Work Values-Work Rewards Fit Across Ten Years and Work and Well-Being Outcomes in Young Adulthood

by

Jiawen Chen

A thesis submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

Department of Psychology
University of Alberta

Abstract

Guided by the person-environment fit theory, this study identified the latent profiles for work values-work rewards fit within time, transition patterns for fit profiles across time, and the effect of fit profile transitions on work-related and well-being outcomes in young adulthood. A total of 1,066 participants was surveyed three times in 1989 (ages 22 to 26), 1992 (ages 25 to 29), and 1999 (ages 32 to 36). At each measurement point, participants responded to items assessing intrinsic work values and rewards, good pay values and rewards, and job security values and rewards. In 1999, participants also reported on their job satisfaction, career satisfaction, career evaluation, physical well-being, mental well-being, and happiness. Latent profile analysis was used at each wave to classify participants into four distinct profiles characterized by the degree of fit between their work values and work rewards, labeled *good fit-intrinsically focused, good fit-balanced, good fit-intrinsically unconcerned,* and *poor fit*. The majority of participants belonged to the good fit-intrinsically focused profile, followed by the good fit-balanced profile. Latent transition analysis examined participants' transitions among the four profiles across three waves. Participants in the good fit-intrinsically focused profile and the good fit-balanced profile were more likely to remain in the same profile over time whereas those in the poor fit profile were more likely to move into the good fit-intrinsically focused profile and the good fit-balanced profile. Multiple regression analyses showed that participants who were in one of the three good fit profiles at every wave had the highest levels of career satisfaction and career evaluation by 1999. Participants who transitioned from the poor fit profile to one of the good fit profiles across time reported highest levels of job satisfaction. On the other hand, participants who ended up in the poor fit profile in 1999 reported the worst work-related and

well-being outcomes. Theoretical arguments and discussion are guided by a person-centered approach and a lifespan developmental perspective.

Acknowledgement

I wish to thank my two co-supervisors, Drs. Nancy Galambos and Lisa Strohschein, for their guidance in this research and throughout my graduate study. Their helpful feedback on my work and continued encouragement and support allowed me to pursue my research interest in developmental science. I would also like to thank Drs. Harvey Krahn, Matthew Johnson, and Sandra Wiebe for their thoughtful comments on this research and their support throughout my doctoral program.

My doctoral study was supported by a SSHRC Joseph-Armand Bombardier CGS Doctoral Scholarship. The *Edmonton Transitions Study (ETS)* was supported by grants from the Social Sciences and Humanities Research Council of Canada (SSHRC) and Alberta Advanced Education. Thanks also go to the University of Alberta Population Research Lab for collecting the *ETS* data used in this research.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Introduction

Work is an integral component of adult life. Most people spend a significant portion of their adult years in the labour force, employed in full-time or part-time, standard or nonstandard, paid or unpaid, and prestigious or undesirable jobs. A Statistics Canada (2016) survey found that 67% of Canadians over the age of 15 participated in the labour force (i.e., employed or actively looking for employment). In this dissertation, *work* is defined as paid employment that generates products or services valued by others in society (Krahn, Hughes, & Lowe, 2015).

Work serves crucial functions in human lives. It provides a financial means for people to maintain and improve the standard of living and quality of life, from affording basic necessities such as food and water, clothing, and housing to paying for things for personal enjoyment, such as interests, hobbies, and luxuries; in short, work has prominent extrinsic rewards. For many individuals, work is also an important source of intrinsic meaning in life (i.e., intrinsic rewards). However, not everyone with a high paying prestigious job is happy about their job and not everyone working in low paying menial jobs feels miserable about this. Job satisfaction and other work-related and general well-being outcomes depend on the compatibility or fit between a person's work values and work rewards.

The propositions that people (and their attributes) are differentially compatible with their work environment (and its characteristics) and that the degree of compatibility has important implications for attitudes, behaviors, and reactions pertaining to work are central tenets of person-environment fit (P-E fit) theory. Regarded by many scholars as a cornerstone of industrial/organizational psychology, P-E fit theory has maintained a dominant position in organizational behavior research (Edwards, 2008; Kristof-Brown & Guay, 2011; Saks & Ashforth, 1997; Schneider, 2001). Most P-E fit research has focused on the cross-sectional

relationship between P-E fit and outcomes. In this dissertation I adopt a lifespan developmental perspective, utilizing a longitudinal survey of a sample of Canadians to explore the importance of P-E fit between work values and work rewards (i.e., *work values-work rewards fit*) across young adulthood (the 20s and early 30s) for work-related (job satisfaction, career satisfaction, and expected career progression) and well-being (physical well-being, mental well-being, and happiness) outcomes measured in the early to mid-thirties. Specifically, this research addresses three questions:

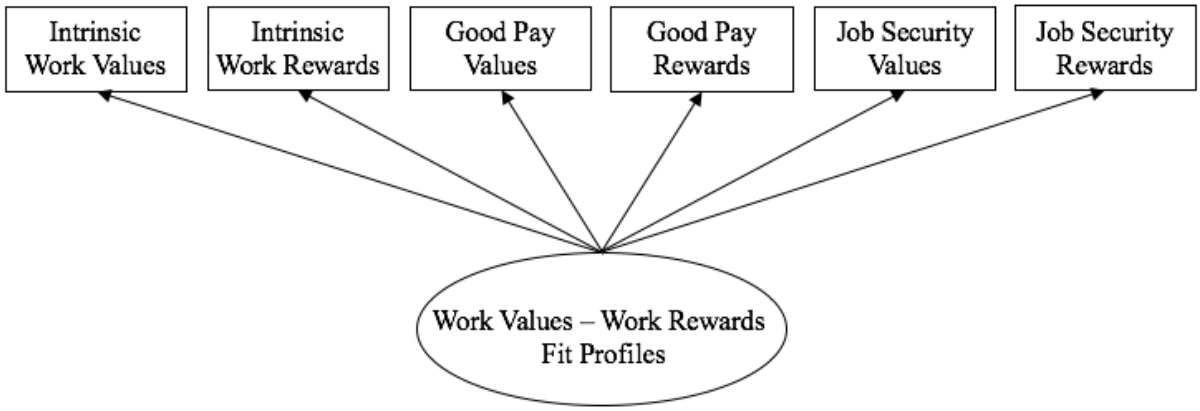
1) What conceptually and empirically coherent profiles reflecting the degree of fit between work values (intrinsic and extrinsic) and work rewards (intrinsic and extrinsic) will emerge at each of three waves of measurement (i.e., ages 22 to 26 in 1989, ages 25 to 29 in 1992, and ages 32 to 36 in 1999)? Figure 1 Panel A depicts the measurement model in which the latent *work values-work rewards fit* profiles at each wave are characterized by responses to items assessing intrinsic work values and work rewards, good pay values and rewards, and job security values and rewards.

2) What transition patterns will characterize respondents' movement into and out of these profiles of work values-work rewards fit across the three waves (i.e., from ages 22 to 26 in 1989 to ages 32 to 36 in 1999)? Figure 1 Panel B depicts the longitudinal model in which the probability of transitioning from one fit profile to another across waves is estimated.

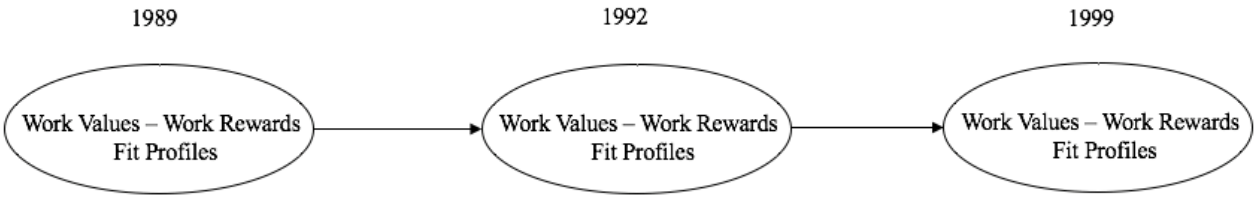
3) Do transition patterns predict work-related and well-being outcomes measured in 1999 (i.e., ages 32 to 36)? Figure 1 Panel C depicts the multiple regression model in which work-related and well-being outcomes were predicted by the transition patterns of fit profiles.

