

CHANGING NATURE OF WORK: A COMPARISON OF WORKER VALUES AND WORK CHARACTERISTICS

by

JORGE MARIANO LUMBRERAS

(Under the Direction of Brian J. Hoffman)

ABSTRACT

The present study provides the first simultaneous examination of changes in worker values and work characteristics. Using the Hierarchical Age-Period-Cohort (HAPC) model, this study provides evidence of changes over time that are attributable to the aging process, generations, and/or the context of time period. This model is applied to the General Social Survey, a nationally representative database which includes relevant data on full-time workers. The results show that worker values and work characteristics are affected by age, time period, and generational cohort, with more changes being associated with time period rather than birth year.

INDEX WORDS: Changing nature of work, Generations, Hierarchical age-period-cohort model, Worker values, Work characteristics

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Chapter 1

INTRODUCTION

In the past decade, scholars have paid increased attention to the rapidly changing workforce and workplace (Wegman, Hoffman, Carter, Guenole, & Twenge, 2018). In the management literature, research has typically examined changes through the lens of generational differences. Studies of generational membership examine how specific birth cohorts in the workplace differ (Lyons & Kuron, 2014) in terms of their traits, values, and attitudes. In contrast, sociologists and economists have more often examined changes through the lens of context. This research has typically described how the US employment situation has changed and its impact on how work is done, emphasizing changes in macro-economic factors (Molloy, Ployhart, & Wright, 2011), such as technology (Autor, Levy, & Murnane, 2003), the occupational composition of the economy (Acemonglu & Autor, 2011), structure (Gregory & Milner, 2009), complexity, and global competition (Wegman et al., 2018). However, these streams of research have remained relatively siloed, with limited integration between the generational and contextual interpretations of the changing nature of work.

A primary reason for generational differences holding so much attention is the generational diversity in the current workforce and the impending retirement of the Baby Boomer generation. Generations are defined as cohorts born within the same time-period, whose common experiences and contexts are thought to shape their shared values (Mannheim, 1952). The generation born between 1940-1959—commonly referred to as Baby Boomers and is a particularly large generation—is exiting the workforce due to old age and retirement. A younger

generation— commonly referred to as Millennials, those born between 1981 and 2000— has and is currently entering the workforce. By the end of this decade, cohorts born after the Baby Boomers (i.e., after 1959) will overtake Baby Boomers as the largest segment of the American population (Fry, 2015; 2018) and already make up the bulk of the American workforce (DeSilver, 2017). This shift has made generational differences increasingly salient, and there has been much discussion of how organizations should adapt key processes in order to more effectively recruit, manage, motivate, and retain Millennials (e.g., Gurchiek, 2016; Lipman, 2017; Pappas, 2016; Rampton, 2017). However, until a more complete understanding of generational differences is achieved, such alterations to management systems are ill-advised (Costanza & Finkelstein, 2015).

Although generational membership has been studied as an antecedent to differences in workers, changes in work characteristics themselves have received far less empirical attention in the management literature. This is unfortunate, as there is a growing consensus that work context plays a critical role in a variety of important outcomes (Johns, 2006; 2018) such as organizational citizenship behaviors, leadership, or communication. Indeed, although limited, a recent cross-temporal meta-analysis (Wegman et al., 2018) provided among the first evidence stemming from the management literature of changes in job characteristics. By considering changes in the context and nature of work being done, it is possible to gain a better appreciation of challenges faced by the modern workforce.

The first objective of this direct comparison will help to answer the overarching question of whether frequently discussed changing nature of work is attributable to changes in worker characteristics, changes in work characteristics, or both.

This study advances past management research in two important ways. First, this is among a few studies to include data relevant to both work and worker characteristics. Specifically, this study simultaneously examines changes in work values, an individual difference variable commonly examined by generational research, and changes in work characteristics, a key variable emphasized by sociologists and economists in their investigations of the changing nature of work. Second, this study will adopt a methodological approach that allows for the disentanglement of multiple sources of variance associated with change overtime. Early research on generations (e.g., Cennamo & Gardner, 2008; Jurkiewicz, 2000; Macky, Gardner, & Forsyth, 2008; Wong, Gardiner, Lang, & Coulon, 2008) has used cross-sectional designs which confounds age and generation. The limited research using more appropriate time-lagged or repeated cross-sectional designs (Smola & Sutton, 2002; Kowske, Rasch, Wiley, 2010; Leuty & Hansen, 2014; Twenge, Campbell, Hoffman, & Lance, 2010) has used statistical approaches that confound changes due to age, period, and generational effects. Whether an observed change is attributable to age, period, or cohort has critical implications for the meaning, interpretation, and practical implications of any observed changes (Bell & Jones, 2014; Yang, 2011). Thus, even when existing research on changes over time does show changes, the interpretation and implications of these changes is ambiguous. To address these limitations, this study adopts the Hierarchical Age-Period-Cohort (HAPC) model (Fienberg & Mason, 1979; Yang & Land, 2006) as an analytic tool, which will allow for the determination of whether changes in job characteristics and/or changes in worker values are attributable to the effects of age, period, or generation.

In sum, the current study will make three contributions to the literature. First, this study provides the only direct comparison of the magnitude of changes in work characteristics to

changes in worker values. Next, this study will disentangle changes in worker values and work characteristics due to age, period, and cohort using a Hierarchical Age-Period-Cohort model.

This will help to address a key confound in past research on the changing nature of work and in doing so, provide a more accurate estimate of the source of previously observed changes.

Finally, these changes are examined using a nationally representative database (i.e., the General Social Survey) to provide a more comprehensive analysis than afforded by past studies.

Chapter 2

LITERATURE REVIEW

Age, Period, and Cohort Effects

Age, period, and cohort (APC) effects describe changes observed in time-lagged data. (Yang, 2011). Age effects are physiological or developmental changes that occur due to the physiological aging process and are evident in cross-sections of people who are of a certain age, regardless of the time period or generation. For example, vocabulary knowledge increases quadratically with age, evidence that someone gains a larger vocabulary as they get older through experience (Wilson & Gove, 1999; Yang & Land, 2006). Period effects affect all people living at a given time, regardless of age or cohort and reflect changes in contemporary social and historical conditions. Evidence of a period effect exists through the September 11th terrorist attacks and the subsequent effect it had on American worker's job attitudes (Ryan, West, & Carr, 2003). Finally, cohort effects (or generational effects) reflect common experiences of individuals who undergo similar macrosocial influences throughout their early lives. Research on these effects include younger cohorts (Millennials) being more interested in extrinsic and leisure rewards as opposed to older cohorts (Baby Boomers) who value intrinsic characteristics of their work (Twenge et al., 2010).

A generational cohort is made up of anyone born within a particular time period, typically based on the following categories: "The Silent Generation" (1925-1942), "Baby Boomers" (1943-1960), "Generation X" (1961-1981), and the "Millennials" (1982-1999) (Perry & Urwin, 2010). Most of this research has focused on Baby Boomers, Generation X, and Millennials, due to their presence in workforce, as the Silent Generation makes up only 3.7% of

the US workforce as of 2015 (Fry, 2015). Much of this research has focused on a challenge for organizations in the retirement of more than 75 million workers, the Baby Boomers, and their subsequent replacement by the Millennials (Twenge, Campbell, Hoffman, & Lance, 2010). Mass retirement is an issue by itself for organizations but is compounded by the need for older workers to continue working well beyond the standard age of retirement (i.e., 65 years) in the U.S. (Cappelli, 2003; Dencker, Joshi, & Martocchio, 2008). This issue is the driver behind the research on generations and subsequently work values of these individuals.

A central challenge in research examining change over time is that effects due to age, cohort, and generations have frequently been confounded (Bell & Jones, 2014; Dencker, Joshi, & Martocchio, 2008) in existing research using conventional methods such as cross-sectional studies (e.g. Jurkiewicz, 2000 or Park & Gursoy, 2012) or even time-lagged data (e.g. Smola & Sutton, 2002 or Leuty & Hansen, 2014). The first confound I discuss in detail has been common in generational research, the confound of age and birth cohort effects. For instance, many generational studies used cross-sectional surveys and compared individuals who were at different ages when they completed the survey (e.g., Becton, Walker, & Jones-Farmer, 2014; Park & Gursoy, 2012). However, with cross-sectional surveys, age and birth cohort effects are perfectly confounded and thus, any observed generational differences could be due to developmental differences that occur as one ages, rather than birth cohorts. Some studies have used time-lagged designs, which can entail asking individuals of the same age (e.g., high school seniors; Johnston, Bachman, & O'Malley, 2006) a common set of questions at different points in time (e.g., in 1975, 1985, and 1995). By holding age constant, this design eliminates the age & birth cohort confound. However, using this type of design, results in a complete confound between the time period and the birth cohort.

Finally, the *General Social Survey* (GSS) is a repeated cross-sectional design that surveys individuals of different ages at a given point in time over multiple time periods. The GSS is nationally-representative of the American population aged at least 18. Specifically, participants were asked questions related to work every 8-9 years from 1989 to 2016 (GSS, 2018). The HAPC model can simultaneously estimate age, period, and cohort effects from repeated cross-sectional data (Yang, 2011; Yang & Land, 2006; Twenge, Carter, & Campbell, 2017), such as the GSS. In doing so, the confounds that have plagued past studies can be avoided.

Work Values and Work Characteristics

The present study focuses on period and generational effects in two types of variables: work values and work characteristics. Although the majority of management research on temporal changes has emphasized generational changes in individual difference variables, such as work values (e.g., Twenge, 2010; Twenge et al., 2010; Campbell, Twenge, & Campbell, 2017), recent research has begun exploring how the work context itself may have changed over time (e.g., Acemonglu & Autor, 2011). To our knowledge this is the first study to simultaneously compare changes in work values to changes in work characteristics and the first to do so using methods that allows for the disentangling of period and generational effects (and age effects).

Work values are “generalized beliefs about the relative desirability of various aspects of work and work-related outcomes” (Lyons & Kuron, 2014, p. 144). Work values give an indication of what people desire from their job and what they will find motivating. Likewise, understanding changes in work values will give an indication of how the motivating potential of various incentives and work characteristics have changed for workers in different time periods and/or for workers from different generations.

Toward this end, in recent decades both scholars and the popular press have frequently proposed changes in work values in new generations of workers. Below I summarize evidence pertaining to each of the work values examined here. The present study uses items from the GSS (see Tables 1 & 2), which are broadly indicative of various types of extrinsic, intrinsic, and autonomy work values as well as matching work characteristics. This categorization is consistent with past generational research (i.e., Twenge et al. 2010; Lyons & Kuron, 2014).

As noted by reviews of generational differences by Parry & Urwin (2011) and Lyons & Kuron (2014), the vast majority of past studies have used an analytic model or design that confounds age, generation, and/or period effects. Consequently, it is difficult to draw firm conclusions concerning whether work values have changed over time and to localize the cause of observed changes. This is unfortunate, as it is possible that instead of generational changes in work values, what has occurred is period-based changes in work values. As an example, Wegman et al. (2018) provided evidence that autonomy has increased since 1976 and like other papers focusing on work characteristics, assumes this change is due to changes in work itself. Without looking at work and worker characteristics simultaneously, it is impossible to conclude whether time period is the answer (or only answer) as opposed to possible cohort effects.

The generational change perspective posits that individuals born in the same birth cohort have experienced similar life events during pivotal developmental experiences and thus, have similar values. Alternatively, it is also possible that any changes in work values are associated with time periods. For instance, it is possible that macro contextual changes (e.g., a strong or weak economy) have a significant impact on values across members of the populations, regardless of age or birth cohort. This study provides the first direct analysis of whether changes in work values are associated with period or birth cohort effects by using an HAPC model.

In contrast to research on how generation's work values have changed, more recent research has examined how the context of work (i.e., job characteristics; Wegman et al., 2018) has changed. Context is defined as any "situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables (Johns, 2006, p. 386)". Context can be further defined in the form of omnibus and discrete contexts. Omnibus context is higher-level, broad, and consists of several features, for example the work economy. Discrete context is lower-level and refers to specific situational variables, such as how a job is affected by unemployment rates. Theoretically, features of the omnibus context that have changed over the years are assumed to have yielded changes in the local or discrete context. For instance, as technology has increased the ability to complete job tasks from anywhere at any time, many commentators have proposed or reported increases in autonomy (e.g., Howard 1995, Matos & Galinsky, 2012, Wegman et al., 2018). The present study will directly examine changes in discrete context using methods that allow for the disentanglement of period and generational effects.

Existing research on changes in work context has generally assumed that observed changes reflect period effects (e.g., Barnes, Lefter, Bhawe, & Wagner, 2016; Johns, 2018). That is, this research assumes that over time, the omnibus context has changed and that this has resulted in changes in the tasks workers complete and the discrete context in which they complete their tasks on a day-to-day basis. Wegman et al. (2018) conducted a cross-temporal meta-analysis and reported that mean levels of work characteristics have indeed changed over time, specifically that workers have increased perceived levels of skill variety, autonomy, and interdependence and interpreted their findings as indicative of period-based differences. However, cross temporal meta-analyses confound period and generational effects; it is also

possible that changes in work context could be due to generational changes. For instance, it is possible that observed changes in context reflect that workers from different generations are assigned to, attracted to, or actively craft jobs with different characteristics than workers from other generations. For example, Millennials may have a greater value for autonomy (Cennamo & Gardner, 2008) and thus, are granted more autonomy from their supervisors. On the other hand, if Boomers do not have a greater value for autonomy, they might be attracted to jobs and organizations with more structure. Although just an example, the critical point is that, like generational research, it is possible that research on changes in context has misattributed the cause of any observed changes by not explicitly modeling both period and cohort effects.

Chapter 3

THE PRESENT STUDY

This study uses APC analyses to disentangle generational from period effects in frequently proposed changes in worker values and work characteristics using a nationally representative sample of American workers with four time points (1989, 1998, 2006, & 2016). Based on the available data from the General Social Survey, the present study adopts the broad categories of extrinsic, intrinsic, and autonomy to define work values and work characteristics. This choice of items was based on items that were available across the four time periods, as well as items that were measured both as values and as work characteristics (See Tables 1 and 2). Below, evidence on changes in each of these work values and work characteristics are summarized.

Extrinsic values/characteristics

Extrinsic values/characteristics refer to the desire for and presence of material and individualistic rewards separable from the activity of work itself (Ryan & Deci, 2000), such as compensation, advancement opportunities, and job security. There are reasons to expect both generational changes in worker values and period-based changes in work characteristics. In the present study, measurement of pay, opportunities for promotion, and job security are used to operationalize extrinsic value/characteristics.

Previous research has claimed that extrinsic values have increased, or become more important, for younger generations (Krahn & Galambos, 2014), but said research is based on designs that confound either age and cohort or cohort and period effects. For instance, Hansen &

Leuty (2012) concluded that the value placed on extrinsic rewards had increased in more recent generations by comparing participants based on their birthyear; however, this study did not seek to disentangle period from cohort effects, making conclusions regarding the meaning and implications of observed changes ambiguous. Additionally, a Flynn effect for personality points to increases in traits associated with high income for younger birth cohorts (Jokela et al., 2017), which would increase the value associated with extrinsic rewards. Twenge et al. (2010) compared high school seniors work values in 1976, 1991, and 2006 using a time-lagged design. Their results showed a small to moderate increase in the value for extrinsic rewards. They interpreted this as evidence of a generational change associated with increasing narcissism, such that young people are more materialistic and entitled and thus, more motivated by factors such as pay and benefits.

