period and cohort and find very little variation between models. Given that we do not directly estimate cohort and period effects, perfect collinearity (i.e., the identification problem; Age=Period-Cohort) is no longer a problem in the models. However, we are able to recover period and cohort estimates by using Empirical Bayes predictions of the random intercepts by calculating predicted cohort/period effects through adjustment of the random effects intercept estimates by the model intercept and other covariates in the model. We then stratify the models by SES, race and gender and calculate a disparity as the difference between the predicted trends.

We first estimate simple trend models, which have the potential to answer the following questions: Which cohorts experience the greatest socioeconomic and racial disparities? Which periods experience the greatest disparities? Which effects are more important in generating the observed temporal patterns in health disparities: period or cohort? And importantly, what are the possible sources of cohort and period effects that would be consistent with the observed patterns.

We then test specific cohort and period factors that are thought to explain both oral health disparities on average and any potential contribution to the temporal patterns in disparities due to cohort and period effects. In other words, we directly examine the culpability of various social determinants of oral health disparities. Specifically, we will model individual oral health status through several clinical and self-report indicators as a function of period and cohort characteristics, net of individual-level adjustments. These models will answer the following questions: which social determinants of health (economic factors, attitudinal factors, segregation, etc.) are most important in explaining oral health; which social determinants of health are most important for explaining oral health disparities and how much of the residual disparity is explained by social determinants; do period and cohort characteristics affect all people equally (cross-level interaction effects)?

Decomposition Methods. Our second approach to studying the dynamic changes in oral health disparities is to conduct a multivariate decomposition to partition the difference in average oral health status by socioeconomic status and racial/ethnic group by cohort into components that reflect measured compositional differences between groups and differences in the "effects" of covariates that are included in the model. That is, we will discern the extent to which the gross difference is due to compositional differences between the groups (i.e., differential distribution of observed characteristics across cohorts) or due to changes in the magnitude of association between the model predictors (covariates) and the health outcome (i.e., changes in the return to risk). Due to by race/ethnicity, varying rates of immigration, and differential aging patterns, these approaches will be crucial in determining whether the temporal patterns of health are due to changes in the demographic distribution socioeconomic groups or due to other possible external social/cultural/technological factors that could modify the effects of measured covariates. This is yet another analytical step to motivate hypotheses that may explain the observed temporal health patterns.

For each cohort, we will estimate a multivariate decomposition model that predicts the disparity in our dental health outcome; when the outcome is nonlinear we will rely on an appropriate variant developed by Fairlie (1999). This decomposition strategy is repeated and summarized across the range of our birth cohorts. Our covariates will include, but will not be limited to: age, marital status, race/ethnicity, income, and employment status. All of these measures are available in all of the datasets proposed for use. Additionally, when available, we will use a set of behavioral variables and decompose disparities by: nutrition, smoking status, level of food security, and other potential risk factors such as dental utilization. This approach will answer the following questions: Are changes in socioeconomic oral health disparities largely due to changes in the capital of successive cohorts, or do disparities decline outright? What sources of individual capital are most important for leading to declines in disparities (e.g. medical care access, age, or income)? What types of capital are responsible for increases in health disparities over time? For which types of oral health outcomes does individual capital matter more? Which behavioral factors are most important in predicting oral health disparity and do these change across cohorts?

These innovative statistical models, applied to repeated cross-section of NHIS and NHANES data, have the potential to markedly improve our understanding of temporal trends in oral health disparities and the social factors that lead to larger (or smaller) disparities over time. The examination of disparity by birth cohort (simultaneously adjusting for age), the use of cohort/period characteristics (social determinants of health), and the application of new statistical models allows for an appropriate upstream approach to the study of oral health disparities that has never been studied, and places the focus for health disparities back on social factors, rather than blaming the victim as many prior studies do.

Preliminary Results. We estimate a simple model for edentulism with no covariates other than age and age squared in Chart 1 and note that the period trends are relatively flat for blacks, with women having the highest probabilities and men the lowest of all groups. Whites show slight declines in edentulism during the 1990s, with very small uneven declines thereafter. These differences across periods, however are extremely small and the trends are relatively flat. After including covariates, the trends between white men and black women converge while the period trends for white women are now the highest. The declines seen in the age only model for whites are now flat, suggesting they were in part compositional in nature. The baseline cohort model (Chart 3) shows that edentulism has been in steady decline across cohorts, as expected. Before accounting for socio-demographic characteristics and health behaviors we find that black women have higher predicted probabilities of edentulism across all cohorts through the 1950 cohort; white women and men show lower (and similar) trends across cohorts, converging with black women around 1950. After accounting for a host of factors (Chart 4), black men's probabilities are reduced somewhat across cohorts. In contrast, trends for white men are now similar to those of black women even among earlier cohorts; most dramatically white women now have the highest probabilities across all cohorts.