To answer these questions, I first use latent profile analysis (LPA) to group respondents based on their differing profiles of work values-work rewards fit at each wave, then conduct

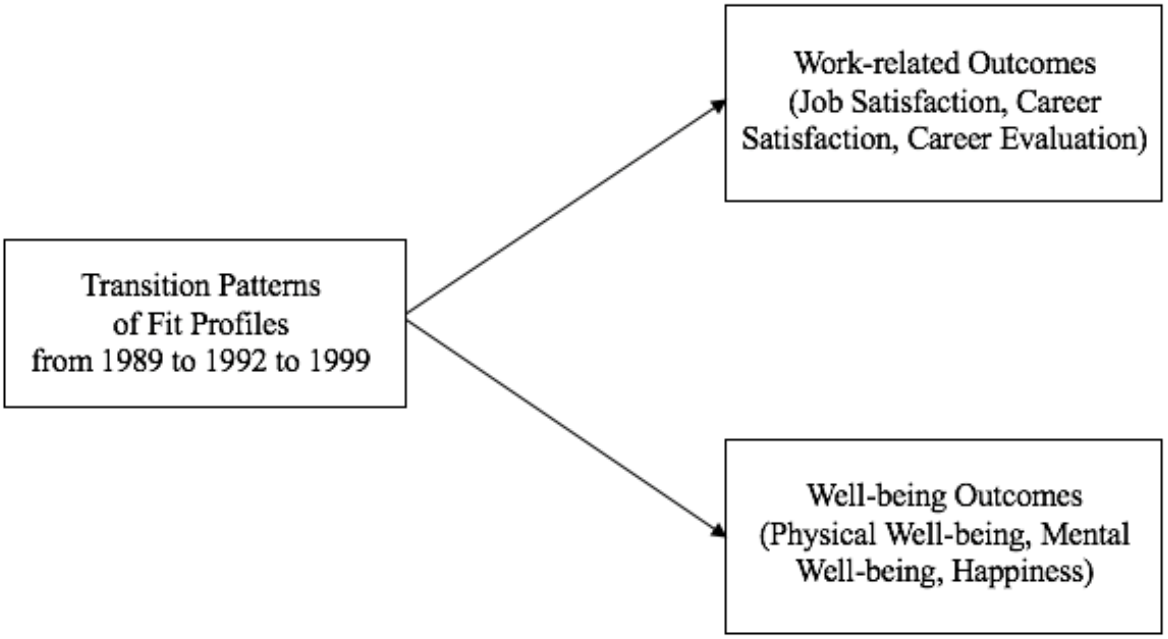
Figure 1. Measurement Models of Latent Profile Analysis and Latent Transition Analysis.



Panel A



Panel B



Panel C

latent transition analysis (LTA) to ascertain transition patterns of fit profiles across waves. The theoretical framework for this study draws on fit theories posited by Locke (1969, 1976) and French and colleagues (1974) that have been foundational for the advancement of P-E fit research.

Person-Environment (P-E) Fit

Broadly defined, P-E fit refers to the match, congruence, or similarity between person and environment characteristics (Edwards, 2008; Kristof-Brown & Guay, 2011). Research based on cross-sectional data has shown that a good fit between person and environment is associated with greater well-being, better job performance, lower levels of stress, and longer job tenure, whereas a poor fit has been linked to reduced well-being, poorer job performance, higher levels of stress, and more job turnovers (Kristof-Brown, Zimmerman, & Johnson, 2005; Verquer, Beehr, & Wagner, 2003).

Edwards (2008) credited Parsons's work on matching model of career decision making as the foundation for contemporary P-E fit research in organizational behavior. In his book, *Choosing A Vocation*, published over a hundred years ago, Parsons (1909) detailed the skill requirements of each major job at the time and gave advice on the compatibility between the demands of these jobs and workers' personal attributes and skills. Contemporary P-E fit researchers have also recognized the prominent influence of Lewin's field theory (i.e., behavior (B) is a function of both the person (P) and the environment (E), $B = \mathrm{F}(P, E)$; Lewin, 1951) on the formulation of P-E fit theories (Edwards, 2008; Harrison, 1978, 1985; Kristof-Brown & Guay, 2011). The advancement in P-E fit research has provided increasingly sophisticated theorization regarding several key criteria of P-E fit, including content dimensions of P-E fit, types of fit, measurement of fit, and relationships between P-E fit and its antecedents and

consequences. For example, P-E fit research has examined relationships between P-E fit and job stress and satisfaction, vocational choice, recruitment and selection, and organizational culture and climate (Breaugh, 1992; Holland, 1959; Schneider, Goldstein, & Smith, 1995). This diversified research scope has led to the study of different types of fit within an organizational setting, including person-vocation fit (e.g., fit between personal interests and vocational choice), person-job fit (e.g., fit between person characteristics and job characteristics), person-organization fit (e.g., fit between individual's personality and organization's culture), person-group fit (e.g., fit between person and coworkers), and person-supervisor fit (e.g., fit between person and supervisor; Kristof-Brown, 2005).

The current study focuses exclusively on *person-job fit* since the content dimensions of fit are respondents' work values and their perceived work rewards. In this section, I provide an overview of key P-E fit concepts and theories that shaped the course of this study. In particular, I identify the content dimensions of fit, discuss how fit is assessed, and propose hypotheses regarding the relationship between P-E fit and outcomes that I test. A major challenge hampering P-E fit research is the emergence of a plethora of divergent fit theories over the years that have limited the development of a strong and cohesive core theory of P-E fit. The current study draws its theoretical support from Locke's (1969, 1976) value-percept model and the person-environment fit theories of French and colleagues (1974), Caplan (1983, 1987), and Harrison (1978, 1985). The selected theories are the most parsimonious for the purpose of the current study and provide hypotheses regarding the nature of P-E fit and the relationship between P-E fit and outcomes, hypotheses that can be tested in the current study. In addition, the selected theories demonstrated their strengths in that they laid the foundation upon which future fit theories built.

Locke's Value-Percept Model

Locke's value-percept model (1969, 1976) is one of the most influential P-E fit theories for understanding job satisfaction (Edwards, 2008). Specifically, Locke views job satisfaction as resulting from people's subjective comparison of their work values and their perceptions of the corresponding aspects of their job (Locke, 1969). Thus, the three key elements in Locke's model are work values, subjective perception of corresponding aspects of a job, and conscious or unconscious comparison between the values and the perception. According to Locke (1976), values are what people subjectively desire or seek to attain, and have two dimensions – *content* and *intensity*. Content refers to what a person wants, and intensity ascribes importance to the content. High job satisfaction is achieved when a person judges that work values are fulfilled or closely matched by what the job offers.

The relationship between job satisfaction and value-percept fit can be either linear or curvilinear (Locke, 1976). The shape of a relationship depends on the particular value-percept fit under study. When the relationship is linear, the more that perceived rewards from a job fulfills a certain value, the more satisfied people are with that aspect of the job. For example, when people perceive their incomes are higher than they desire, they are more likely to be satisfied with their salaries. When the relationship is curvilinear, only good fit between work values and perceived work rewards results in job satisfaction. Both over fulfillment and under fulfillment of work values by perceived work rewards lead to reduced job satisfaction. For example, when people desire challenging tasks at work, the perception of the job not being challenging enough or being overly challenging can dampen job satisfaction.

Although Locke's main focus is on explaining job satisfaction, his model was later expanded to predict other outcomes, including stress, well-being, and quality of life (Edwards & Rothbard,

1999; Rice, McFarlin, Hunt, & Near, 1985). The strengths of Locke's model for guiding the present study lie in the clear definitions that he provides for person variables (i.e., work values), and environment variables (i.e., subjective perceptions of job characteristics). Furthermore, the model suggests it is the subjective evaluation of fit between work values and subjective perceptions of job characteristics that impacts outcomes. This clarity in construct definition and the proposed relationship between P-E fit and outcomes in Locke's model are attractive features for motivating this study.