Importantly, although some authors find support for increases in narcissism (e.g., Twenge, Miller, & Campbell, 2014), others have questioned these findings (e.g., Roberts, Edmonds, & Grijalva, 2010; Wetzel, et al., 2017). So, as of now, the literature does not allow a definitive conclusion. In addition, although Twenge et al. (2010) primarily interpreted their findings with respect to generational differences, since period and generation were confounded, it is possible that the changes they observed in value for extrinsic rewards were reflective of a period effect such that a higher proportion of modern workers, regardless of age or generation, value extrinsic rewards.

Indeed, there is reason to predict a period effect associated with value for extrinsic rewards. There has been much discussion in recent years of wage stagnation and income inequality. Since the 1970's wages of US workers have been relatively flat, and this is particularly pronounced for the lower- and middle-class workers. At the same time, the cost of

many goods such as education, housing, and health care has increased, and wages have not kept up with these increases. The net result is what has been referred to as a middle-class squeeze (Bergeron et al., 2014). In other words, a substantial portion of workers are less able to buy essential goods and services with their paychecks than they were in previous years. In addition to this, starting in the 1970's we saw an increasing demand in requiring a college education to be competitive in the job market, or at least to avoid unemployment (International Labour Organization, 2015). As educational costs increased, many modern workers enter the workforce having relied on student loans and subsequently accumulated debt (Houle, 2014). Given income stagnation and that many workers enter the workforce in more debt than in past years, it is possible that there is a period effect associated with value for extrinsic rewards; such that the average worker, regardless of age or generational membership, will place a greater value on extrinsic rewards relative to past years.

Overall, this could be a trend towards desiring more extrinsic rewards to maintain a living amid increasing educational debt, wage stagnation, and overall increased cost of living (Bergeron et al., 2014). Together, given these omnibus trends, we predict that the value for extrinsic rewards has increased in recent years. On the other hand, it is unclear whether the expected increase is rooted in a generational effect that will only impact a subsection of the population or instead rooted in broader period effects such that, on average, modern workers will place increasing value on extrinsic rewards.

Hypothesis 1: Value for high income, promotion opportunities, and job security have increased over time.

Research Question 1: Are changes in the value for high income, promotion opportunities, and job security more associated with period effects or generational effects?

Although few studies have examined work characteristics, there is also reason to expect that the degree to which workers perceive that their job provides adequate extrinsic rewards has changed. As mentioned above, wage stagnation has been on-going for forty years (Mishel, Gould, & Bivens, 2015). In addition, in the past decade, the populous has become increasingly aware of wage stagnation as evidenced by the Occupy movement of the mid 2000's and the populist political movements of the past few years. In fact, in one of few studies to examine employee perceptions of their pay, a recent cross-temporal meta-analysis suggested that satisfaction with pay and promotion opportunities evidenced a trend toward decreasing in recent years (though this trend was statistically non-significant; Wegman et al., 2018). Given increasing levels of income inequality and apparent wage stagnation, we predict that employees will perceive their work as providing lower levels of extrinsic rewards, such as wage raises or the opportunity to advance in recent years.

It is possible that observed changes could be generational, or cohort based. For instance, it has become increasingly common for people to attain degrees in higher education over the past two decades (International Labor Organization, 2015). In addition, the cost of college has increased, and Millennials start work with much higher levels of debt relative to earlier generations. Thus, it is possible that Millennials will perceive that their jobs do not provide sufficient extrinsic rewards to meet their needs. This would manifest in lower perceived levels of extrinsic rewards.

As a final form of extrinsic reward, I also examine changes in job security. Job insecurity has become of increasing interest to academics in recent years. Through the 1990's and 2000's it was estimated that 2000 and 4000 employees were laid off every day in the U.S. (De Meuse & Dai, 2013). At the same time, the number of workers are a part of unions decreased (Bureau of

Labor Statistics, 2019), and labor laws have generally made it easier to downsize employees (Shoss, 2017). Globalization, an omnibus trend, is considered an antecedent to job insecurity as it means potential outsourcing of jobs or decreased demand for one's job. Overall, trends of downsizing, decreased union support, and outsourcing of jobs are some of the antecedents that would contribute to increased job insecurity. Thus I expect to see decreased provision of job security for workers overall. We are not aware of any research discussing this issue in the context of generations versus period effects and thus, the analysis of potential reasons for changes in job security will be exploratory.

In sum, although we expect a decrease in the degree to which one's job is perceived as providing extrinsic rewards, it is unclear whether this decrease will manifest as a period or generational effect. Thus, we examine whether period or generational effects are stronger as an exploratory question.

Hypothesis 2: Employees perceive a decrease in the degree to which their work provides high income, job security, and promotion opportunities.

Research Question 2: Are changes in perceptions of work providing high income, job security, and promotion opportunities more associated with period effects or generational effects?

Intrinsic Values/Characteristics

Intrinsic values and characteristics are those which are related to the process of work, or the work itself (Ryan & Deci, 2000), such as intangible rewards or features of the work that provide interesting work. In the present study, interesting work, helping others, and helpfulness to society are used to operationalize intrinsic values/characteristics of work.

Research on intrinsic work values has been mixed in the context of generational research. When looking at the values of high school seniors in a repeated cross-sectional design, Millennials (or younger cohorts) were found to place less value on intrinsic rewards than either Baby Boomers or GenXers (Twenge et al., 2010). However, the effects they observed for intrinsic rewards were small, and their data did not allow for them to distinguish generational from period effects. Intrinsic values may be more connected with age than cohorts according to research by Krahn and Galambos (2014), which asked questions to two cohorts at both ages 18 and 25.

To be sure, any decrease in value for interesting work would be surprising, as intrinsically motivating work has previously been linked to employee satisfaction in the US (Huang & Van de Vliert, 2003). One possible explanation is that as the economy has moved to a more knowledge-based economy (Powell & Snellman, 2004), so many jobs already provide a relatively high level of intrinsically motivating work. It may be the case that the US is experiencing a period where jobs have been enriched to the point that intrinsic values have been met with sufficient supply. Theoretically, intrinsic motivation is focused on the present and so fulfillment of said motivation may lead to a decrease in value; prosocial motivations are focused on the future and so workers may reflect on these motivations after sufficiently fulfilling the desire to help others (Grant, 2008). On the other hand, past research and theory have consistently supported a positive association between intrinsically motivating work and outcomes (Crawford, LePine, & Rich, 2010; Humphrey, Nahrgang, & Morgeson, 2007). In addition, various theories, such as self-determination theory (Deci & Ryan, 1985) and demands-resources theories (Demerouti et al., 2001) propose that interesting work that provides the opportunity to help others is highly valued by individuals.

Another aspect of intrinsic work values, altruistic values are those which focus on helping others and, more generally, society through the process of work (Twenge et al., 2010). In one of few studies to examine changes in value for altruism, Twenge et al. (2010) provided no evidence for a shift in generational value for altruistic work. However, again, that study did not allow for the disentanglement of period and generational effects, potentially masking important differences. Proposed increases in narcissism across cohorts suggests have led some to suggest that altruistic values would have dropped among younger generations (Twenge et al., 2008; Twenge & Campbell, 2008). The rationale is that narcissism is associated with greater selfishness and thus, that it would be incongruent for individuals with greater narcissism to also be more altruistic (Twenge, 2013). At the same time, others propose that the value for altruism has increased based on increasing volunteerism among high school students (Twenge et al. 2010) and increasing focus on corporate social responsibility initiatives to recruit millennials (Boston College Center for Corporate Citizenship, 2012). Considering the conflict between empirical evidence and theory, a hypothesis for changes in intrinsically motivating work is not offered and instead, changes in intrinsically motivating work is examined as a research question. To better tease apart the period and cohort effects of intrinsic values, the HAPC will be applied to better understand potential changes.

Based on the above evidence, we argue that the value for intrinsic rewards has decreased over time and it is unclear whether this decrease will manifest as a period or generational effect. Thus, we examine whether period or generational effects are stronger as an exploratory question.

Research Question 3: Has the value for interesting work, helping others, and usefulness to society decreased over time and if so, are these changes associated with period or generational effects?

Even with few studies examining changes in work characteristics over time, there is reason to believe that the degree to which jobs *provide* intrinsic rewards has increased. First, with the increase in knowledge work, the economy has shifted to more professionally oriented work. In addition, as organizations adapt to frequently changing economic conditions, workers are asked to fill in multiple organization roles and learn new tasks and methods. Indeed, Wegman et al. (2018) found that skill variety had increased over time. Given that the use of a multifaceted skill set is associated with interesting work (Ryan & Deci, 2000), it seems likely that, on average, workers will report that their jobs have gotten more interesting in recent years.

Next, as technology has replaced mid-skill jobs, the proportion of the economy engaged in helping professions has increased (Autor & Dorn, 2013; Dwyer, 2013; Powell & Snellman, 2004). For instance, personal care aides are listed as one of the fastest growing jobs in the US economy (Bureau of Labor Statistics, 2019). In addition, organizations have recently begun to actively seek ways integrate altruism into employees work in the form of CSR initiatives (Aguilera, Rupp, Williams, & Ganapathi, 2007). Together, the increase in personal care-related jobs and the shift toward CSR initiatives is expected to result in an increase in the worker perceptions that their jobs provide an opportunity to behave altruistically. Although we expect an increase in the degree to which one's job is perceived as providing intrinsic rewards, it is unclear whether this decrease will manifest as a period or generational effect.

Hypothesis 3: Employees perceive an increase in the degree to which their work provides interesting work, opportunities to help others, and a sense of usefulness to society.

Research Question 4: Are changes in perceptions of work providing intrinsic rewards more associated with period effects or generational effects?

Autonomy Values/Characteristics

Autonomy refers to the degree a job provides freedom and independence in both scheduling opportunities and employees making decisions (Hackman & Oldham, 1975) and is thought to be a primary value and motivator for workers (Ryan & Deci, 2000). The GSS includes two items relevant to value for autonomy in the form of flexible working hours and working independently.

In terms of generational effects, Millennials are thought to be more in tune with technological advances, having been raised in an environment surrounded by smartphones and the internet (Hershatter & Epstein, 2010). This includes the ability to work from home through utilization of email, chat applications, and online databases. This means that younger cohorts may value the autonomy that technological advances have brought more so than previous generations, who also are impacted by these advances but embrace them at a slower pace (Morris & Venkatesh, 2000).

Although Millennials may value technology more, increasing use of technology is a trend which can affect all workers in the form of a period effect. Due to an increase in dual income families, autonomy in scheduling has become increasingly necessary to aid employees simultaneously manage work and family demands. Dual-income families have increasingly become the norm (Byron, 2005; Raley, Mattingly, & Bianchi, 2006) which generally coincides with issues regarding child-care and how to provide it. Being able to work from home, or scheduling autonomy, helps resolve some of this issue allowing either parent to provide care during work hours (Tausig & Fenwick, 2001). Work hours have become longer over time in the US, which fuels this issue (Families & Work Institute, 2006; Johnson & Lipscomb, 2006). With both parents generally working, mothers are still the primary caregiver for children and so

women (and, by extension, dual-income families) especially would value scheduling autonomy as well as further independence at work (Byron, 2005). Overall, we expect value for autonomy at work has increased across time, but it is unclear whether this increase will manifest as a period or generational effect. Thus, we examine whether period or generational effects are stronger as an exploratory question.

Hypothesis 4: Value for independence and flexible working schedules will have increased across time.

Research Question 5: Are changes in value for independence and flexible working schedules more associated with period effects or generational effects?

The GSS provides a single item pertaining to provision of autonomy (over the course of all four years), which is whether employees feel independent at work. As organizations have downsized (Cascio, 2002) and flattened their structures (Rajan & Wulf, 2006), several changes have occurred for workers. The first being that jobs are more focused on core tasks while peripheral or non-essential tasks can be outsourced, contracted out, or removed entirely (Clott, 2004; Davis-Blake & Broschak, 2009). As organizations have become flatter, workers not only report to fewer authorities, but they are increasingly independent in their decisions. These changes in the work context means workers will *need* to be more independent as they are increasingly responsible for core tasks and have fewer direct reports to receive guidance or permission from. Evidence within Wegman and colleagues (2018) cross-temporal meta-analysis evidence supports independence in the workplace increasing over time within the US since 1975.

We expect there to be an overall increase in autonomy in the form of independence within work. We also explore the question of whether changes in perceptions of workplaces providing more autonomy are period- or cohort-based.

Hypothesis 5: Employees perceive an increase in the degree to which their work provides independence.

Research Question 6: Are changes in perceptions of work providing independence more associated with period effects or generational effects?

Chapter 4

METHOD

The General Social Survey (GSS) is an American survey group which has collected data between 1972 and 2016. Each year, a different set of questions, called modules, is asked of US adults aged 18 and older. The present study is interested in the Work Orientation Module, which asks directly about work values and work characteristics. The Work Orientation Module was asked in 1989, 1998, 2006, and 2016. We were interested in identifying a common set of questions to facilitate year to year comparisons but prior to 1989, there were few common questions. Accordingly, we begin our analysis by using this set-up for a repeated cross-sectional design. I will be using the cross-sections from 1989 (N=710), 1998 (N=650), 2006 (N=818), & 2016 (N=684) who identified themselves as working full-time (i.e., 30 hours or more at their main job) and answered the Work Orientations modules. As noted by GSS developers, oversamples of Black Americans were taken in 1982 and 1987 but did not affect the analyses conducted here.

Work Values

The GSS includes the Work Orientations module which contains 8 items on the importance of work values to an employee (see Table 1). Response choices are (1) *very important*, (2) *important*, (3) *neither important nor unimportant*, (4) *not important*, (5) *not important at all*, *can't choose*, and *don't know* (*can't choose* and *don't know* will be treated as missing data) with the preface, "For each of the following, please tell me how important you personally think it is in a job. How important is...". Each item will be reverse-coded to allow for

ease of interpretation. All questions were the same across the four years that the Work Orientations module was used, except for the question regarding flexible working hours which changed from “How important is a job with flexible hours?” in 1989 to “How important is a job that allows someone to decide their times or days of work?” every year after.

Each value has been categorized based on the framework argued above (i.e., extrinsic, intrinsic, and autonomy) but will be measured at the item-level based on available data.

Work Characteristics

We use 7 items from the GSS Work Orientations module to operationalize work characteristics (see Table 2). Response choices are (1) *strongly agree*, (2) *agree*, (3) *neither agree or disagree*, (4) *disagree*, (5) *strongly disagree*, *can't choose*, and *don't know* (*can't choose* and *don't know* will be treated as missing data) with the instructions, “For each of these statements about your (main) job, please tell me how much you agree or disagree with it as it applies to your job”. Each item will be reverse-coded to allow for ease of interpretation. All questions were repeated every year and are meant to mimic the work values. The exception is the autonomy characteristic of flexible working hours which was not repeated outside of 1998.

Each characteristic has been categorized based on the framework argued above (i.e., intrinsic, extrinsic, and autonomy) but will be measured at the item-level based on available data.