Chart 1: Period Trends in Edentulism from Age Only Model, by Race (IHIS)

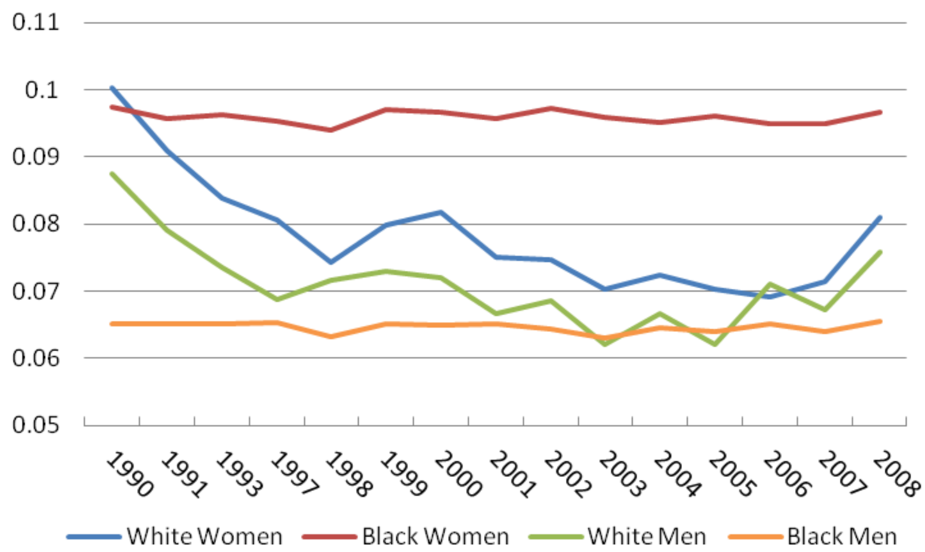


Chart 2: Period Trends in Edentulism from Full Model, by Race (IHIS)

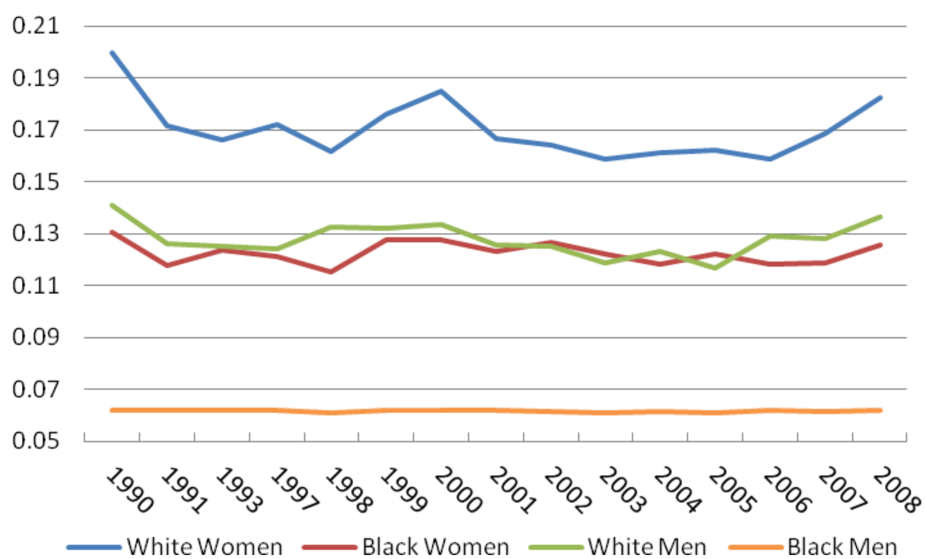


Chart 3: Cohort Trends in Edentulism from Age Only Model, by Race (IHIS)