French, Caplan, and Harrison's Person-Environment Fit Theory

Similar to Locke's model, French, Rodgers, and Cobb (1974) postulate that the subjective evaluation of fit between person and environment has important implications, in their case, for psychological strain (e.g., anxiety, stress, low self-esteem). However, whereas Locke claims that job satisfaction is affected only by fit between work values (i.e., subjective person) and people's subjective perception of their jobs (i.e., subjective environment) -- independent of the fit between their objective counterparts -- French et al. (1974) take into account both the subjective and objective representations of person and environment. The *objective person* refers to a person's actual attributes whereas the *subjective person* is the person's perception of his or her own attributes. Likewise, the *objective environment* is comprised of the physical and social features of the environment that are independent of the person's perception whereas the *subjective environment* is the person's perceived features of the environment. French et al. (1974) theorize that psychological strain is affected by the fit between the subjective person and subjective environment, which are imperfect reflections of the objective person (i.e., *accuracy of self-assessment*) and objective environment (i.e., *contact with reality*), respectively. Both accuracy of

self-assessment and contact with reality are susceptible to perceptual distortion and biased and/or limited cognitive processing.

In their subsequent work, Caplan (1983, 1987), French, Caplan, and Harrison (1982), and Harrison (1978, 1985) extended P-E fit theory, hypothesizing how different types of fit may impact psychological strain. In particular, when perceived job characteristics fail to meet people's needs, the greater the discrepancy, the more severe the psychological strain. On the other hand, when perceived job characteristics exceed needs, psychological strain can either remain constant, decrease, or increase. In the "strain remains constant" scenario, the effect of fit on psychological strain may level off once a good fit is achieved. That is, once a person's needs are met by perceived job characteristics, psychological strain reaches its lowest point. Improvement in job characteristics will not further influence psychological strain. In the "strain decreases" scenario, as perceived job characteristics continue to overwhelm needs, strain further diminishes. The more perceived job characteristics exceed needs, the less the strain. For instance, when a person's actual salary is higher than the desired amount, the extra money could be used for extra comfort or saved for future security. Either option would further reduce strain. In the "strain increases" scenario, strain first decreases as perceived job characteristics gradually match needs but increases again when perceived job characteristics meet and continue to surpass needs, rendering their relationship a U-shape. This scenario is similar to the curvilinear relationship theorized by Locke (1976).

Recent Advancements in P-E Fit Theory

Building on the work by Locke, French et al., Caplan, and Harrison, recent P-E fit theories have grown increasingly complex, incorporating elements from multiple work-related processes and dimensions while maintaining P-E fit as the centerpiece. For example, Breaugh (1992)

proposed a recruitment process model in which information gathered by a job candidate and information provided by the target organization together determine the accuracy of the candidate's expectations about the potential job, which, in turn, predict the congruence between the candidate's work needs and abilities and the organization's rewards and demands. Subsequently, person-job fit affects the person's job satisfaction and organizational commitment, which determine job longevity. In another P-E fit model oriented towards job selection, Werbel and Gilliland (1999) took into account three types of P-E fit simultaneously – person-job fit, person-organization fit, and person-group fit – to predict employees' job performance and organizational effectiveness.

In addition to expanding on existing theories, recent studies looked beyond a direct linkage between P-E fit and outcomes. For instance, Fahlen and colleagues (2009) found that poor fit between employees' effort and their rewards mediated the relationship between feelings of being "locked in" an occupation and/or place of work and length of sick leave. Lyons et al. (2014) showed that the mediational relationship between person-organization fit and job satisfaction through turnover intentions was moderated by perceptions of racial climate. Taris et al. (2005) found the extent to which employees' current job met job expectations formed prior to the start of their current job explained additional variance in job satisfaction and intent to quit beyond that predicted by work values-work rewards fit. Finally, in order to formulate a strong coherent theory of P-E fit, recent research has focused on clarifying and operationalizing the conditions of P-E fit, including clearly defining the content dimensions of P and E and distinguishing the different types of P-E fit and their assessment (Aguinis & Edwards, 2014; Edwards, 2008). I will further elaborate on these conditions in the following sections.

Theoretical Framework for the Current Study

The theoretical framework for this research draws on key elements from both Locke's model and French et al.'s theory. First, similar to Locke's model, fit between person and environment in the current research is the comparison between *work values*, on one hand, and perceptions of select aspects of a job, termed *work rewards,* on the other. Second, as for the content of P-E fit, I assume that work values and work rewards are subjective reflections of objective personal needs and job characteristics, respectively. They may not be the mirror images of their objective counterparts, but subjective evaluation should reflect reality, to some extent. Third, I hypothesize that longitudinal change in work values-work rewards fit has important implications for work and well-being outcomes. Guided by Locke and French et al.'s theories, the optimal relationship between P-E fit and outcomes should emerge when work values and work rewards show *good* fit. When a person's work values are not met by work rewards, outcomes are likely to suffer.

There is a paucity of multi-wave longitudinal research in the P-E fit literature. Despite agreement among researchers that P-E fit is a dynamic process, few studies have examined change in fit across multiple points in time (Kristof-Brown & Guay, 2011). In a three-wave longitudinal study spanning one year in college, Schmitt and colleagues (2008) found that students who showed poorer academic P-E fit (fit between a student's academic interests and goals and the student's academic environment, such as courses offered and helpful faculty) at the first wave improved the most in their fit over time. The current study contributes to the P-E fit literature by investigating longitudinal change in the fit between work values and work rewards across three waves over a 10-year period among a sample of young Canadians in their 20s and early 30s. The findings will provide information on P-E fit change in the first decade of a career, a time when both work values and work rewards may go through significant change (Johnson, 2001). I then examine how different patterns of change in work values-work rewards fit predict

work related and well-being outcomes. This analysis goes beyond cross-sectional assessment of the relationship between P-E fit and outcomes by examining how longitudinal change in P-E fit affects outcomes.

The theoretical framework for this research is congruent with a number of key assumptions underlying the lifespan development metatheoretical perspective (Baltes, 1987; Baltes, Lindenberger, & Staudinger, 2006; Lerner, Leonard, Fay, & Issac, 2011). First and foremost is that the lifespan perspective assumes that that development is life-long, and consists of "a system of diverse change patterns that differ, for example, in terms of timing (onset, duration, termination), direction, and order" (Baltes, 1987, p. 613). Second, the lifespan developmental perspective postulates that intraindividual changes occur through dynamic interactions between individuals and their contexts. In other words, development is a continuous process that involves different dimensions mutually influencing each other. Applied to the conceptualization of P-E fit, it is assumed that P-E fit is a continuous dynamic process. People's subjective evaluation of fit between their work values and work rewards go through changes as their career advances. Work values-work rewards fit shows plasticity (i.e., the potential for change, another key lifespan assumption) that leaves room for fit to either improve or worsen over time. Third, reflecting additional assumptions of the lifespan perspective, the content of P-E fit is considered to be multidimensional (i.e., considers both intrinsic and extrinsic aspects or dimensions of work values and of intrinsic and extrinsic work rewards) and multidirectional (e.g., fit between intrinsic work values-work rewards may increase while fit between extrinsic work values-work rewards may decrease, or vice versa). In the current research I examine one intrinsic aspect (i.e., the inherent characteristics of a job people desire, such as feeling of accomplishment) and two extrinsic aspects (i.e., the material aspects of a job people desire, such as good pay and job

security) of work values-work rewards fit. The fit among intrinsic work values-work rewards and extrinsic work values-work rewards may exhibit different patterns at each wave and change in different directions across waves. Fourth, the lifespan perspective assumes that the individual's previous history matters, that is, it is necessary to examine how differences between the past and contemporaneous events matter. As such, it is important to test the associations of past and current work values-work rewards fit with work-related and well-being outcomes. Change in fit over time could have important implications for work-related and well-being outcomes and change in those outcomes over time. Furthermore, work values-work rewards fit is likely influenced by a person's career stage. It is assumed that more people will report poorer fit in the early stage of their careers and, for many, their fit will improve over time.

The assumptions of the lifespan perspective call for multi-wave research investigating changes over time in values-rewards fit, and how these changes contribute to work-related and well-being outcomes. Next I provide more detail on the content of the current P-E fit research, that is, work values and their environmental counterpart, work rewards.

Content Dimensions of P-E Fit

Content dimensions of P-E fit refer to the specific person characteristics or variables and the environment characteristics or variables being compared for fit, such as the investigation of fit between valuing a high salary (the person variable) and the salary received (environment variable). The prerequisite for the conceptualization of P-E fit is the distinction between the person and the environment (Edwards, 2008), that is, the fit is between select characteristics of the person and corresponding characteristics in the environment.