Other Variables

The GSS also asks about respondents' sex, race, marriage, and education (years in school). Following past studies using the HAPC model (e.g., Donnelly et al., 2016), these items will be used as fixed effects to examine whether they influence any of the variables of interest across all years of the study. See Table 3 for demographic information.

Data Analysis Plan

Consistent with past research on time-based changes that have used the GSS (i.e., Twenge, Campbell, & Carter, 2014; Donnelly et al., 2016; Twenge, Carter, & Campbell, 2017) to examine time-based changes, all analyses will be conducted at the item-level. To determine if any values or characteristics have changed over time, analyses of all items will be conducted using analysis of variance (ANOVA).

Data will be further analyzed using a Hierarchical Age-Period-Cohort (HAPC) model within the statistical package HLM 7 (Raudenbush, Bryk, Cheong, & Congdon, 2011). HAPC models are a form of hierarchical linear modeling which simultaneously account for variance attributable to age, which is nested within birth cohorts and the time period/survey year (Yang, 2006; Yang & Land, 2013; Donnelly et al., 2016; Twenge, Carter, & Campbell, 2017). Variance in the dependent variable (e.g., values or characteristics) attributable to the effects of interest is accounted for by treating age as a fixed effect while time period and birth cohort are treated as random effects (LoPilato 2015; Twenge, Carter, & Campbell, 2017).

More specifically, the following model details how we will predict each outcome variable, Y (value or characteristic) from age, for each person, i , in each birth cohort, j , for every survey year/time period, k (Donnelly et al., 2016):

$$Y_{ijk} = \beta_{0jk} + \beta_{1jk}(\text{Age}) + \beta_{2jk}(\text{Age}^2) + \beta_{3jk}(\text{Married}) + \beta_{4jk}(\text{Education}) + \beta_{5jk}(\text{Black}) + \beta_{6jk}(\text{Otherrace}) + \beta_{7jk}(\text{Female}). \quad (1)$$

Age is standardized using z-scores in Model 1, which also incorporates the quadratic effect of age. This is further expanded on by including marriage (married or not), education (highest year of school completed), race (Black or Other according to the GSS), and sex as fixed effects. The next model, Model 2, demonstrates how we can estimate unexplained variance in Y attributable to birth cohort and time period:

$$\beta_{0jk} = \pi_0 + b_{00j} + c_{00k}. \quad (2)$$

Model 2 allows us to see that the Model 1 intercept, β_{0jk} , serves as a function of the mean of Y , as well as a time period and birth cohort residual (LoPilato, 2015).

Time period is defined by the individual years in which the GSS asked questions from the Work Orientations Module (GSS, 1989; 1998; 2006; 2016). Birth cohort is a single variable of birth year, i.e. year surveyed minus age or when the variable birthyear is provided. Birth cohorts based on birth year can be compared to conventional generational groupings (e.g., Millennials, GenX, and Baby Boomers) and the use of birth years is recommended to avoid failures in detecting cohort effects (Twenge, Carter, & Campbell, 2017).

Table 1. Work Values

Category	Item
Extrinsic	How important is high income?
Extrinsic	How important is job security?
Extrinsic	How important are good opportunities for advancement?
Intrinsic	How important is an interesting job?
Intrinsic	How important is a job that allows someone to help other people?
Intrinsic	How important is a job that is useful to society?
Autonomy	How important is a job that allows someone to work independently?
Autonomy	How important is a job that allows someone to decide their times or days of work?

Table 2. Work Characteristics

Category	Item
Extrinsic	My income is high.
Extrinsic	My job is secure.
Extrinsic	My opportunities for advancement are high.
Intrinsic	My job is interesting.
Intrinsic	In my job I can help other people.
Intrinsic	My job is useful to society.
Autonomy	I can work independently.

Table 3. Descriptive Statistics

Year	1989	1998	2006	2016
N	710	650	818	684
Age (<i>SD</i>)	39.24 (11.76)	40.50 (11.16)	42.61 (11.44)	43.10 (12.55)
% Married	58.3	51.1	53.5	47.7
% White	87.2	80.2	73.0	73.4
% Male	57.3	48.9	55.0	55.7

Chapter 5

RESULTS

As recommended by Yang & Land (2013) I began with ordinary least squares (OLS) estimates for each item without accounting for cohort or period effects (as a baseline comparison, to determine whether interpretation of random effects was possible. Each comparison was made using grand mean-centered items. Using the HAPC approach developed by Yang and Land (2006), I then examined whether any changes across time were due to period (year of survey) or cohort (birth year) in addition to the fixed effects. The main effects model includes predictors for age, the curvilinear effect of age, as well as controls for sex, race, marriage, and education. Descriptive statistics for each item can be found in Table 4 and 5. Effect size estimates for comparisons of 1989 and 2016 are reported in Tables 8 and 9. Interpretations of effect sizes which are based on Cohen's (1988) commonly used guidelines, i.e. $d=.20$ is small, $d=.50$ is moderate, and $d=.80$ is large. All items were found to have significant period and/or cohort effects except for the value and characteristic pertaining to income.

Hypothesis 1 proposed that extrinsic values would increase over time, which was the case for both job security and promotion opportunity, but no significant changes were found for high income value (see Tables 6.1-6.3). Both the questions "How important is job security?" ($C_{00k}=.023$, $\chi^2(3)=70.71$, $p<.001$) and "How important [are] good opportunities for advancement?" ($C_{00k}=.010$, $\chi^2(3)=34.36$, $p<.001$) had significant period effects. The magnitude of the value for advancement increase however was relatively weak from both 1989 to 2016 ($d=.16$) and 1998 to 2016 ($d=.27$), whereas the increase in value for job security was more

moderate in magnitude ($d=.44$) from 1989 to 2016. Thus, partial support for Hypothesis 1 was found. None of these values had significant cohort effects, answering Research Question 1 with changes in job security and promotion opportunities being more associated with period than cohort effects.

In comparison, Hypothesis 2 proposed that the degree to which workers perceive their work provides extrinsic rewards would decrease over time. This hypothesis was not supported (see Tables 7.1-7.3), instead results for both the questions “My job is secure.” ($c_{00k}=.009$, $\chi^2(3)=29.96$, $p<.001$; $d=.08$) and “My opportunities for advancement are high.” ($c_{00k}=.005$, $\chi^2(3)=19.11$, $p<.001$; $d=.13$) provided evidence that both perceptions increased from 1989 to 2016, although weakly. As with the corresponding value, no significant changes were found for the characteristic of “My income is high.” ($\tau_{c0}=.000$, $\chi^2(3)=3.94$, $p=.267$). From 1998 to 2016, the promotion characteristic has a slightly stronger, but still weak increase ($d=.27$). None of these values had significant cohort effects, answering Research Question 2 with changes in job security and promotion opportunities being more associated with period than cohort effects.

Research question 3 first asked whether there were any changes in value for intrinsic rewards. See Tables 6.4-6.6 for the relevant results. Significant period effects for “How important is an interesting job?” ($c_{00k}=.004$, $\chi^2(3)=15.90$, $p=.002$; $d=.08$), “How important is a job that is useful to society?” ($c_{00k}=.038$, $\chi^2(3)=118.72$, $p<.001$; $d=.43$), and “How important is a job that allows someone to help other people?” ($c_{00k}=.028$, $\chi^2(3)=88.94$, $p<.001$; $d=.37$) indicate that there were changes in these values from 1989 to 2016. Although the increase in the value of interesting work from 1989 to 2016 is statistically significant, it is quite small in practical terms. Upon further investigation, there was a larger, but still weak, increase ($d=.19$) in this value from 1989 to 2006 before decreasing from 2006 to 2016 ($d=-.11$). Both the values for

a job that is useful to society and allows one to help others had a more moderate increase across time. In contrast, no significant cohort effects were found. This provides evidence for changes being more associated with period than cohort effects.

Hypothesis 3 proposed that there would be increases in the perception that jobs provide more intrinsic rewards across time (see Tables 7.4-7.6). Significant period effects were evidenced for “My job is interesting.” ($c_{00k} = .014$, $\chi^2(3) = 44.95$, $p < .001$; $d = .20$), “My job is useful to society” ($c_{00k} = .018$, $\chi^2(3) = 56.83$, $p < .001$; $d = .34$), and “In my job I can help other people” ($c_{00k} = .033$, $\chi^2(3) = 99.37$, $p < .001$; $d = .49$), with all three items showing weak to moderate increases. No significant cohort effects were found, answering Research Question 4 as to changes being more associated with period effects than cohort effects.

Hypothesis 4 proposed that workers would have increased value for autonomy over time (see Tables 6.7-6.8). Support was not found for this hypothesis as both questions “How important is a job that allows someone to work independently?” ($c_{00k} = .002$, $\chi^2(3) = 9.42$, $p = .024$; $d = -.01$) and “How important is a job that allows someone to decide their times or days of work?” ($c_{00k} = .002$, $\chi^2(3) = 10.67$, $p = .014$; $d = -.07$) were found to have significant period effects which decreased from 1989 to 2016. Further analysis indicates that there was an increase in independence values from 1989 to 2006 ($d = .11$) before a decrease from 2006 to 2016 ($d = -.12$). However, importantly, the magnitude of the effects was sufficiently small to suggest that the overall decrease was of limited practical significance. Mixed results were found for Research Question 5 as, although no significant cohort effects were found for independence at work, the value for flexible working arrangements had a stronger cohort ($b_{00k} = .015$, $\chi^2(81) = 117.43$, $p = .005$) than period effect ($c_{00k} = .002$, $\chi^2(3) = 9.42$, $p = .024$). For cohorts, the largest increases are seen from birth years 1939-1941 ($d = 1.10$, a strong effect size), 1945-1947 ($d = .55$, moderate),

and 1948-1958 ($d=.65$, moderate). Sample size ranges for these birth year comparisons from $N=22$ to $N=96$.

Hypothesis 5 proposed that perception of independence at work would increase over time (see Table 7.7). Support was found as responses to the question “I can work independently.” had significant period effects ($c_{00k}=.002$, $\chi^2(3)=8.81$, $p=.031$; $d=.16$) which increase across time. No significant cohort effects were found, answering Research Question 6 in that changes were more associated with period effects than cohort effects.

Summary of Results

Of the work values examined, 3 of 8 showed significant period effects that have an effect size greater than $d=.20$ but less than $d=.50$ from 1989 to 2016. In addition, the mean effect size for period effects of work values is $d=.18$. On the other hand, 1 of the 8 work values examined has a significant cohort effect but the effect size depends heavily on which birth years are compared. Together, these aggregate analyses suggest that on average, work values have undergone significant, albeit weak to moderate, changes over the years and that these changes are substantially associated with time period effects but not with generational effects in any meaningful way.

Looking at work characteristics, 3 of 7 display significant period effects that also have an effect size greater than $d=.20$ but less than $d=.50$ from 1989 to 2016. The mean effect size for these period effects is $d=.21$. On average, changes over the years are weak to moderate and associated with time period effects but none of the characteristics examined had any generational effects.

The strongest changes seen from 1989 to 2016 are increases in both the value and characteristic of helping others and helping society at large, included as intrinsic

values/characteristics. Value for job security also saw an increase from 1989 to 2016 with a smaller and weak corresponding increase in the characteristic from 1998 to 2016. The work characteristic of interesting work saw an increase, but the corresponding value did not see an increase to the same degree.

Table 4. Descriptive Statistics for Values and Fixed Effects

Variable	<i>N</i>	Mean	SD	Min	Max
Income	2850	4.03	0.77	1	5
Promotion	2839	4.31	0.71	1	5
Job Security	2848	4.55	0.66	1	5
Interesting Work	2840	4.44	0.64	1	5
Society Usefulness	2841	4.19	0.79	1	5
Helping Others	2839	4.15	0.78	1	5
Independence	2845	4.07	0.81	1	5
Flexible Schedules	2835	3.53	0.98	1	5
Age	2850	41.41	11.83	18	81
Married	2848	1.53	0.50	1	2
Education	2843	13.80	2.96	0	20
Black	2850	1.13	0.34	1	2
Other Race	2850	1.08	0.28	1	2
Female	2850	1.46	0.50	1	2
Period	4			1989	2016
Cohort	82			1909	1997

Table 5. Descriptive Statistics for Characteristics

Variable	<i>N</i>	Mean	SD	Min	Max
Income	2786	2.84	1.05	1	5
Promotion	2780	3.03	1.10	1	5
Job Security	2783	3.88	1.02	1	5
Interesting Work	2790	3.99	0.94	1	5
Society Usefulness	2776	4.01	0.93	1	5
Helping Others	2788	4.12	0.87	1	5
Independence	2784	4.01	0.97	1	5

Table 6.1 HAPC Model of Income Values

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	0.05	0.03	1.96	2756	0.050
AGE	β_1	-0.01	0.02	-0.27	2756	0.788
AGE ²	β_2	-0.05	0.02	-3.04	2756	0.002
MARRIED	β_3	-0.02	0.02	-0.97	2756	0.333
EDUCATION	β_4	-0.13	0.02	-7.02	2756	<0.001
BLACK	β_5	0.15	0.02	7.87	2756	<0.001
OTHERRACE	β_6	0.08	0.02	4.48	2756	<0.001
FEMALE	β_7	-0.03	0.02	-1.50	2756	0.134
Individual Summary	σ^2	0.94				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.05	0.002	71.92	81	>0.500
Period	c_{00k}	0.00	0.000	2.85	3	>0.500
Model Fit						
Deviance	7902.42	<i>df</i> = 11				

Table 6.2. HAPC Model of Promotion Opportunity Values

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	0.03	0.06	0.58	2745	0.562
AGE	β_1	-0.11	0.02	-5.41	2745	<0.001
AGE ²	β_2	-0.02	0.02	-1.50	2745	0.135
MARRIED	β_3	0.00	0.02	-0.17	2745	0.863
EDUCATION	β_4	-0.08	0.02	-4.53	2745	<0.001
BLACK	β_5	0.13	0.02	6.69	2745	<0.001
OTHERRACE	β_6	0.10	0.02	5.52	2745	<0.001
FEMALE	β_7	0.00	0.02	0.06	2745	0.953
Individual Summary	σ^2	0.93				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.06	0.004	82.59	81	0.430
Period	c_{00k}	0.10	0.010	34.36	3	<0.001
Model Fit						
Deviance	7847.59	$df=11$				

Table 6.3 HAPC Model of Job Security Values

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	0.01	0.08	0.19	2754	0.853
AGE	β_1	0.02	0.02	0.88	2754	0.381
AGE ²	β_2	-0.01	0.02	-0.64	2754	0.522
MARRIED	β_3	-0.03	0.02	-1.74	2754	0.083
EDUCATION	β_4	-0.17	0.02	-9.14	2754	<0.001
BLACK	β_5	0.04	0.02	2.18	2754	0.029
OTHERRACE	β_6	0.04	0.02	2.33	2754	0.020
FEMALE	β_7	0.09	0.02	4.86	2754	<0.001
Individual Summary	σ^2	0.93				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.02	0.000	77.59	81	>0.500
Period	c_{00k}	0.15	0.023	70.71	3	<0.001
Model Fit						
Deviance	7880.96	<i>df</i> = 11				