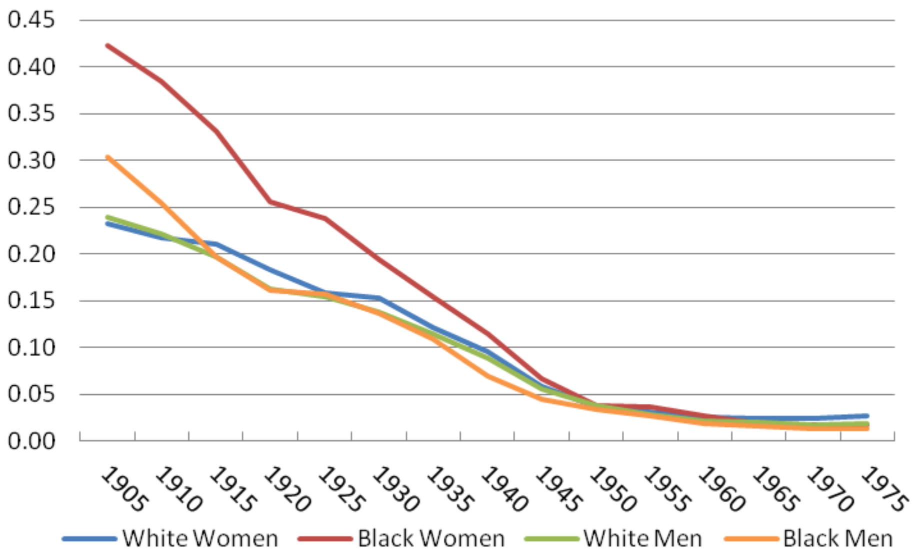
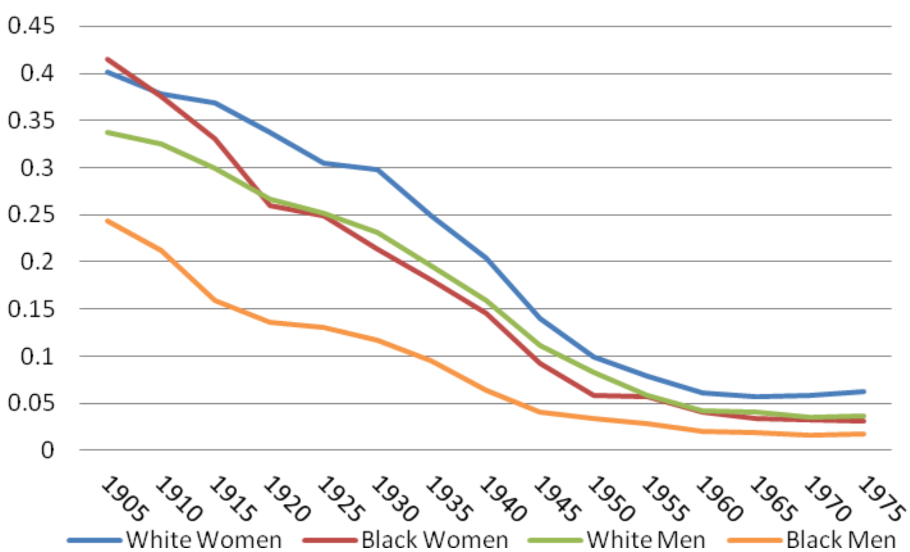


Chart 4: Cohort Trends in Edentulism from Full Model, by Race (IHIS)



Appendix Table 1: Selective Measures and Data Availability Across 6 NHANES Waves (1988-2008).

	NHANES WAVES					
	3	4	5	6	7	8
Health Behaviors						
1) **Smoking status** (non-smoker, pervious smoker, current smoker)	X	X	X	X	X	X
2) **Smoking at home** (yes/no)	X	X	X	X	X	X
3) **Number of days had 5 or more drinks in past 12 months**	X	X	X	X	X	X
Nutrition Variables						
1) **Dietary fiber**	X	X	X	X	X	X
2) **Carbohydrate**	X	X	X	X	X	X
3) **Fat**	X	X	X	X	X	X
4) **Fruit and vegetable consumption** (need to collapse various types of vegetables and fruits)	X	X	X	X	X	X
5) **Junk food** (need to collapse various categories)	X	X	X	X	X	X

NHANES WAVE 3 (1988-1994); NHANES WAVE 4 (1999-2000);
NHANES WAVE 5 (2001-2002); NHANES WAVE 6 (2003-2004);
NHANES WAVE 7 (2005-2006); NHANES WAVE 8 (2007-2008).

Appendix Chart 1: Descriptive Trends in Cohort Characteristics