P-E fit research has identified a wide collection of content dimensions. For example, Ostroff and colleagues (2005) compared employees' views on workplace interpersonal relations and

organizational goals with those held by their managers and coworkers. Tong et al. (2015) asked participants to evaluate, as a whole, compatibility with their organizations. Kieffer et al. (2004) examined the match between participants' personal attributes (e.g., competencies and job preferences) and their occupation. Shaw and Gupta (2004) assessed congruence between participants' preferred job complexity and actual job complexity.

Muchinsky and Monahan (1987) noted two overarching types of fit with respect to content dimensions – *complementary fit* and *supplementary fit*. Complementary fit occurs when person characteristics fulfill the demands of the environment or vice versa. Depending on the direction of fulfillment, complementary fit is further split into *needs-supplies fit* and *demands-abilities fit*. Needs-supplies fit describes instances when a person's needs are satiated by environment characteristics (e.g., work values-work rewards fit), whereas demands-abilities fit refers to situations where a person's abilities meet the requirements posed by the environment (e.g., job skill requirement-employee ability fit; Kristof, 1996). In contrast to complementary fit, supplementary fit emerges when person and environment characteristics are similar to each other (Muchinsky & Monahan, 1987). For example, when a person's career ambition is compatible with the company's business goals, there is good supplementary person-organization fit. The focus of the current study is on examining work values-work rewards fit, a type of needs-supplies fit under the broader complementary person-job fit conceptualization.

In addition to distinguishing different types of fit, P-E fit scholars have emphasized the importance of using commensurate person and environment variables when studying P-E fit (Edwards, Caplan, & Harrison, 1998; Kristof-Brown, 2005; Tinsley, 2000). Person variables and environment variables are said to be commensurate when they refer to the same content dimensions. For example, when the person variable measures how much a person values job

security and the environment variable measures how much job security the person's current job has, the person and environment dimensions are commensurate. Only when the same content dimensions are compared, can we assess with confidence the fit between person and environment. Without commensurate content dimensions, we may very well be comparing apples to oranges. In this study the person variables are respondents' intrinsic and extrinsic work values and the environment variables are the matching intrinsic and extrinsic job rewards. Intrinsic and extrinsic work values reveal the desired goals people want to achieve through working, both intangible and tangible; intrinsic and extrinsic work rewards indicate how well a person's work meets these specific goals (Rosso, Dekas, & Wrzesniewski, 2010). Hence, work values and work rewards are commensurate person and environment variables as they refer to the same content dimensions.

Work Values

Why do people work? The most obvious answer to this question and the most basic function of working is to maintain a livelihood. By working, people make money to buy food and clothes and pay for housing. However, in Canada and other developed countries where having food and shelter to meet basic survival needs is not the only concern for most people, the meaning and importance of work have transcended its basic survival function. That is, when survival needs are met, people can focus on higher order needs such as achievement, self-esteem, creativity, and spontaneity – needs for self-actualization (Maslow, 1954). Most people desire work that enables them to realize both basic and higher order needs. Such work-related goals are termed *work values*, desirable end states people feel they ought to achieve through working (Nord, Brief, Atieh, & Doherty, 1990). Research shows that people are more likely to choose jobs whose value attributes are similar to their own values (Judge & Bretz, 1992). Work values represent what

people want out of their work. These values are specifically relevant to a person's occupational life but are derived from basic human values.

According to values theory, basic human *values* are desirable goals that serve as guiding principles of belief and behavior across situations in people's lives. These values represent people's conscious response to the three main challenges every individual and society has to solve. These challenges are meeting the needs of the individual person, coordinating interactions within and between social groups, and ensuring the survival and functioning of social groups (Ros, Schwartz, & Surkiss, 1999). Research has identified four broad categories of basic human values: *conservation* or *extrinsic* values that emphasize the survival of the human species and preservation of its cultures through procurement of resources; *intrinsic* values that emphasize independent thought, action, and self-direction; *social* values that emphasize acceptance of and coordination with other people; and *prestige* values that emphasize power and authority (Schwartz, 1994). These four categories encompass common values that most people uphold, such as personal safety and well-being, freedom to voice different opinions, and equality across people (e.g., gender equality, racial equality).

Similar to basic human values, work values constitute a multidimensional construct. One of the most widely studied work value configurations is the intrinsic/extrinsic values dichotomy. *Intrinsic work values* refer to the inherent characteristics associated with a job that people desire, such as its interestingness and opportunity for self-actualization (Kalleberg, 1977). *Extrinsic work values* are about the desired material gains through working, such as income and job security. Aside from the intrinsic/extrinsic values dichotomy, work scholars have theorized other work value dimensions. These work value dimensions include social values (Ginzberg, Ginsburg, Axelrod, & Herma, 1951), prestige values (Ros, Schwartz, & Surkiss, 1999),

convenience, relationships with co-workers, and career resource adequacy values (Kalleberg, 1977), modality of outcome (affective, cognitive, or instrumental) and outcome-performance relationship (reward or resource) facets (Elizur, 1984), material outcomes, achievement, a sense of purpose, and self-concept enhancement and maintenance values (Locke & Taylor, 1990; Rokeach, 1960, 1973), as well as the single predominant cultural value system like the Protestant work ethic (Krahn, Hughes, & Lowe, 2015; Rosso et al., 2010).

For this study I focus on intrinsic and extrinsic work values for two reasons. First, they reflect the tradition of well-studied work value dimensions in past research, allowing a direct comparison and contribution to the literature. Second, the data used for this study contain measures of intrinsic and extrinsic work values that have been extensively used and validated in previous research.

However, even with the simple intrinsic/extrinsic value dichotomy, a diversity of operationalizations of intrinsic and extrinsic work values has appeared in the literature. For example, studies have measured intrinsic work values using items on work creativity, interestingness, opportunity to learn and use skills, diversity of tasks, autonomy in decision making, achievement, helping others, esthetics, intellectual stimulation, work management, and importance of work (Cotton, Bynum, & Madhere, 1997; Johnson, 2001; Lindsay & Knox, 1984; Mortimer & Lorence, 1979; Porfeli & Mortimer, 2010; Post-Kammer, 1987; Sortheix, Chow, & Salmela-Aro, 2015). In the current study I operationalize intrinsic work values with three items: the job being interesting, allowing the use of a person's skills and abilities, and granting a sense of accomplishment. This operationalization shares important similarities with those from previous research (Johnson, 2001; Mortimer & Lorence, 1979; Porfeli & Mortimer, 2010), and is supported by confirmatory factor analysis performed during the statistical analysis of this study.

Extrinsic work values have had fewer variations in operationalizations than intrinsic work values. Most studies operationalized extrinsic work values in terms of income, job security, and chance for promotion (Cotton et al., 1997; Johnson, 2001; Johnson & Monserud, 2010; Mortimer & Lorence, 1979; Post-Kammer, 1987; Sortheix et al., 2015). Some studies also included occupational prestige as an aspect of extrinsic work values (Johnson, 2001; Johnson & Monserud, 2010; Post-Kammer, 1987). In this study two kinds of extrinsic work values were assessed: having good pay and having job security.

Stability and Change in Intrinsic and Extrinsic Work Values from the Transition to Adulthood through Young Adulthood

P-E fit is a dynamic process (Caplan, 1983, 1987; Chatman, 1989; Dawis & Lofquist, 1984; French et al., 1974, 1982; Harrison, 1978, 1985). Because of the scarcity of multi-wave longitudinal studies in the P-E fit literature, however, it remains unclear how P-E fit, specifically work values-work rewards fit, changes during the transition to adulthood and across the lifespan. Traditionally, work follows the completion of schooling as one of the social markers of entering adulthood. But changes in economic and social environments in affluent regions of the world in the past three decades have led to delayed entrance into adulthood for many young people. The timing and ordering of achieving the traditional social markers of adulthood – completing education, starting a career, getting married, and becoming a parent – have also become less normative (Arnett, 2000; Côté & Bynner, 2008; Mitchell, 2006; Shanahan, 2000). Such prolonged and non-normative experience could have important influences on young people's work values and work rewards during the transition to adulthood. Thus, it is imperative to have a better understanding of how fit between work values and work rewards changes during this life period and the implications of such change.