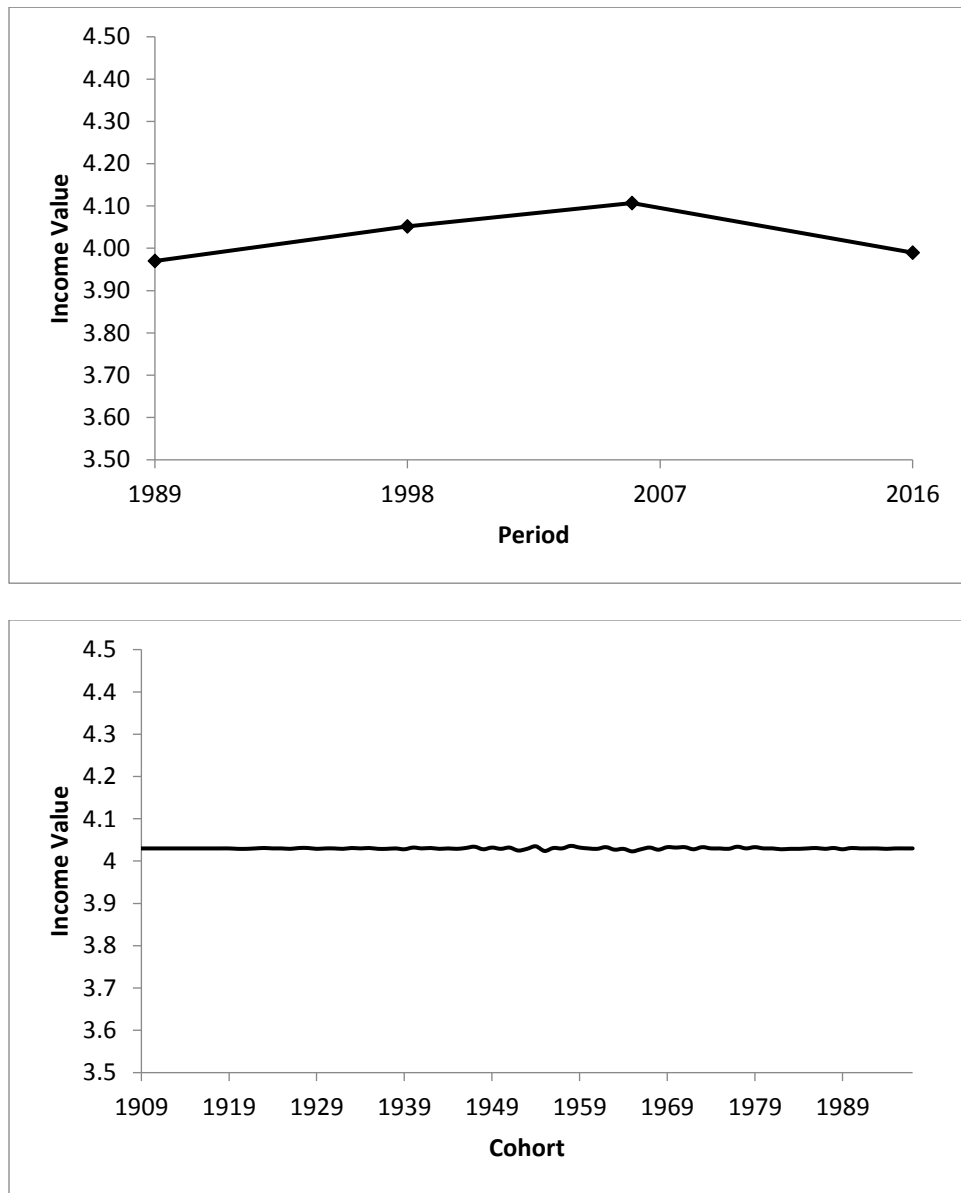


Figure 1.1. Estimated period and cohort effects for high income value

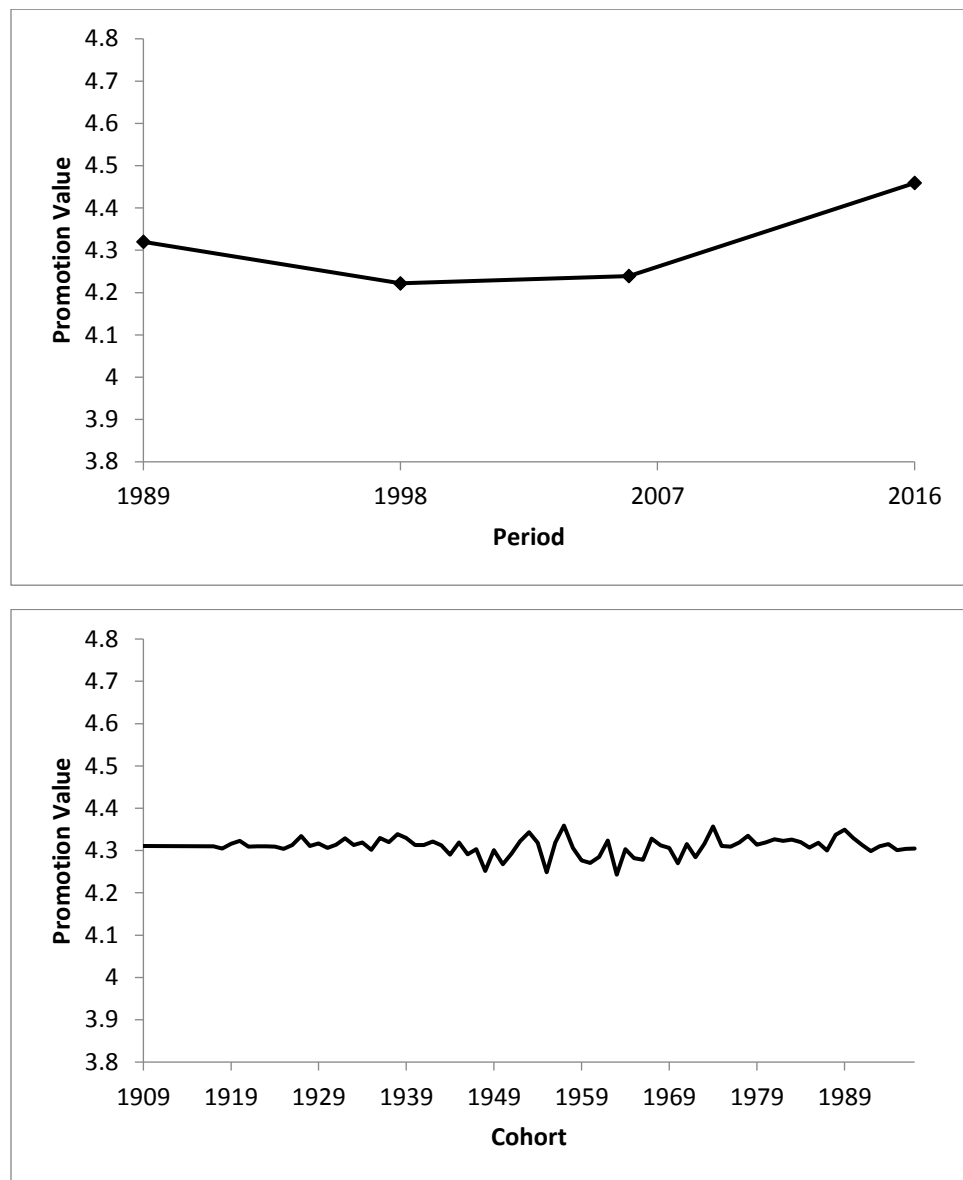


Figure 1.2. Estimated period and cohort effects for promotion opportunities value

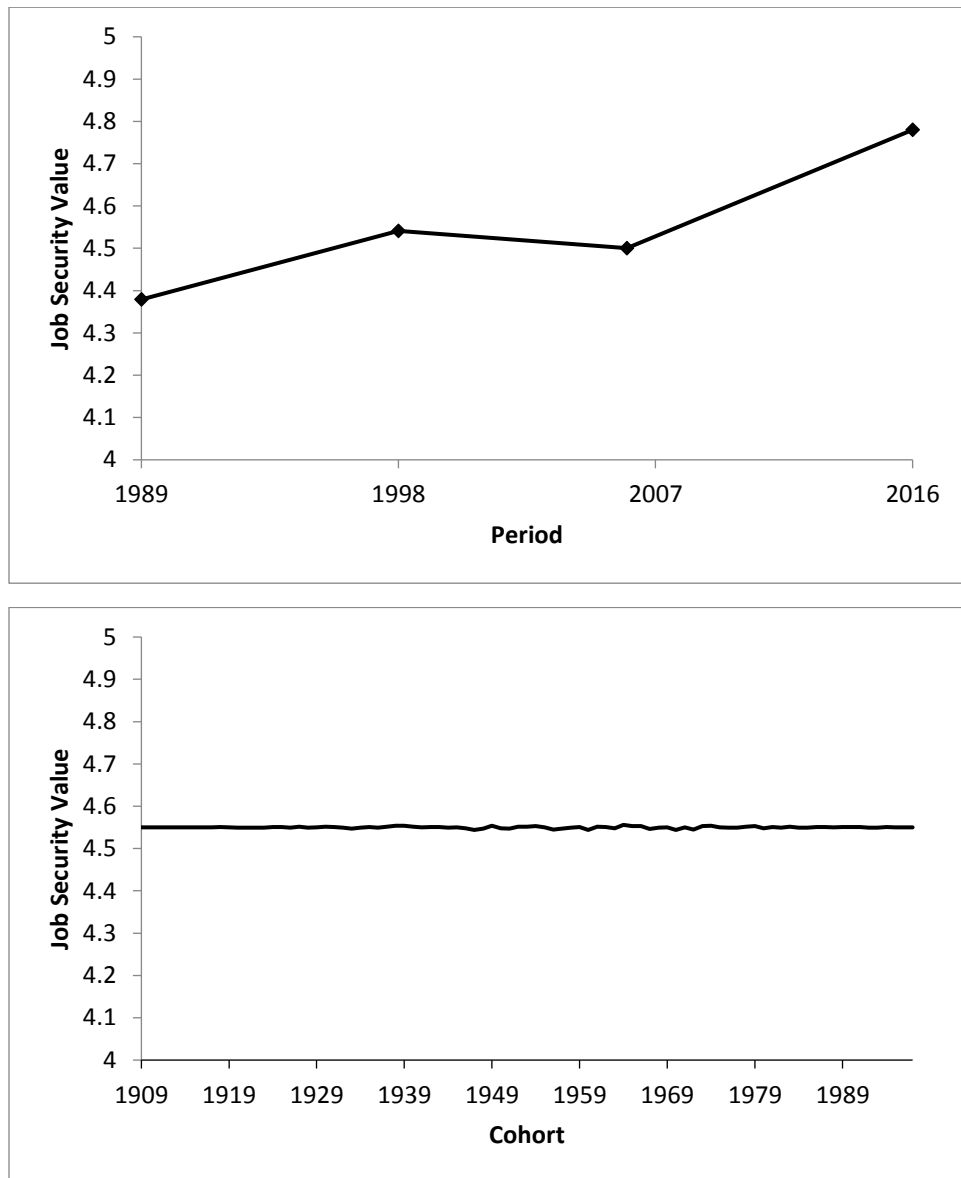


Figure 1.3. Estimated period and cohort effects for job security value

Table 7.1. HAPC Model of Income Characteristic

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.04	0.03	-1.40	2692	0.162
AGE	β_1	-0.03	0.02	-1.41	2692	0.157
AGE ²	β_2	0.04	0.02	2.18	2692	0.029
MARRIED	β_3	0.11	0.02	5.53	2692	<0.001
EDUCATION	β_4	0.18	0.02	9.79	2692	<0.001
BLACK	β_5	-0.03	0.02	-1.49	2692	0.138
OTERRACE	β_6	0.01	0.02	0.32	2692	0.749
FEMALE	β_7	-0.12	0.02	-6.73	2692	<0.001
Individual Summary	σ^2	0.93				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.04	0.001	98.12	81	0.095
Period	c_{00k}	0.01	0.000	3.94	3	0.267
Model Fit						
Deviance	7690.24	<i>df</i> = 11				

Table 7.2. HAPC Model of Promotion Opportunity Characteristic

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.03	0.04	-0.67	2686	0.503
AGE	β_1	-0.20	0.02	-10.14	2686	<0.001
AGE ²	β_2	0.03	0.02	1.85	2686	0.065
MARRIED	β_3	0.04	0.02	2.32	2686	0.021
EDUCATION	β_4	0.07	0.02	3.90	2686	<0.001
BLACK	β_5	0.02	0.02	0.88	2686	0.380
OTHERRACE	β_6	0.04	0.02	2.19	2686	0.028
FEMALE	β_7	-0.07	0.02	-3.61	2686	<0.001
Individual Summary	σ^2	0.94				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.03	0.001	99.76	81	0.077
Period	c_{00k}	0.07	0.005	19.11	3	<0.001
Model Fit						
Deviance	7717.38	<i>df</i> = 11				

Table 7.3. HAPC Model of Job Security Characteristic

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.08	0.05	-1.46	2689	0.145
AGE	β_1	-0.09	0.02	-4.77	2689	<0.001
AGE ²	β_2	0.08	0.02	4.91	2689	<0.001
MARRIED	β_3	0.10	0.02	5.13	2689	<0.001
EDUCATION	β_4	0.05	0.02	2.71	2689	0.007
BLACK	β_5	-0.08	0.02	-3.98	2689	<0.001
OTHERRACE	β_6	-0.06	0.02	-2.95	2689	0.003
FEMALE	β_7	0.02	0.02	1.29	2689	0.197
Individual Summary	σ^2	0.96				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.01	0.000	82.02	81	0.448
Period	c_{00k}	0.10	0.009	29.96	3	<0.001
Model Fit						
Deviance	7760.40	<i>df</i> = 11				