Research has identified three important factors that shape work values in adolescence. The first factor is parental influence. Parents' work values may be transmitted to their children, especially when children have limited exposure to adult work (Kohn & Schooler, 1969; Kohn, Slomczynski, & Schoenback, 1986; Mortimer & Lorence, 1979; Roest, Dubas, & Gerris, 2010). For example, Dekas and Baker (2014) found that parents who viewed work as a means to make money were more likely to have children whose work values in adulthood stressed monetary compensation; parents who viewed work as a way to achieve higher social status were more likely to have children who held similar values in adulthood; and parents who viewed work as a path to personal fulfillment were more likely to have children who later shared similar goals. In a study examining adolescents' work ethic, ter Bogt and colleagues (2005) reported that it was influenced by the cultural values passed down by parents such that adolescents who held more traditional cultural values (e.g., men and women have different social and familial roles) expressed a stronger work ethic (e.g., a deeply felt obligation to work, commitment to a steady job).

The second factor that may influence the formation of work values is a person's socioeconomic status. In particular, those from poorer families are more likely to place greater emphasis on extrinsic work values such as good pay and job security than intrinsic work values (Cotton et al., 1997; Hirschi, 2010; Johnson & Mortimer, 2011). Third, adolescents' experience with part-time jobs may influence their work values. Although working part-time in adolescence is often merely a way to obtain material goods (e.g., buying clothes) and fund leisure activities (e.g., going out with friends) for many youth in North America, part-time working experience may still affect their future work values. For example, Porfeli (2008) found that part-time work values (work values that manage and encourage immediate engagement with work opportunities)

mediated the relationship between part-time work experiences and anticipated adult work values (work values that guide and promote long-term career-oriented behaviors and choices) among a group of American high school students. Specifically, part-time work experiences and part-time work values influenced each other and part-time work values were in turn reciprocally associated with anticipated adult work values. Mortimer and colleagues (1996) also reported that adolescent jobs that assisted skill development were positively associated with both intrinsic and extrinsic work values in a U. S. sample.

Intrinsic and extrinsic work values show different trajectories of change from adolescence to young adulthood. In their meta-analysis of 22 longitudinal studies of work values from late adolescence (age 18) to young adulthood (age 30 and over), Jin and Rounds (2012) reported significant rank-order stability for both intrinsic and extrinsic work values during this period. In addition, this meta-analysis showed that the mean level of intrinsic work values changed little, aside from a slight increase during the transition to adulthood. Analyzing longitudinal Canadian data collected from ages 18 to 25, Krahn and Galambos (2014) observed that intrinsic work values experienced a small increase between age 18 and 25, and Chow and colleagues (2014) found an increase in the first few years after high school, which tended to reverse by age 25. This suggests that intrinsic work values show rank-order stability and the potential for some mild mean-level change in the first decade of full-time employment. Young adults maintain and may slightly enhance their intrinsic work values during this period.

On the other hand, Jin and Rounds's meta-analysis (2012) found that, on average, extrinsic work values first decreased during the college years (around age 22) then increased continuously through young adulthood (the mid 20s to early 30s). A decrease in extrinsic work values between age 18 and 25 was reported by Chow et al. (2014) and Krahn and Galambos (2014) in their

Canadian samples. Moreover, the mean level of extrinsic work values was constantly lower than that of intrinsic work values from late adolescence to young adulthood (Jin & Rounds, 2012). This finding suggests that young people do not place the same level of emphasis on the extrinsic aspects of their work, such as work pay and job security, as they do on work's intrinsic aspects, especially during the transition to adulthood. However, regard for the extrinsic aspects of work grows stronger as they approach the late 20s (Jin & Rounds, 2012), possibly because around this time they start to form their family and raise children, both of which require greater financial resources. The findings that young adults placed greater importance on intrinsic than on extrinsic work values (Chow et al., 2014; Cotton et al., 1997; Johnson, 2001; Johnson & Monserud, 2010; Malka & Chatman, 2003; Mortimer & Lorence, 1979; Sortheix et al., 2015) may also be attributed to the fact that most of these studies surveyed young adults from developed countries where there is more material affluence. Young people from affluent background tend to place less emphasis on extrinsic work values and more emphasis on intrinsic work values (Johnson & Mortimer, 2011).

The change in work values across time, both within-person and between-cohort, reflects the influence of social norms, interpersonal interactions, as well as work experiences (Rosso et al., 2010). One factor of particular interest for the current research is work rewards, the rewarding experience and outcomes obtained through working. Corresponding to work values, work rewards consist of an *intrinsic* dimension, the gratifying experience derived from the job (Snipes, Oswald, LaTour, & Armenakis, 2005), and an *extrinsic* dimension, such as good pay and job security (Mortimer, Harley, & Staff, 2002). This study uses intrinsic and extrinsic work rewards items that assess the work experiences corresponding to participants' intrinsic and extrinsic work values, respectively. This enhances the validity of the fit comparison between work values and

work rewards as items assessing these constructs mirror one another, meeting the commensurate criterion of P-E fit research.

For many people, intrinsic and extrinsic work rewards are expected to improve as their careers advance. For example, intrinsic work rewards could improve as people better understand the nature of their work and their own inherent needs from their job. Extrinsic work rewards could improve through job promotion and pay raises. Such changes should yield change in fit between work values and work rewards over time.

Assessing P-E Fit

According to P-E fit theories, work values and work rewards jointly affect a person's attitude towards work. Research shows that good fit between work values and rewards is associated with greater work satisfaction, greater organizational commitment, and less intent to quit (Kristof-Brown, 2005; Porfeli & Mortimer, 2010; Verquer, Beehr, & Wagner, 2003). Job satisfaction suffers and people become more inclined to quit when their jobs fail to fulfill their work values (Taris & Feji, 2001). But how do we assess fit between person and environment?

P-E fit scholars have distinguished among three types of fit based on whether fit is measured directly or indirectly and from the same source or different sources. *Perceived fit* refers to the direct assessment of fit between person and environment reported by the same person (Kristof, 1996). A sample question assessing perceived fit is, "how well do you think your current job matches your career goals?" When assessing perceived fit, respondents are responsible for mentally comparing the person variables with the environment variables, and arriving at their own perception of fit. The second type of P-E fit is *subjective fit*, which researchers assess indirectly by measuring person variables and environment variables separately as reported by the same person, and then comparing the two separate assessments (Kristof-Brown, 2005). Research

involving subjective fit is often conducted by mathematically manipulating the person and environment variables, such as taking the absolute difference between the two variables, computing the interaction, calculating their correlation, or entering both variables simultaneously into a polynomial regression analysis along with some outcome variables (Edwards, 1991, 1998). The third type of P-E fit is *objective fit*, assessed indirectly by comparing person variables with environment variables that are reported by different sources (Kristof-Brown, 2005). For example, objective fit is often obtained when person variables are reported by a respondent while environment variables are reported by the supervisor or other coworkers.

All three types of fit are subject to cognitive and perceptual biases. According to Kristof-Brown (2005), *perceived fit* has the most room for cognitive distortion because the fit assessment is all done in respondents' head. In order to match work related attitudes and behaviors and minimize cognitive dissonance, respondents may unconsciously adjust the perceived fit between themselves and the work environment. In so doing, perceived fit should have the strongest effect on work related attitudes and behaviors in comparison with subjective and objective fit.

For *subjective fit*, person variables and environment variables are assessed separately, albeit still from the same source. Subjective fit should also have strong relationships with work related attitudes and behaviors as the separate assessments of the person and environment variables originate from the same person, hence, are liable to cognitive distortion. On the other hand, *objective fit* is likely to have the weakest relationships with work related attitudes and behaviors because one or both of the person and environment variables are assessed independent of the person's perception. In this study, I measure subjective fit between work values and perceived work rewards. The use of subjective fit meets the assumption of both Locke's (1969, 1976) and

French et al.'s (1974, 1982) theories that P-E fit is the subjective evaluation of fit between the subjective person and the subjective environment.

Whether assessing subjective or objective fit, the approach to measuring P-E fit in early research was to calculate fit indices from the person and the environment variables. The literature has documented numerous strategies to derive fit indices, including algebraic difference, absolute difference, squared difference, ratio, product, correlation, and sum (Edwards, 1991, 1994). However, Edwards (1991) argued that the use of fit indices does not provide either conceptual advantage or increased explanatory power over separate person and environment measures because they contain no additional information beyond that provided by their constituents. In fact, fit indices conceal the multidimensional nature of the P-E fit conceptualization by collapsing the person and environment measures into a single score (Edwards, 1991). Fit indices such as difference scores also confound the effects of their components, masking the relative contribution from each component to the relationship between fit and an outcome (Edwards, 1994). In addition, difference scores lose information on the absolute values of the person and environment variables, which may be important in explaining the relationship between fit and an outcome. For example, two persons with the same difference score may have very different person and environment scores (e.g., one person scores high on both measures and the other low on both measures). This important distinction in their person and environment measures that are not conveyed by the difference score could be critical to explaining an outcome.

To avoid the use of fit indices, P-E fit scholars have advocated treating the person and the environment measures separately using polynomial regression analysis (Edwards, 1991, 1994; Kristof-Brown, 2005). Polynomial regression analysis presents results using a three-dimension

response surface, with each of the person and the environment variables occupying one axis and an outcome variable taking the third axis. In this way information contained in both the person and the environment measures is retained and their respective contribution to the relationship between fit and an outcome is not confounded. However, there are two major drawbacks with respect to polynomial regression. First, it is only suitable for cross-sectional data. From a lifespan developmental perspective, human development is a continuous lifelong process (Baltes et al., 2006). To ascertain and unravel the complexity of human development, it is necessary to take advantage of longitudinal data reflecting how people change over time. With respect to the study of P-E fit, it is important to investigate how fit changes over time, across different life periods, and how such change would affect outcomes (Edwards, 1998).

The second drawback of using polynomial regression is the limitation of only examining one content dimension at a time. As Magnusson (2003) argues, from a holistic-interactionistic perspective, developmental processes should not be decomposed into individual components. The whole is more informative than what is contained in each individual component. In the current study, both the person and the environment variables have two dimensions – intrinsic and extrinsic work values and intrinsic and extrinsic work rewards. It is likely more informative to simultaneously examine the fit of both dimensions than to look at each dimension separately. In light of these two major limitations of polynomial regression analysis, I propose the use of latent profile analysis (LPA) and latent transition analysis (LTA) to address my research questions.

Previous P-E fit research has largely followed a variable-centered statistical approach. With the use of either fit indices or polynomial regression, the emphasis of a variable-centered approach is on identifying relationships among variables. It is assumed that the same relationship between fit and outcomes applies equally well to everyone (i.e., the mean), with deviation from

this relationship on a person-to-person basis (i.e., the variance around the mean). LPA and LTA, on the other hand, represent a person-centered approach. As Bergman and Magnusson (1997) argue, person-centered approaches distinguish individuals on the basis of their *patterns* of relevant characteristics and group people into a finite number of groups; these patterns of characteristics differentiate individuals in different groups (Magnusson, 2003). LPA identifies latent groups of individuals that exhibit similar patterns of fit configuration between both intrinsic and extrinsic work values and work rewards within time. Thus, similar to polynomial regression analysis, LPA retains information on both work values and work rewards without reducing them to a single score. Moreover, LPA allows the simultaneous modelling of both intrinsic and extrinsic work values and work rewards, adopting a holistic approach to studying work values-work rewards fit. In other words, using LPA, respondents' scores on a diverse set of work values and work rewards will be used to group each individual into a given profile or group (e.g., good fit between values and rewards; poor fit between values and rewards) based on their shared similarity on interrelationships among the values and rewards. After latent groups are identified at each wave, LTA explores the many pathways (e.g., from good to poor fit or vice versa) that individuals may follow in transitioning into and out of different latent groups across time. These transition patterns can then be used to predict work related and well-being outcomes.

Work Values-Work Rewards Fit Profiles in Young Adulthood

P-E fit theory maintains that a good fit between person and environment variables is likely to be associated with preferable outcomes whereas a poor fit is likely to be related to adverse outcomes. This implies that, at any time within a population, it is highly probable that there is at least a good fit group and a poor fit group, though the size of these groups may vary depending on the content of fit. Thus, for this study I hypothesized that at each wave LPA would yield at

least one good fit work values-work rewards latent group and one poor fit latent group. However, there may be more than one good fit or poor fit latent group at each wave for two reasons. First, poor fit can occur in two ways for each of the intrinsic and extrinsic dyads. Consider P-E fit along a spectrum. Good fit emerges around the middle of the spectrum whereas poor fit appears at both ends. That is, at one end work values could exceed work rewards, and at the other end, work rewards could exceed work values (Caplan, 1983, 1987; French et al., 1982; Harrison, 1978, 1985). For example, using polynomial regression analysis, Profeli and Mortimer (2010) showed that both types of poor fit existed with respect to the intrinsic work values-work rewards dyad in their study, and that both types of poor fit were related to lower work satisfaction in comparison with good fit, especially high intrinsic work values-high intrinsic work rewards good fit. However, as Harrison (1985) noted, research on fit between values and rewards of job characteristics tended to find one-sided distributions in which work values consistently exceeded work rewards. Studies examining the fit between employees' personal values and organizational values (i.e., norms specifying how organizational members should behave and how organizational resources should be allocated) also showed that employee values outscored organizational values (Edwards & Cable, 2009; Meyer, Hecht, Gill, & Toplonytsky, 2010; Newton & Mazur, 2016). Thus, in the current study we may not observe a poor fit group in which work rewards exceed work values.

The second reason for the possibility of observing multiple good fit or poor fit latent groups at each wave is that I test the fit of three work values and work rewards dyads simultaneously. For example, there may be multiple good fit groups, some with higher absolute values of intrinsic work values and work rewards, and others with higher absolute values of extrinsic work values and work rewards. Similarly, there may exist numerous poor fit groups, with some

exhibiting poor fit in the intrinsic dimension, and others exhibiting poor fit in the extrinsic dimension or both. Given the lack of research examining fit in this manner, I do not pose more specific hypotheses concerning the number of likely groups.

Furthermore, I hypothesize that more people will fall into poor fit group(s) in earlier waves, and the size of poor fit group(s) would decrease in later waves. That is, I expect to observe a trend of improvement in work values-work rewards fit over time. For many young people, it is only when they complete education and make the transition to full-time work that their work values are really tested by their work rewards. At this early stage of their career, it is unlikely that their work rewards would match their work values, both intrinsic and extrinsic. For example, they may not have the freedom that they would like to make decisions at work due to their junior status and inexperience. And they may not make as much money as they would like from work. This might be especially true for people with higher work values. This situation creates poor fit between work values and work rewards, both intrinsic and extrinsic.

However, it is plausible to speculate that young workers who are just starting their careers may anticipate this initial discrepancy, hence, have either set lower work values or heightened the perception of their work rewards so that a better fit is perceived and cognitive dissonance is reduced. In addition, the critical difference models of P-E fit (Kulka, 1979) posit there is a range of tolerance around perfect fit such that no damage is done when P-E fit is close though not perfect, and unfavorable outcomes only emerge when poor fit exceeds the range of tolerance. Thus, slight misfit between work values and work rewards may not be detrimental to work-related and well-being outcomes. Indeed, Edwards and Harrison (1993) reported that when both needs and supplies are high, depression is minimized when supplies are somewhat less than needs (e.g., when work rewards are slightly less than work values), whereas when both needs

and supplies are low, depression is minimized when supplies slightly exceed needs. Therefore, at any time point, there should also be a good fit, or at least close fit, latent group alongside at least one poor fit latent group.

Work Values-Work Rewards Fit Transition Patterns Through Young Adulthood

According to Porfeli's (2007) review of work value development, the general theory pertaining to the human value system suggests that change in values, either reinforcement or suppression of values, is related to the congruence or discrepancy between a value and an associated experience. Poor fit between work values and work rewards produces dissatisfaction. In order to relieve dissatisfaction, either the values or the rewards or both would have to change. Work values can both shape and be shaped by a person's work rewards (Johnson, Sage, & Mortimer, 2012; Locke & Taylor, 1990). Following this logic, poor fit between work values and work rewards may be coped with in one of the following three ways.

First, people may alter their work rewards, such as change jobs, get promoted, or modify their subjective appraisal of their work environment, so that work rewards fit better with their work values. Second, work values may be adjusted to match work rewards. When there is incongruence between work values and work rewards, work values may be modified in accordance to the actual rewards obtained through work, thereby maintaining a positive self-concept (Rokeach, 1973). For example, people may reinforce values that are rewarded by their work (Johnson et al., 2012), or they may bring their values close to the actual rewards. The third possibility is that as young people become seasoned workers over time, their improved status at work, coupled with their growing understanding of what they want out of work, would lead to better coordination between work values and work rewards (Johnson, 2001). That is, work values and work rewards converge over time to improve fit between the person and the environment. In

any of the three scenarios the number of people in the poor fit latent group(s) would decrease across waves. Those who left the poor fit group(s) would join good fit group(s) that demonstrate the characteristics of either lowered work values, improved work rewards, or a convergence of the two facets. Although the current study does not examine how work values and rewards change in response to their levels at earlier points in time (a variable-centered focus), it observes how the fit pattern changes across time.