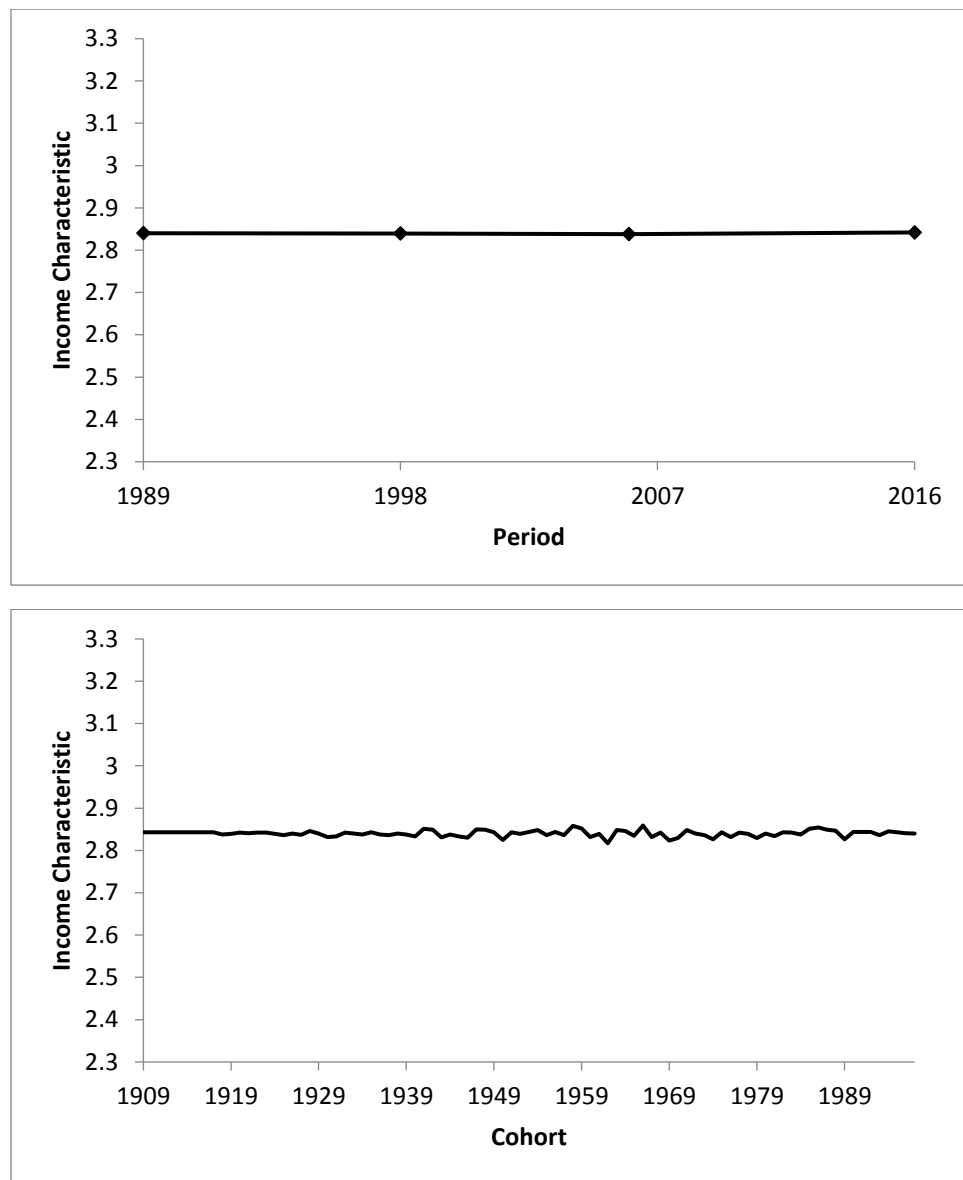


Figure 2.1. Estimated period and cohort effects for high income characteristic

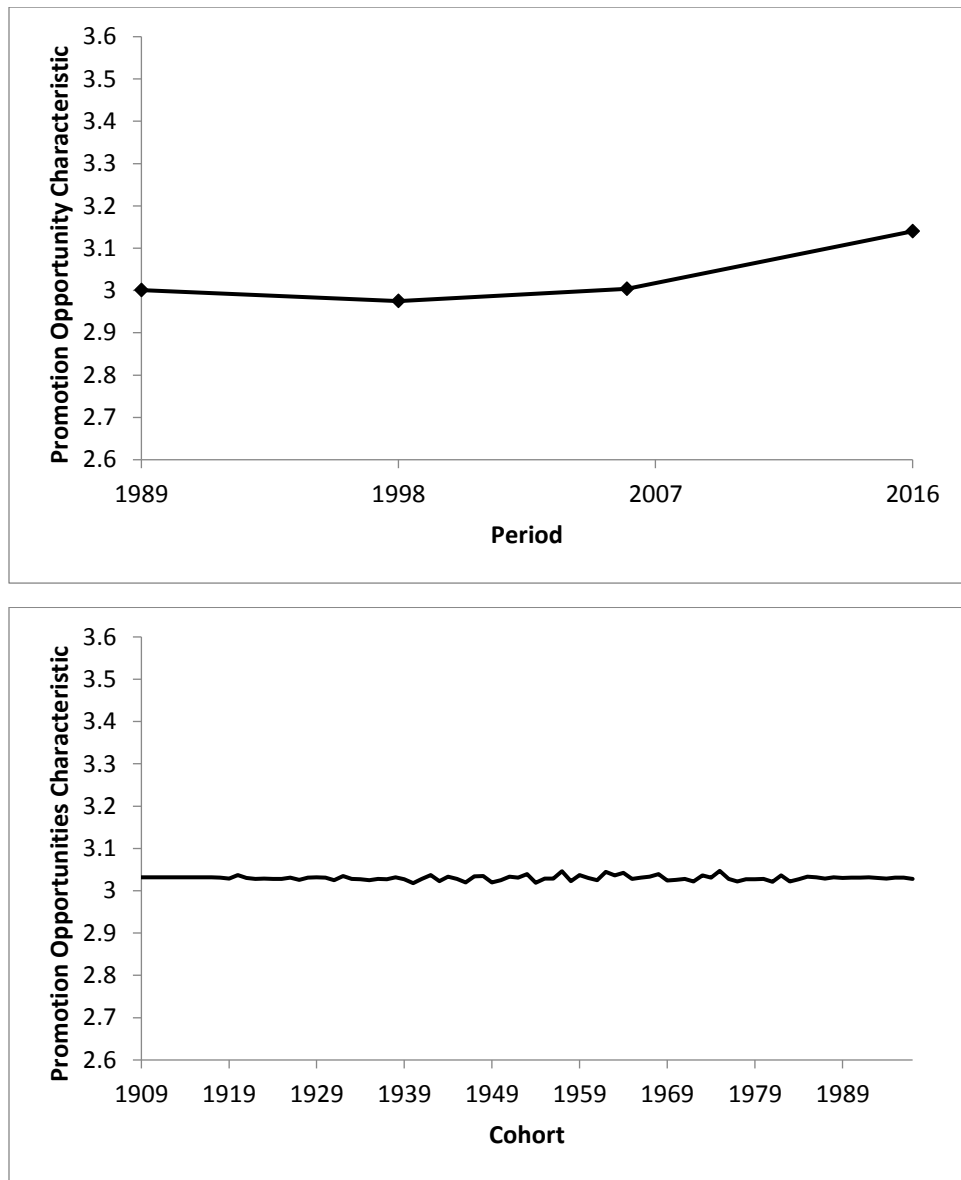


Figure 2.2. Estimated period and cohort effects for promotion opportunities characteristic

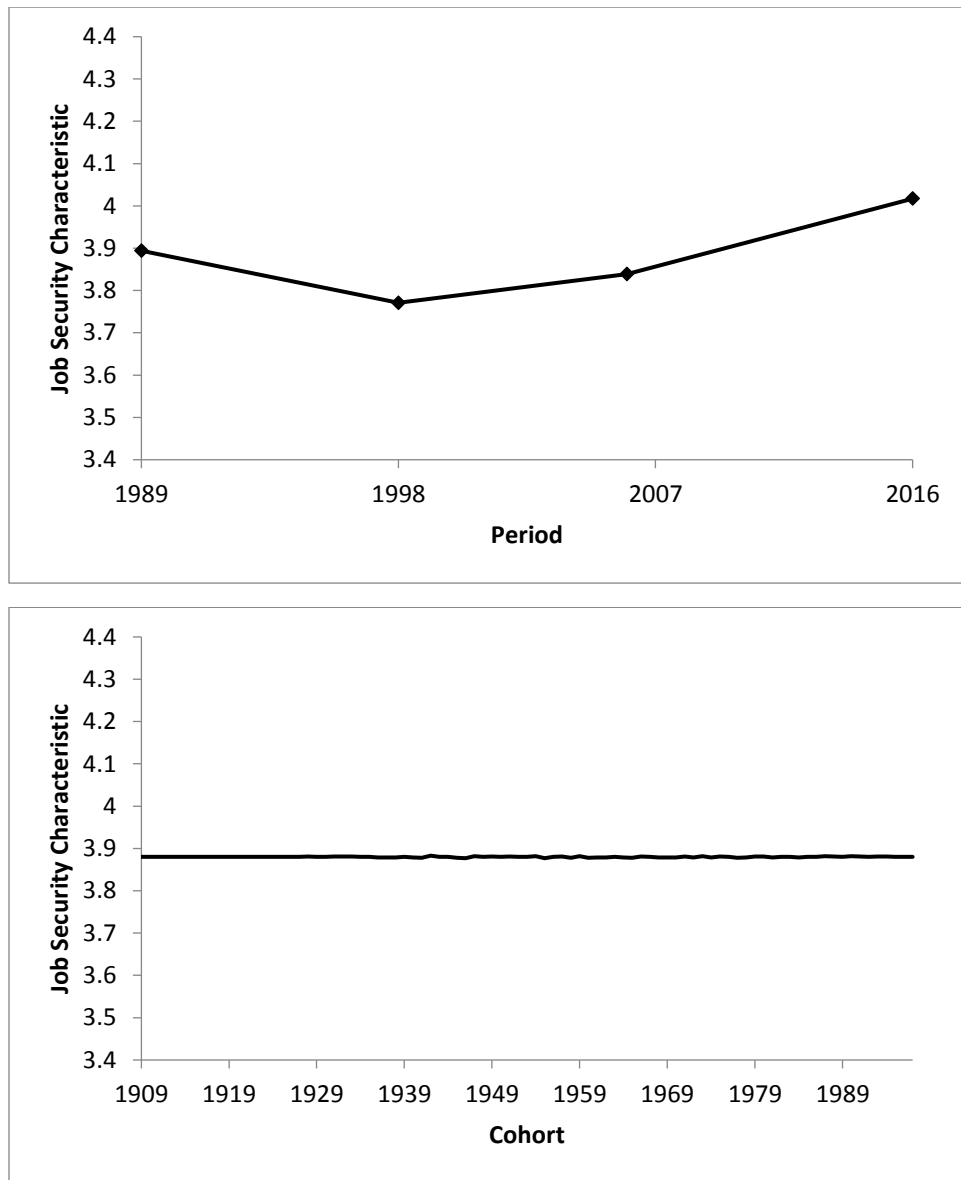


Figure 2.3. Estimated period and cohort effects for job security characteristic

Table 6.4 HAPC Model of Interesting Work Values

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.04	0.04	-1.11	2746	0.269
AGE	β_1	0.01	0.02	0.48	2746	0.631
AGE ²	β_2	0.04	0.02	2.48	2746	0.013
MARRIED	β_3	-0.04	0.02	-1.95	2746	0.052
EDUCATION	β_4	0.13	0.02	6.87	2746	<0.001
BLACK	β_5	-0.02	0.02	-1.11	2746	0.269
OTERRACE	β_6	0.02	0.02	1.08	2746	0.282
FEMALE	β_7	0.03	0.02	1.48	2746	0.138
Individual Summary	σ^2	0.97				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.02	0.000	60.35	81	>0.500
Period	c_{00k}	0.06	0.004	15.90	3	0.002
Model Fit						
Deviance	7972.11	<i>df</i> = 11				

Table 6.5. HAPC Model of Helping Society Values

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.03	0.10	-0.30	2747	0.764
AGE	β_1	0.01	0.02	0.68	2747	0.497
AGE ²	β_2	0.02	0.02	1.26	2747	0.209
MARRIED	β_3	0.02	0.02	1.19	2747	0.236
EDUCATION	β_4	0.05	0.02	2.64	2747	0.008
BLACK	β_5	0.05	0.02	2.89	2747	0.004
OTHERRACE	β_6	0.03	0.02	1.71	2747	0.087
FEMALE	β_7	0.08	0.02	4.54	2747	<0.001
Individual Summary	σ^2	0.94				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.01	0.000	69.25	81	>0.500
Period	c_{00k}	0.19	0.038	118.72	3	<0.001
Model Fit						
Deviance	7892.13	<i>df</i> = 11				

Table 6.6. HAPC Model of Helping Others Values

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.02	0.09	-0.24	2745	0.808
AGE	β_1	0.03	0.02	1.55	2745	0.122
AGE ²	β_2	0.01	0.02	0.76	2745	0.450
MARRIED	β_3	0.00	0.02	0.14	2745	0.893
EDUCATION	β_4	0.02	0.02	0.83	2745	0.406
BLACK	β_5	0.04	0.02	2.28	2745	0.023
OTHERRACE	β_6	0.04	0.02	2.28	2745	0.023
FEMALE	β_7	0.10	0.02	5.53	2745	<0.001
Individual Summary	σ^2	0.95				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.02	0.000	77.02	81	>0.500
Period	c_{00k}	0.17	0.028	88.94	3	<0.001
Model Fit						
Deviance	7908.70	<i>df</i> = 11				