I expect to observe the following latent transition patterns of work values-work rewards fit. The first pattern would be people who stayed in a good fit latent group at each wave. These are people who demonstrated a match between their work values and work rewards at all waves, regardless of their absolute levels of values and rewards. The second pattern would be people who stayed in a poor fit group at each wave. These individuals subjectively experienced poor fit between work values and work rewards at all waves. The third pattern would include people who started in a poor fit group but joined a good fit group in later waves. In contrast, the fourth pattern should include people who started in a good fit group but moved to a poor fit group in later waves as their work values-work rewards fit declined over time. Moreover, LTA may yield two other latent transition patterns reflecting instability. One pattern would include people who started in a poor fit group, moved into a good fit group in the subsequent wave, but then moved back into a poor fit group in the following wave. The other pattern shows the opposite path in which people started in a good fit group, moved into a poor fit group, then moved back into a good fit group across waves. Due to the exploratory nature of this study, it is unknown a priori whether all patterns hypothesized will be observed and what the size of each transition pattern will be.

Outcomes of Work Values-Work Rewards Fit Transition Patterns

My goal in identifying latent transition patterns is to use these transition patterns to predict work related and well-being outcomes. Most P-E fit research has employed cross-sectional or two-wave designs to examine the relationship between fit and outcomes, which do not allow the investigation of change in fit over a significant period of time as well as the impact of such change. Using a two-wave Dutch sample, Feij and colleagues (1999) observed an improved fit in vocational interests and perceived skill requirements between age 18 and 26 years. Johnson and Monserud (2010) found that from age 17-18 to age 23-24, intrinsic work values became an increasingly stronger predictor of intrinsic work rewards as measured at age 29-30 in a US sample. It remains unclear what the effect of change in fit between work values and work rewards has on work and well-being outcomes.

Work Related Outcomes

In the current research work-related and well-being outcomes were measured some ten years after most respondents in the sample started working full time (i.e., 1999). For work-related outcomes, I use latent transition patterns of work values-work rewards fit to predict job satisfaction (satisfaction with current job), career satisfaction (satisfaction with career as a whole), and career evaluation (whether people have reached the stage of career they expected). In the P-E fit literature, job satisfaction is one of the most studied outcomes (Kristof-Brown & Guay, 2011). As Kalleberg (1977) pointed out, prior to using both person and environment variables to explain variations in job satisfaction, scholars had sought to explain job satisfaction first through differences in employees' personalities then through differences in the nature of jobs performed. However, both approaches failed to consider the person and the job simultaneously. Goldthorpe and colleagues (1968) argued that, to explain job satisfaction, it is necessary to pay attention to the meanings employees impute to their job as well as to consider

work as the relevant context. This view resonates with the principles of P-E fit theory. Kristof-Brown et al.'s meta-analysis (2005) showed that good person-job fit that includes complementary needs-supplies fit, complementary demands-abilities fit, and combined needs-supplies and demands-abilities fit is a significant predictor of job satisfaction (r = .56). In addition, good fit between high work values and high work rewards is associated with greater job satisfaction than good fit between low work values and low work rewards (Porfeli & Mortimer, 2010). Given these prior cross-sectional results, I hypothesize that, using longitudinal data, people who belong to the continued good fit transition pattern will report the highest level of job satisfaction while people in the continued poor fit transition pattern will report the lowest level of job satisfaction. Those in other transition patterns will report levels of job satisfaction in between these two groups. Similar results should be observed for career satisfaction and career evaluation.

Furthermore, because job satisfaction was previously measured in 1989, it is included as a covariate in the multiple regression analysis for 1999 job satisfaction. This addition allows me to observe whether change in job satisfaction from 1989 to 1999 differs among participants with different fit profile transition patterns. Specifically, because good P-E fit is associated with higher levels of job satisfaction, I expect people who continually experience good work values-work rewards fit to show less change in job satisfaction between 1989 and 1999, as their job satisfaction is likely to stay at higher levels. Similarly, since poor P-E fit is associated with lower levels of job satisfaction, I expect that people who constantly experience poor fit will have little change in job satisfaction as it is likely to remain at lower levels. On the other hand, people who experience improvement in fit over time are expected to show an increase in job satisfaction

whereas those who experience deterioration in fit are expected to report a decrease in job satisfaction.

Well-being Outcomes

Given that a central research goal in studying workplace P-E fit is to promote organizational effectiveness through employee management, less attention has been given to the effect of P-E fit on general well-being outcomes. However, it is reasonable to speculate that individuals experiencing better P-E fit should have high levels of general well-being as research consistently shows that better person-job fit is associated with lower levels of psychological strain (r = -.28; Kristof-Brown et al., 2005). It also makes sense that individuals experiencing better work-related affects, such as greater job satisfaction and career satisfaction, would be more likely to have higher levels of general well-being. Indeed, Shaw and Gupta (2004) showed that poor fit between employees' preferred job complexity and their actual job complexity was related to a greater number of somatic complaints and depressive symptoms, especially for those with poorer job performance. Edwards and Harrison (1993) also found that individuals with good fit between their preferred and actual job characteristics (e.g., job responsibility, work load) were less depressed than those with poor fit.

A few studies have demonstrated positive associations between P-E fit and subjective well-being and life satisfaction (Taris & Feij, 2001; Wille, Tracey, Feys, & De Fruyt, 2014). Ton and Hansen (2001) also reported that work values-work rewards fit indirectly predicted happiness through work satisfaction. In this study I use latent transition patterns to predict self-reported physical well-being, mental well-being, and happiness. As with job satisfaction, physical well-being, mental well-being, and happiness measured in 1989 are included in their respective analysis as a covariate so that the relationships between fit profile transition patterns and change

in well-being are examined. Similar to the hypotheses regarding job satisfaction, I expect that people who constantly experience good fit or poor fit to have little change in their well-being between 1989 and 1999 whereas people who have improved fit over time will show an increase in well-being and people with diminished fit will experience a decrease in well-being.

The Current Study

This study uses a longitudinal design to investigate change in work values-work rewards fit profiles over the first decade of individuals' careers and the influence of such change on work related and well-being outcomes. The sample was part of a seven-wave longitudinal study spanning 25 years (Wave 1: 1985; Wave 2: 1986; Wave 3: 1987; Wave 4: 1989; Wave 5: 1992; Wave 6: 1999; Wave 7: 2010) taking place in a mid-sized western Canadian city. The original study had a total of 1,572 respondents at Wave 1, and consisted of two cohorts: a group of graduating high school seniors and a group of graduating university students. The current study used data (from a subsample of 1,066 respondents) collected at Waves 4 (1989), 5 (1992), and 6 (1999). Importantly, the 1,066 respondents selected for the current analyses had to have participated in at least one of the three waves (4, 5, and/or 6) and had to be employed when they participated. Because the original study sampled two age cohorts in 1985, high school seniors (59.4%; average age 18) and university seniors (40.6%; average age 22), the age distribution of the subsample used in this study (ranging from ages 21 to 34 at Wave 4 in 1989) was also bimodal at Wave 4. At Wave 4, 50.0% of the respondents in the subsample were between the ages of 22 and 23, and 26.7% were between ages 26 and 27. In addition, 49.8% of the subsample was female and 50.2% was male.

Research questions. As noted at the beginning of this chapter, the current study is guided by three research questions:

1) What conceptually and empirically coherent "work value – work reward fit profiles" reflecting fit between work values (one intrinsic and two extrinsic aspects) and work rewards (one intrinsic and two extrinsic aspects) will emerge at each of three waves of measurement (i.e., 1989, 1992, and 1999)?
2) What patterns ("transition patterns") characterize respondents' movement into and out of these profiles across the three waves?
3) How well will these transition patterns predict work-related and well-being outcomes in 1999?

Hypotheses were formulated with regard to each research question. Specifically, for Research Question 1, it was hypothesized that at each wave latent profile analysis would yield at least one good work values-work rewards fit latent group and one poor fit latent group. However, there may potentially be more than one good fit or poor fit latent group at each wave given that one intrinsic and two extrinsic work values and work rewards dyads are modelled simultaneously.