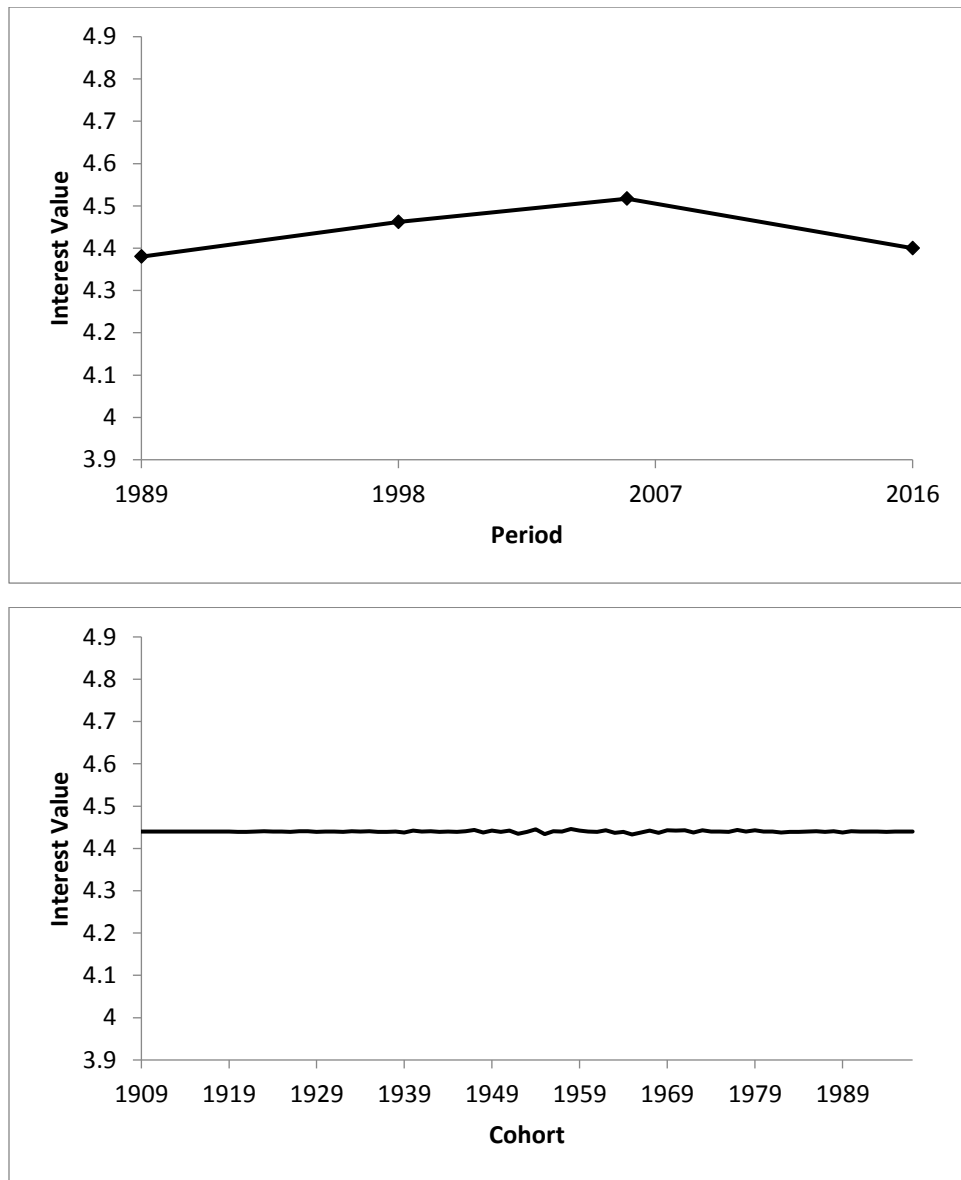


Figure 1.4. Estimated period and cohort effects for interesting work value

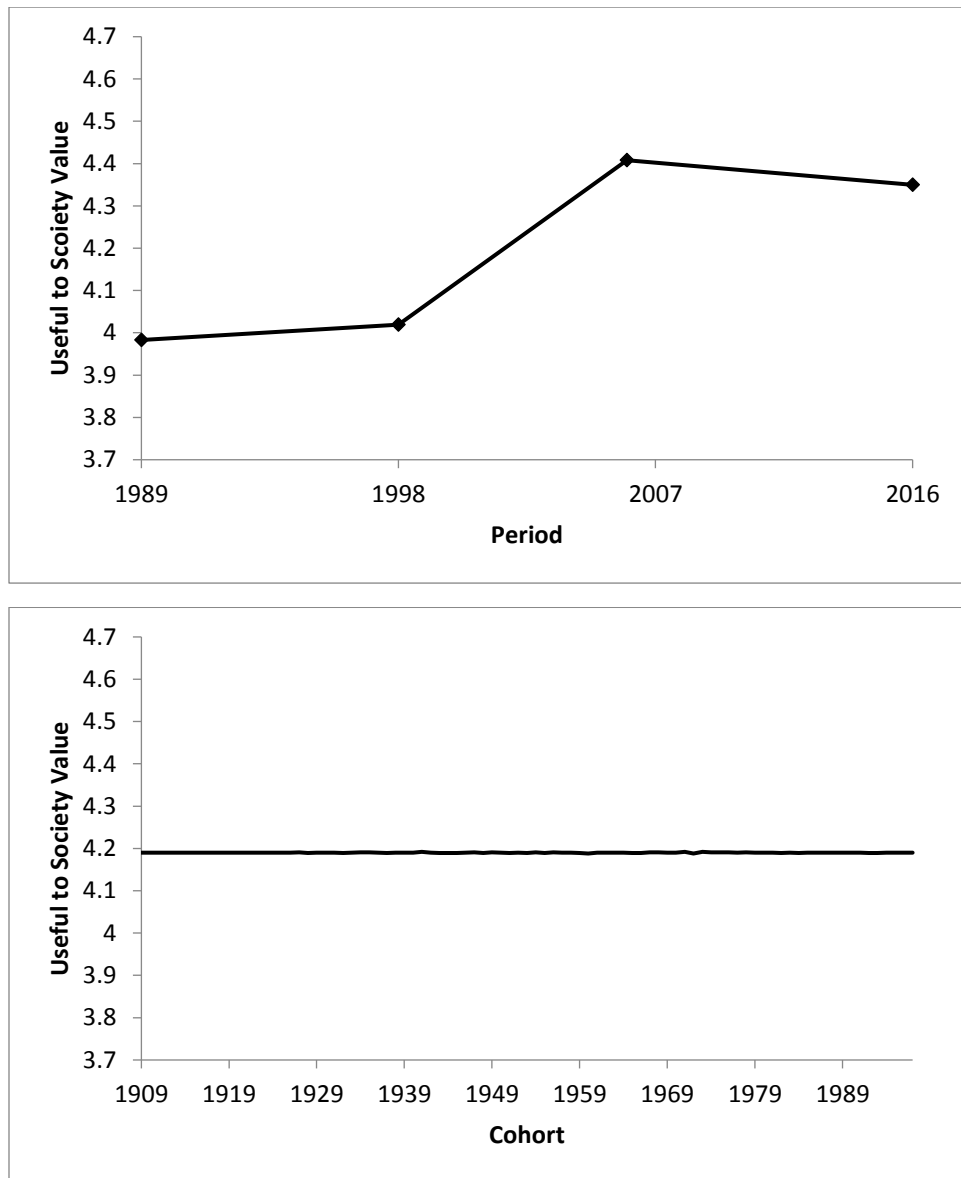


Figure 1.5. Estimated period and cohort effects for usefulness to society value

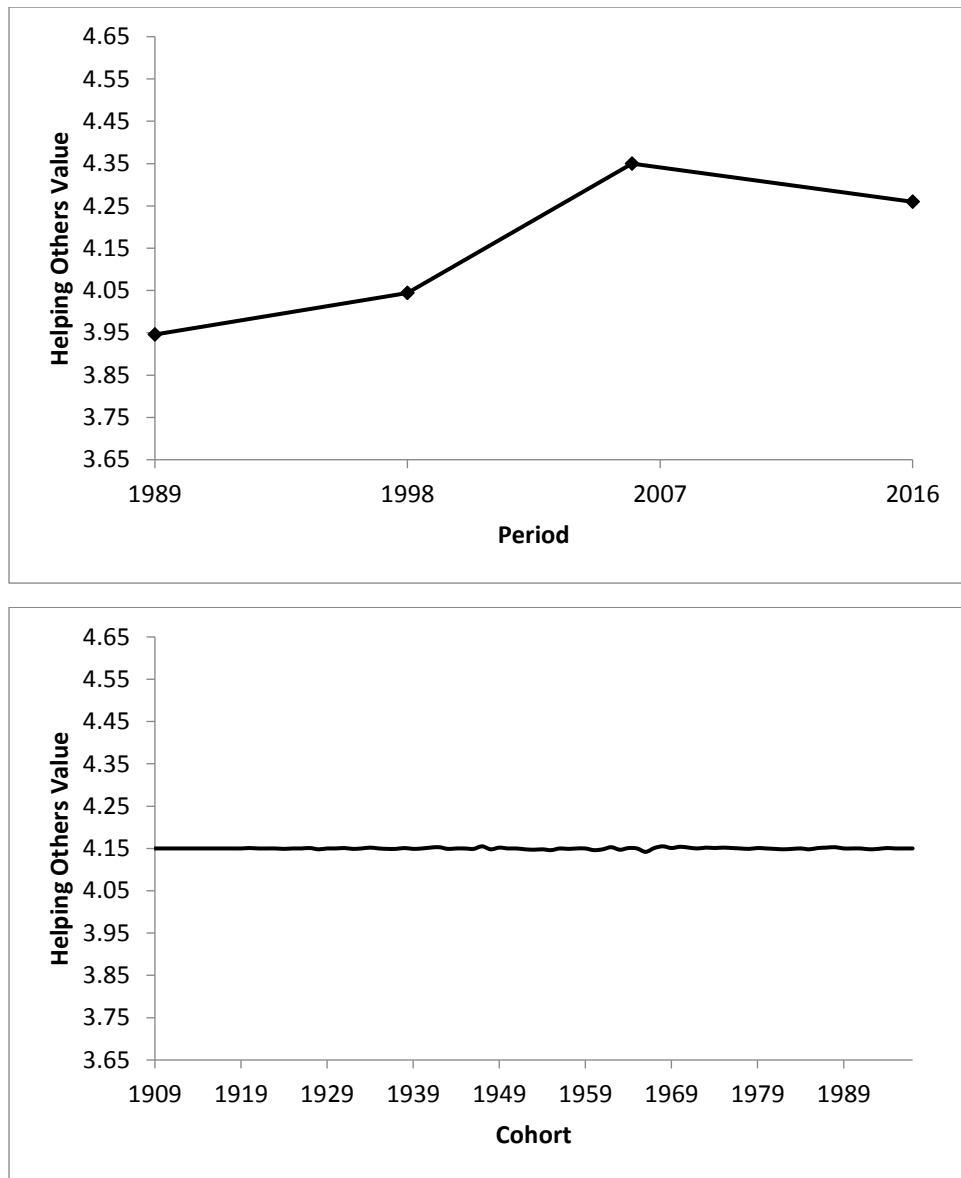


Figure 1.6. Estimated period and cohort effects for helping others value

Table 7.4. HAPC Model of Interesting Work Characteristic

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.04	0.06	-0.55	2696	0.582
AGE	β_1	0.05	0.02	2.39	2696	0.017
AGE ²	β_2	0.03	0.02	1.62	2696	0.106
MARRIED	β_3	0.08	0.02	4.33	2696	<0.001
EDUCATION	β_4	0.16	0.02	8.71	2696	<0.001
BLACK	β_5	-0.07	0.02	-3.51	2696	<0.001
OTHERRACE	β_6	0.02	0.02	0.98	2696	0.329
FEMALE	β_7	0.03	0.02	1.47	2696	0.143
Individual Summary	σ^2	0.94				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.02	0.001	79.31	81	>0.500
Period	c_{00k}	0.12	0.014	44.95	3	<0.001
Model Fit						
Deviance	7734.75	<i>df</i> = 11				

Table 7.5. HAPC Model of Helping Society Characteristic

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.03	0.07	-0.37	2682	0.712
AGE	β_1	0.06	0.02	3.30	2682	<0.001
AGE ²	β_2	0.02	0.02	1.29	2682	0.196
MARRIED	β_3	0.06	0.02	3.00	2682	0.003
EDUCATION	β_4	0.13	0.02	6.79	2682	<0.001
BLACK	β_5	0.04	0.02	2.35	2682	0.019
OTHERRACE	β_6	0.02	0.02	1.10	2682	0.271
FEMALE	β_7	0.04	0.02	1.87	2682	0.061
Individual Summary	σ^2	0.95				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.03	0.001	82.62	81	0.429
Period	c_{00k}	0.14	0.018	56.83	3	<0.001
Model Fit						
Deviance	7718.39	<i>df</i> = 11				

Table 7.6. HAPC Model of Helping Others Characteristic

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.02	0.09	-0.18	2694	0.856
AGE	β_1	0.07	0.02	3.35	2694	<0.001
AGE ²	β_2	0.01	0.02	0.60	2694	0.550
MARRIED	β_3	0.04	0.02	2.20	2694	0.028
EDUCATION	β_4	0.13	0.02	6.74	2694	<0.001
BLACK	β_5	0.01	0.02	0.37	2694	0.709
OTHERRACE	β_6	0.02	0.02	1.04	2694	0.297
FEMALE	β_7	0.11	0.02	6.12	2694	<0.001
Individual Summary	σ^2	0.93				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.03	0.001	79.37	81	>0.500
Period	c_{00k}	0.18	0.033	99.37	3	<0.001
Model Fit						
Deviance	7695.75	<i>df</i> = 11				

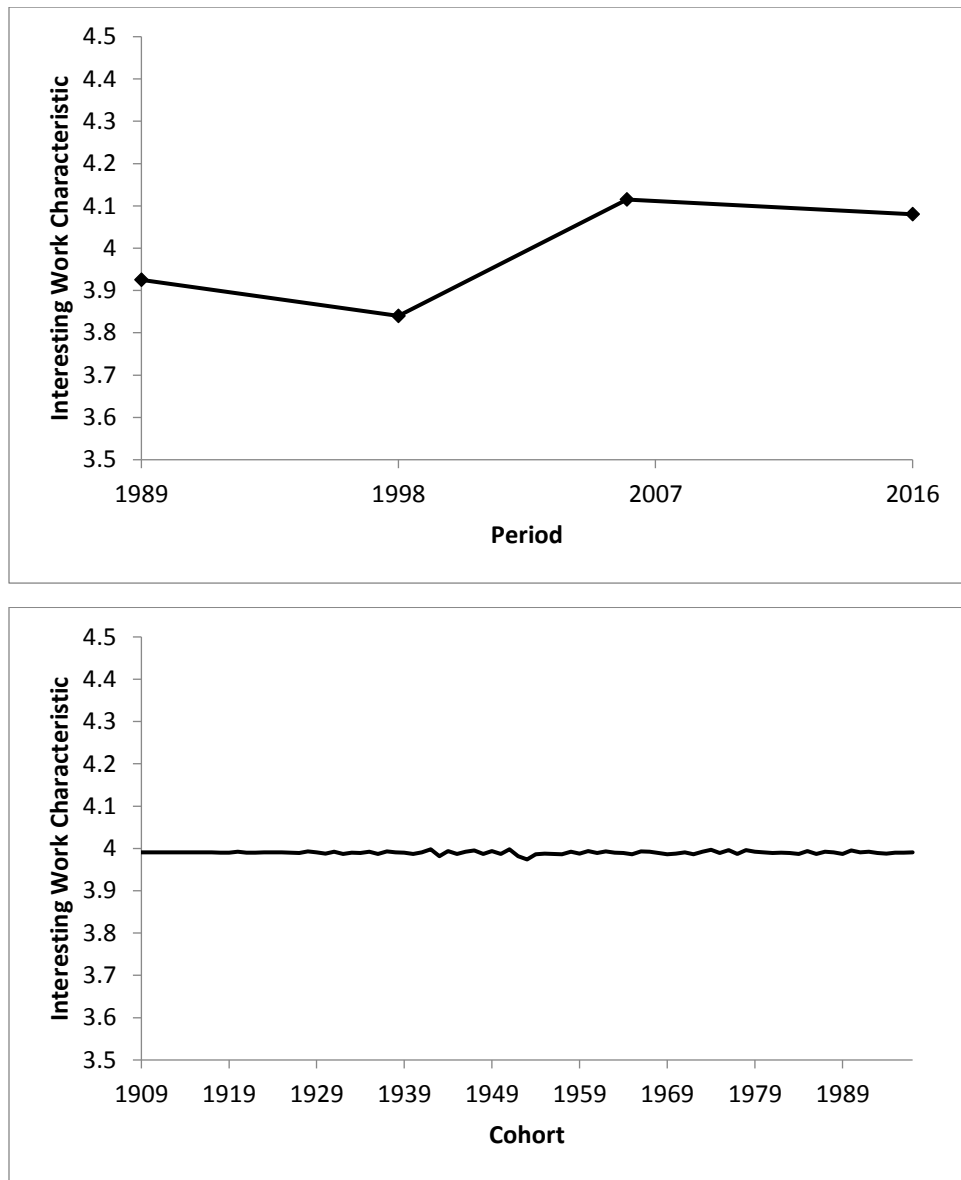


Figure 2.4. Estimated period and cohort effects for interesting work characteristic

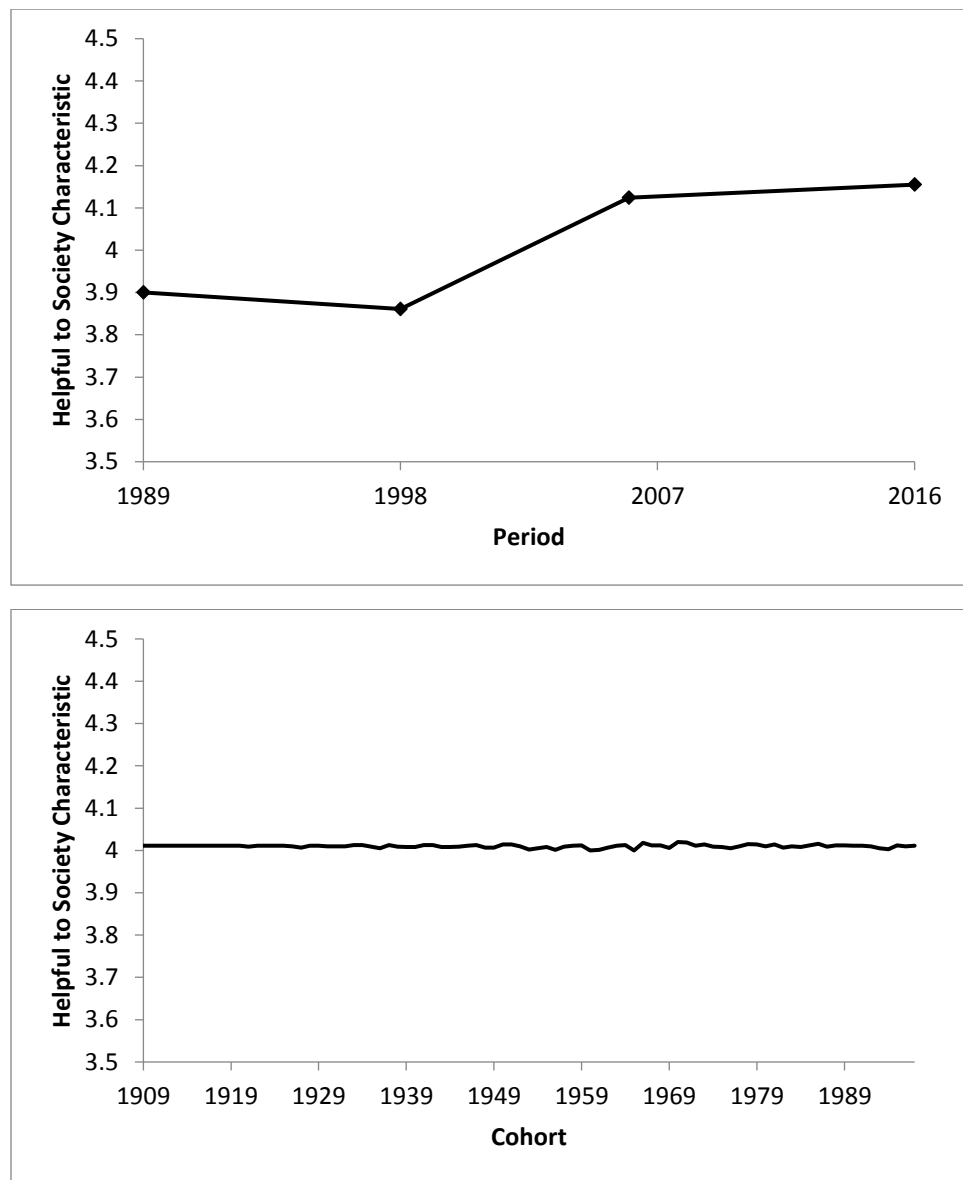


Figure 2.5. Estimated period and cohort effects for helpfulness to society characteristic

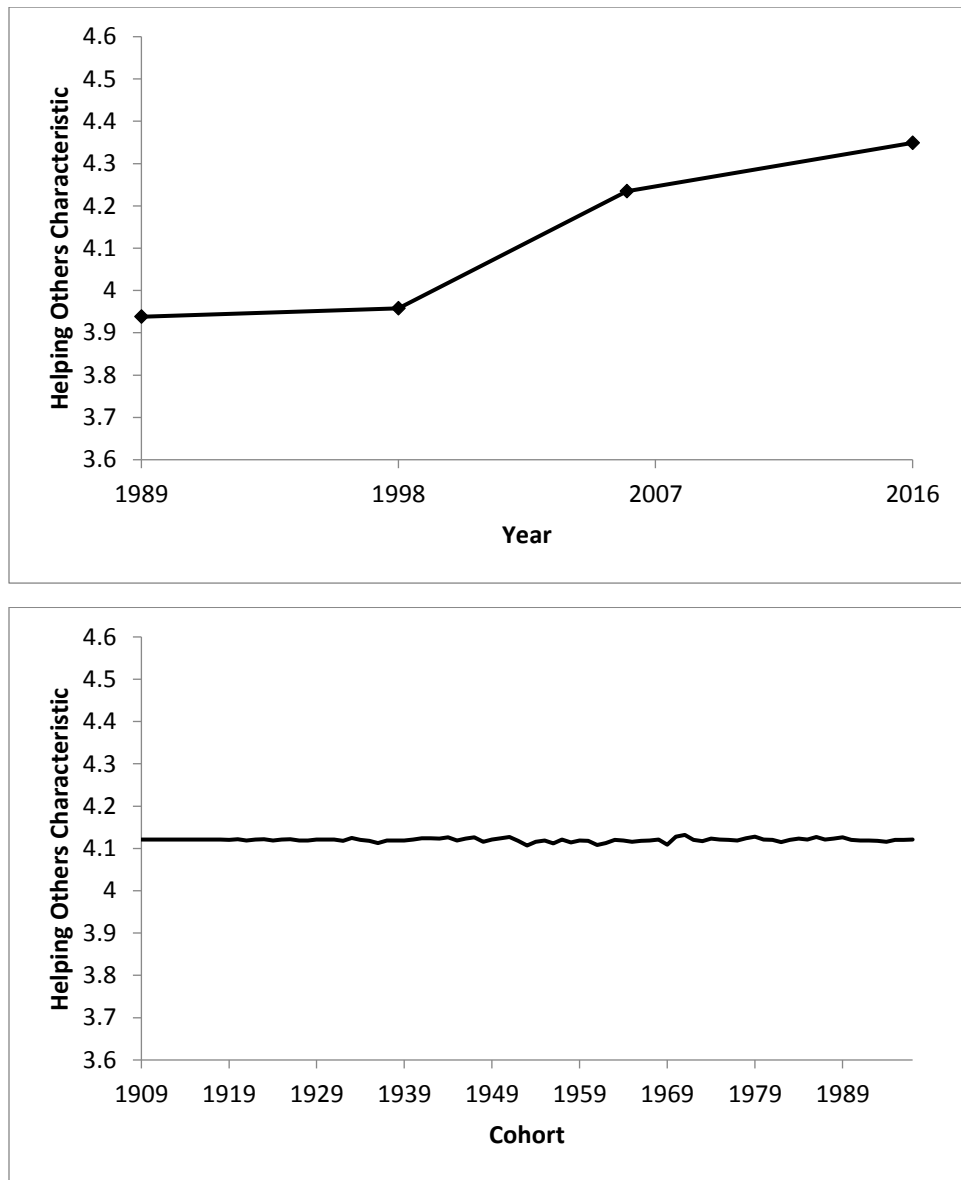


Figure 2.6. Estimated period and cohort effects for helping others characteristic

Table 6.7. HAPC Model of Independence Values

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	0.03	0.03	0.96	2751	0.337
AGE	β_1	0.07	0.02	3.44	2751	<0.001
AGE ²	β_2	-0.03	0.02	-2.01	2751	0.044
MARRIED	β_3	-0.01	0.02	-0.27	2751	0.790
EDUCATION	β_4	0.06	0.02	3.05	2751	0.002
BLACK	β_5	0.02	0.02	1.29	2751	0.197
OTHERRACE	β_6	0.02	0.02	1.16	2751	0.247
FEMALE	β_7	0.03	0.02	1.49	2751	0.136
Individual Summary	σ^2	0.98				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.02	0.000	87.93	81	0.280
Period	c_{00k}	0.04	0.002	9.42	3	0.024
Model Fit						
Deviance	8007.62	<i>df</i> = 11				

Table 6.8. HAPC Model of Flexible Work Schedule Values

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.01	0.04	-0.29	2741	0.769
AGE	β_1	0.03	0.02	1.32	2741	0.188
AGE ²	β_2	-0.01	0.02	-0.46	2741	0.649
MARRIED	β_3	-0.02	0.02	-1.13	2741	0.258
EDUCATION	β_4	0.02	0.02	1.06	2741	0.292
BLACK	β_5	0.07	0.02	3.65	2741	<0.001
OTHERRACE	β_6	0.05	0.02	2.75	2741	0.006
FEMALE	β_7	0.04	0.02	2.04	2741	0.042
Individual Summary	σ^2	0.97				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.12	0.015	117.43	81	0.005
Period	c_{00k}	0.05	0.002	10.67	3	0.014
Model Fit						
Deviance	7976.26	<i>df</i> = 11				

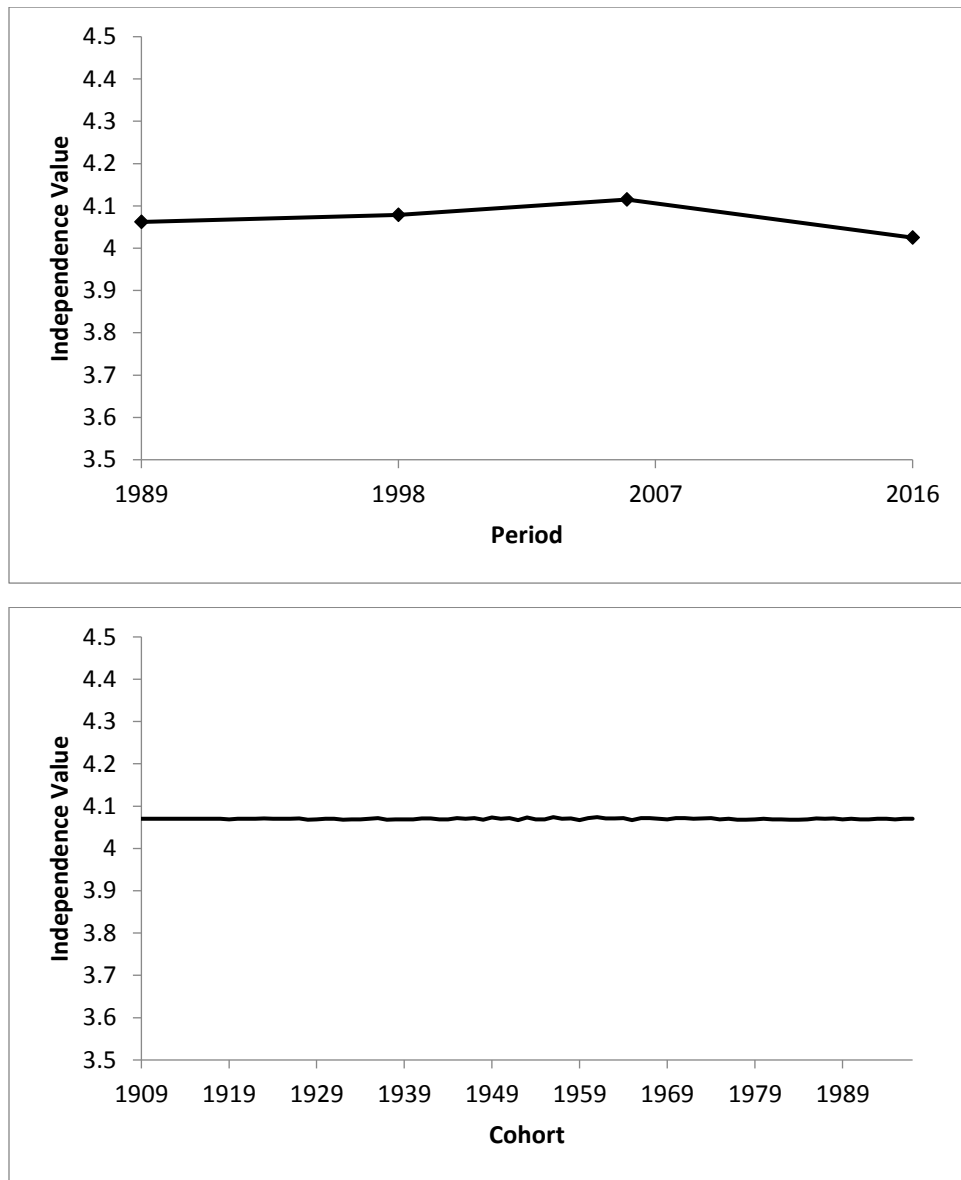


Figure 1.7. Estimated period and cohort effects for independence value

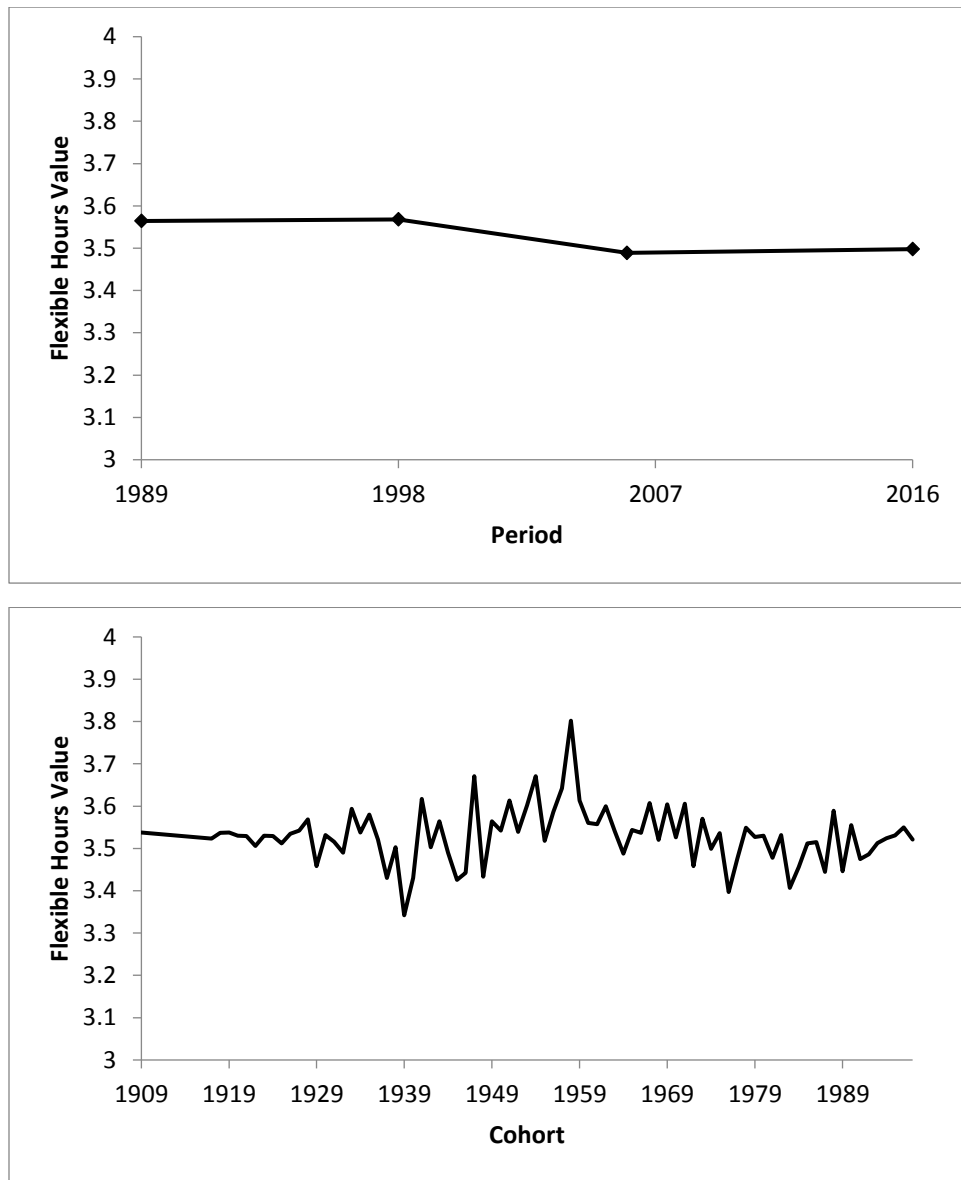


Figure 1.8. Estimated period and cohort effects for flexible work schedules value

Table 7.7. HAPC Model of Independence Characteristic

Fixed Effects	Parameter	Coefficient	se	<i>t</i> Ratio	<i>df</i>	<i>p</i> Value
INTERCEPT	π_0	-0.02	0.03	-0.50	2690	0.618
AGE	β_1	0.04	0.02	2.22	2690	0.027
AGE ²	β_2	0.01	0.02	0.87	2690	0.387
MARRIED	β_3	0.05	0.02	2.72	2690	0.007
EDUCATION	β_4	0.11	0.02	6.01	2690	<0.001
BLACK	β_5	-0.06	0.02	-3.06	2690	0.002
OTHERRACE	β_6	-0.03	0.02	-1.57	2690	0.116
FEMALE	β_7	0.00	0.02	0.00	2690	0.999
Individual Summary	σ^2	0.97				
Random Effect		Std. Dev.	Variance	χ^2	<i>df</i>	<i>p</i> Value
Cohort	b_{00j}	0.01	0.000	74.51	81	>0.500
Period	c_{00k}	0.04	0.002	8.81	3	0.031
Model Fit						
Deviance	7806.95	<i>df</i> = 11				

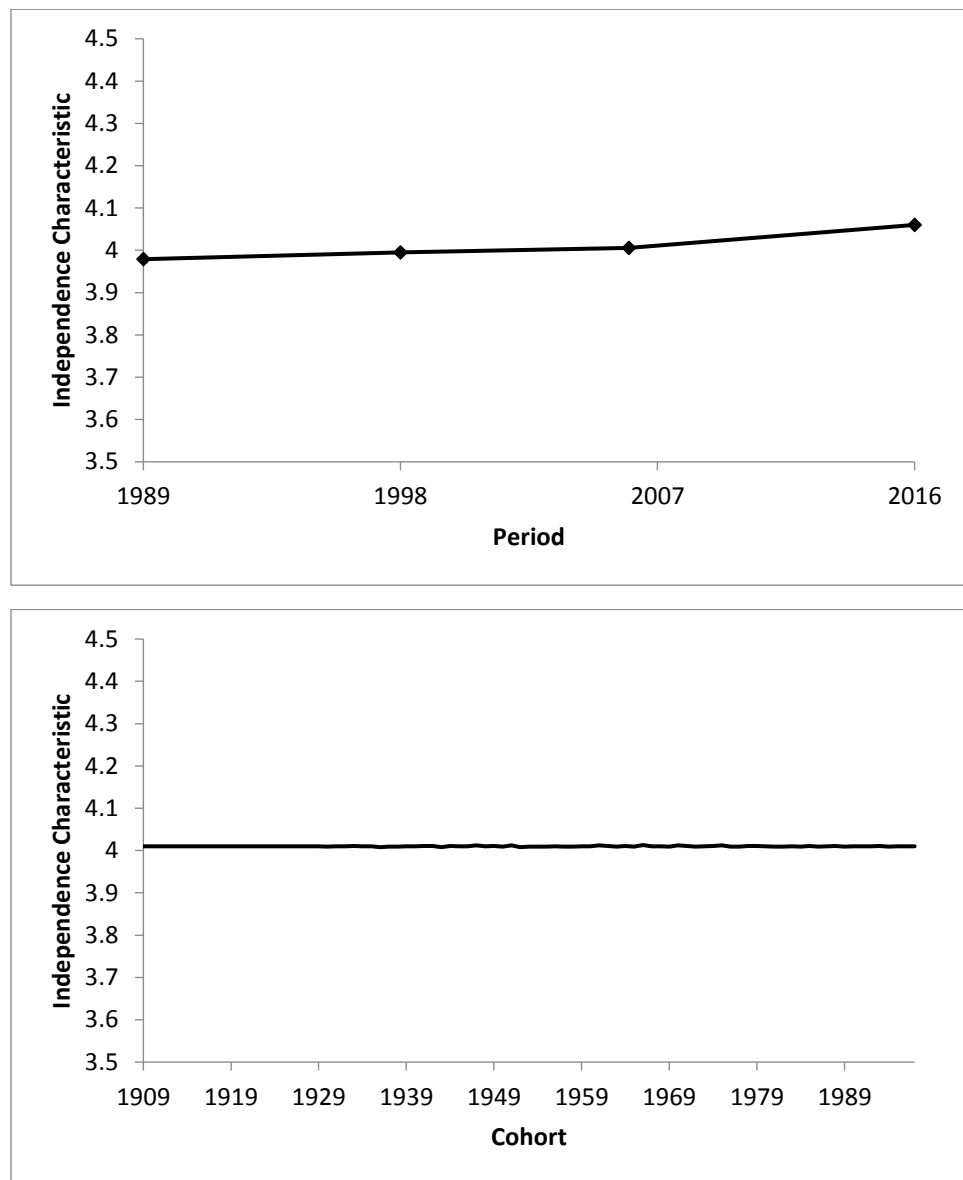


Figure 2.7. Estimated period and cohort effects for independence characteristic

Table 8. Effect Sizes for Values

Value	M ₂₀₁₆ -M ₁₉₈₉	s	95% CI	<i>d</i>	Sig. (2-tailed)
Income	0.05	0.73	-.031, .123	0.07	0.242
Promo	0.11	0.67	.041, .181	0.16	0.002
Jobsec	0.28	0.61	.210, .339	0.44	<.001
Interest	0.05	0.66	-.023, .116	0.08	0.186
Helpoth	0.29	0.79	.205, .372	0.37	<.001
Helpsoc	0.33	0.79	.247, .414	0.43	<.001
Indep	-0.02	0.82	-.102, .070	0.01	0.709
Flex	-0.07	0.97	-.172, .033	0.07	0.185

Table 9. Effect Sizes for Characteristics

Characteristics	M ₂₀₁₆ -M ₁₉₈₉	s	95% CI	<i>d</i>	Sig. (2-tailed)
Income	0.06	1.04	-.054, .167	0.06	0.313
Promo	0.14	1.11	.025, .259	0.13	0.018
Jobsec	0.08	0.96	-.019, .186	0.08	0.109
Interest	0.18	0.95	.083, .285	0.20	<.001
Helpoth	0.42	0.86	.330, .513	0.49	<.001
Helpsoc	0.31	0.91	.215, .408	0.34	<.001
Indep	0.16	0.97	.053, .260	0.16	0.003

Chapter 6

DISCUSSION

In this paper, I applied the HAPC model to values and characteristics in a side-by-side comparison to explore changes across time. By disentangling period and cohort effects using a nationally-representative database and directly comparing worker characteristics to worker values, this study makes three overarching contributions to the literature. First, the results show that changes were associated with time periods to a much greater extent than generations. Second, both worker values and parallel work characteristics have changed over time, although the magnitude of changes associated with the work context were somewhat stronger. Third, these findings provide the largest scale and most comprehensive analysis to date of both worker values and work characteristics, which is critical to help organizations meet the demands of modern work and workers.

Source of Changes

Despite substantial attention to generational differences at work, the present findings strongly suggest that changes over the past three decades are much more attributable to the time period than birth cohort. In other words, changes in worker values and work characteristics are both apparent, on average across the workforce, rather than directed at a specific cohort. These findings are critical, as they suggest that organizations and researchers should direct their attention to changes that are influencing the average worker and not direct interventions at a specific cohort. For instance, there has been much discussion of tailoring recruitment to target

millennial employees. The present findings suggest that this would be a mistake, as it appears that value changes are occurring, on average, *across* the workforce.

In terms of effect magnitude, as noted above, generational effects were extremely small and even when statistically significant, were likely not practically significant. On the other hand, when significant period effects were observed, they seemed to at least weak to moderate in magnitude. This is an important insight as it suggests that period effects are likely non-negligible and will likely have a meaningful impact on the way organizations manage talent and the type of work completed on a day to day basis.

Changes in Workers vs. Changes in Context

Next, this is the first study of which we are aware to directly compare changes in work characteristics to changes in work values. In the management literature, the vast majority of research has emphasized changed in worker characteristics. However, the present results suggest that doing so omits a critical piece of the puzzle concerning the changing nature of work. In other words, the present results show that changes in work characteristics are at least as prevalent as changes in worker values. The focus on workers to the detriment of work context is in line with historical trends in the management literature to pay less attention to work context (Johns, 2006).

In addition to these broad trends, it is also instructive to more closely examine what changed, and what has not changed, in terms of worker values and work characteristics. In terms of worker values, the largest and most consistent changes were observed for the value for intrinsic rewards. The HAPC analyses provided evidence that value for interesting work, opportunities to help others, and help society at large generally increased from 1989 to 2006 but then dropped in 2016. This decrease is most pronounced in value for interesting work which

dropped to the same level in 2016 as it was in 1989. Interestingly, the corresponding characteristics remain higher with a slight decrease in 2016 for interesting work.

Although an increasing value for intrinsic rewards has often been attributed to Millennial workers in the popular press, these findings suggest otherwise. Over the past 30 years, the average worker, regardless of their generation have increasing values for interesting work, helping others, and helping society at large. Past research on motivation has frequently pointed to the importance of intrinsic rewards as the most critical motivations, but it is noteworthy that over time these have become even more important. On the other hand, it is also interesting that the most recent year of data collection saw a drop in the value for intrinsic rewards for the first time in 30 years. Recent research has speculated that it is possible that work has become too enriched and that further increases to enrichment could contribute to employee burnout (Wegman et al., 2016). In fact, this possibility is consistent with evidence for an increase in job characteristics skill variety and autonomy in past research (Wegman et al., 2016) as well as the increase in intrinsic job characteristics in the present study. In other words, although intrinsic characteristics are commonly considered the most motivating work characteristics, it is possible that continued increases can be too much of a good thing, as intrinsically motivating work is demanding on employees.

Next, it was surprising that the value for pay did not increase since 1989, given the present economic trends of wage stagnation and income inequality that began in the 1980's. However, a closer inspection reveals that the mean for value for high pay was already quite high, suggesting that pay has been an important value to workers since the beginning of the first data collection. Another possibility is that when evaluating their satisfaction with pay, workers do not evaluate relative to national standards or even past standards but instead, compare their pay to a

more local referent (e.g., coworkers in the same organization or individuals in similar positions at competing organizations). This possibility is consistent with the finding that workers' perceptions that their job provides high pay did not significantly change since 1989 and with a finding that objective salary is only weakly related to pay satisfaction (Judge, Piccolo, Podsakoff, Shaw, & Rich, 2010).

Lastly, value for autonomy within the workplace, in the form of independent work, slightly increased from 1989 to 2006 but faced a small drop in 2016 (see Figure 1.7). Based on the HAPC results, the period effect was significant but the change from 1989 to 2016 was practically miniscule. Value for flexible working arrangements faced a similar but earlier drop in 2006. While there is no comparison available for the characteristic of flexible working arrangements, the GSS did provide a corresponding question on provision of independence at work. This characteristic saw a steady, but weak, increase across time from 1989 to 2016, which is supported by both prior evidence (Wegman et al., 2018) and reasoning above. While the value for and characteristic of autonomy may not have changed over time, the means for both have remained relatively high across all years of data collection. Based on the results of Wegman et al. (2018), which compared means from 1975 to 2011 for autonomy, it is possible that these means reached a high point prior to the first year of data collection available.

The results bring into question the relationship between cohorts and worker values as only one significant cohort effect was found and the value in question was practically insignificant. With the HAPC model better able to control for cohort differences than conventional methods, these results indicate that the focus should be shifted towards studying differences due to time or context due to the latter's prevalence in the results.

Modern Work

With the present study, a comprehensive analysis of modern workers and both their values and work characteristics is now available. Not only are changes across time detected, but this study avoids confounding age, period, and cohort effects to a greater extent than most studies conducted in the past. By utilizing the GSS, more is now known about how work has changed over three decades for American, full-time workers. Workers value extrinsic rewards highly, even when changes are not detected, and although some of the corresponding characteristics have changed over time, the means remain contrastingly lower except for job security. In terms of intrinsic values and characteristics, workers seem to be well provided for in this context but a plateau or diminishing returns may have been reached by 2016. Finally, small changes in the autonomy values and characteristic across time may indicate that workers have been generally valuing the provided independence over the last three decades.

Future Directions and Limitations

As with the few previous studies which have incorporated the HAPC model or similar HLM analyses (e.g., Donnelly et al., 2016; Kowske, Rasch, & Wiley, 2010; Twenge, Carter, & Campbell, 2017), this study builds on investigations of age, period, and cohort effects. Nonetheless, this study faced several limitations which could be improved on with future research. One such limitation came from running the HAPC model in HLM 7. The model could only be run using maximum likelihood (ML) estimation as opposed to restricted maximum-likelihood-empirical (REML) or Bayesian estimation methods, where the latter are preferred for HAPC analyses (Frenk, Yang, & Land, 2013). ML estimators have a downward bias for variance components whereas REML methods do not (Yang & Land, 2013: 197), where the former is the only option available for cross-classified random effects models.

In addition, there were limitations associated with the GSS; such as it only had modules available for four years (posted in 8-9 year intervals) which makes it difficult to ascertain the exact impact that any particular context (e.g., discrete events or recessions) has on changes in values and characteristics. In addition, the earliest year of data collection available with relevant items was 1989, thus it was not possible to examine earlier changes in worker characteristics and worker values. Given the general trends presented here, we would expect larger changes over time. For cohort effects, due to the recency of the data, younger cohorts were not equally available as their older counterparts. The largest age groups available were born in the 1940s to 1960s range, which is evident in the one cohort effect found.

Lastly, although the HAPC model estimates age effects, we are unable to interpret them as we included controls such as education and race as fixed effects as well. Additionally, we provided no reasoning for any age effects and so leave that for future research.

Implications for Practice

These findings have important implications for research and practice. First, despite substantial popular press devoted to generational differences, this study suggests that for the most part there are not meaningful differences in generational work values. Thus, consultants and organizations should be very cautious in seeking to change talent management practices to better recruit or retain members from one generation or another. On the other hand, period base changes in values suggests that greater attention should be paid to understanding how workers are being broadly impacted by period changes attributed to both omnibus and discrete contexts.

Conclusion

Understanding how work has changed involves several perspectives which have not been fully integrated within and without the management literature. This paper demonstrates through

use of the HAPC model that without considering both cohort and period effects, the changing workforce cannot be fully understood. It is the case that both cohort and period affect the values of workers as well as the subsequent supply of the corresponding characteristic.

In addition, simultaneously analyzing how both workers and the workplace has changed brings to light different the two changes are. It cannot be assumed that changes in values are meant with equal changes in characteristics, but instead have different interactions based on the value/characteristic being examined. In general, cohort effects are weaker (or non-existent) than period effects and so researchers should accordingly focus their efforts on understanding the impact of other context rather than generations on the changing nature of work.

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