For Research Question 2, it was hypothesized that more people would be in poor fit group(s) in earlier waves, and many of these people would move into good fit group(s) at later waves. This would result in the emergence of several work values-work rewards fit latent transition patterns. One pattern would be people who stayed in good fit latent group(s) at each wave. The second pattern would be people who stayed in poor fit group(s) at each wave. The third pattern would be people who started in poor fit group(s) but joined good fit group(s) in later waves (showing improved fit). The fourth pattern would be people who started in good fit group(s) but moved to poor fit group(s) in later waves (showing a deterioration in fit). Other potential transition patterns would include people who started in poor fit group(s), moved into good fit

group(s) in the subsequent wave, but then moved back into poor fit group(s) in the following wave; and people who started in good fit group(s), moved into poor fit group(s), then moved back into good fit group(s) across waves (showing unstable fits). However, not all hypothesized transition patterns may be observed.

For the final research question, it was hypothesized that people who belong to the continued good fit transition pattern will report the highest level of career satisfaction and career evaluation whereas those who constantly experience poor fit will have the lowest level of career satisfaction and evaluation. For change in job satisfaction, physical and mental well-being, and happiness, both the continued good fit and poor fit groups will show little change over time whereas people with improved fit will show an increase and people with reduced fit will show a decrease in these outcomes across 10 years of early adulthood.

Method

Participants

Participants in the current study were drawn from the *Edmonton Transition Study (ETS)*. In May 1985, a sample of 983 high school seniors (47% women) and 589 university students (48% women) were surveyed about school and work experiences, values, goals, relationships with family and friends, and personal well-being. Over 90% of both the high school and the university samples volunteered contact information so that they could be contacted for follow-up surveys. For the next four waves of data collection (1986, 1987, 1989, and 1992), only participants who took part in the previous wave were contacted. A total of 665 respondents in the original high school sample (68%) and 458 respondents in the original university sample (78%) completed the follow-up questionnaire in 1986. The questionnaire included most of the questions from the previous survey along with new questions about postsecondary education, post high school employment/unemployment experiences, and role transitions (e.g., leaving home, getting married, and becoming a parent). In 1987, 547 of the high school sample (56%) and 421 of the university sample (71%) responded. In 1989, 504 high school sample respondents (51%) and 392 university sample respondents (66%) returned to the study for the fourth time. By 1992, 404 respondents in the original high school sample (41%) and 357 respondents in the original university sample (61%) had participated in all five waves of the study.

In 1999, efforts were made to contact as many of the original 1985 respondents as possible. In total, 509 respondents in the original 1985 high school sample (52%) and 349 respondents in the original 1985 university sample (59%) responded. Of these, 294 high school respondents and 281 university respondents participated in all six waves of the study. The latest wave of data was collected in 2010, 25 years after the onset of the study. Due to limited funding, only high school

cohort respondents were contacted. A total of 405 of the original 983 high school cohort participants (41%) completed the survey. Among the returnees, 207 respondents participated in all seven waves of the study.

Final Sample

For this study, only data from the 1989, 1992, and 1999 waves were used due to the large number of participants who were still in school and were not working in the 1985/86/87 waves, and because the university sample was not surveyed in the seventh wave. Among the participants who responded to the survey in 1989 (n = 882), 74.5% were working full-time, 11.3% were working part-time, and 14.2% were not working. In 1992, 761 participants responded to the survey. Among them, 78.8% were working full-time, 10.3% were working part-time, and 10.9% were not working. In 1999, 858 participants responded to the survey. Among them, 72.5% were working full-time, 15.5% were working part-time, and 12.0% were not working. Participants who were not working at a particular wave (1989, 1992, 1999) were excluded from any within-time analysis involving work rewards for that wave. If they were employed during at least one of these three waves, they remained in the study, however, and their data were used in the longitudinal examination of transitions in work values-work rewards fit. To examine how much influence the exclusion of non-working participants would have on the results of the latent profile analysis (LPA) that explored within-time work values-work rewards fit profiles at each wave, a separate set of LPA models were estimated with the inclusion of non-working participants. The profiles of fit yielded from these models were similar to those from models that excluded non-working participants (see Results), indicating that excluding participants who were not working, hence did not have data on work rewards, did not alter the outcomes of LPA model estimation at each wave.

The LPA models presented in the results used data from a subsample of 757, 678, and 755 participants for the 1989, 1992, and 1999 waves, respectively. The final latent transition analysis (LTA) model included data from 1,066 participants who constituted the final sample for this study. Among them, 400 participants took part in all three waves (37.5%), and 324 participants took part in two of the three waves (30.4%). The participants in the final sample contributed data to the LPA models for at least one of the three waves. A series of *t*- and χ^2-tests determined whether participants from the final sample (n = 1,066) were different from those present in the 1985 wave but not in the final sample (n = 506) on sex, cohort, work values (i.e., good pay values, job security values, and two intrinsic values items), physical well-being, and happiness measured in 1985. Compared to participants in the final sample, a larger proportion of those not in the final sample were men (57.3%; $\chi^2(1) = 6.98$, $p < .05$) and from the high school (as compared to the university) cohort (69.2%; $\chi^2(1) = 14.03$, $p < .05$). Although there was no significant difference between participants in the final sample and those not in the final sample on job security values ($t(876) = -.68$, $p = .50$) and values regarding feeling of accomplishment from work ($t(869) = 1.95$, $p = .05$), participants in the final sample reported lower levels of good pay values ($t(934) = -2.775$, $p < .05$) and higher levels of values regarding work being interesting ($t(895) = 2.03$, $p < .05$). In addition, over half of individuals not in the final sample (53.9%) reported being *somewhat happy* whereas over half of the participants in the final sample (52.9%) reported feeling *very happy* ($\chi^2(2) = 23.77$, $p < .05$). The two groups did not differ in their self-reported physical well-being in 1985 ($\chi^2(2) = 5.21$, $p = .07$).

Full information maximum likelihood estimation (FIML) was used to manage missing data by retaining participants with partial data. In the final sample, participants who provided complete data showed few differences from those with incomplete data. A series of *t*- and χ^2-

tests demonstrated that participants with complete data (n = 400) did not differ from those with incomplete data (n = 666) on sex, work values (i.e., good pay values, job security values, and two intrinsic values items), physical well-being, and happiness measured in 1985. The only difference was in cohort: 51.3% of those with complete data were from the university cohort compared to 34.2% of those with incomplete data (($\chi^2(1) = 30.00$, $p < .05$). FIML reduces bias in the results by not removing participants who contributed incomplete data. In addition, FIML produces parameter estimates that are consistent, asymptotically normally distributed, and more accurate than estimates in analyses employing listwise deletion or single imputation in large samples (Baraldi & Enders, 2010).

Measures

Work Values. Three types of assessment of P-E fit have been noted in the literature – perceived fit (direct measure of P-E fit variable), subjective fit (separate measures of person and environment variables answered by the same person), and objective fit (separate measures of person and environment variables answered by different persons). In this study I assessed subjective fit by modeling separate measures of work values and work rewards obtained from the respondent. At each wave participants were asked about their desired intrinsic and extrinsic job characteristics with the question, "if you were choosing a full-time job today, how important would the following be to you?" A 5-point Likert scale was used to rate each item, 1 being *not important at all* to 5 *very important*. All items assessing intrinsic and extrinsic work values were adapted from Burstein, Tienhaara, Hewson, and Warrander (1975).

***Intrinsic work values*.** To assess intrinsic work values, participants responded to three items – "work that lets me develop my skills and abilities", "work that is interesting", and "work that gives a feeling of accomplishment". Cronbach's α reliability for the three items were .79 in

1989, .77 in 1992, and .75 in 1999. At each wave, the mean score of the items was calculated. Higher scores indicated higher intrinsic work values.

Extrinsic work values. To assess extrinsic work values, participants rated the item, "work that pays well", to reflect the desire for good pay value, and the item, "work with little chance of being laid off", to reflect the value of job security. These two items were used separately, as confirmatory factor analysis showed they represented different dimensions of the extrinsic work values construct. Higher scores indicated higher good pay value and higher job security value, respectively.

Work rewards. At each wave participants were asked about their perception of the intrinsic and extrinsic characteristics of their current job. The question was, "how much do you agree or disagree with the following statements describing your present job?" A 5-point Likert scale was used to rate each item, 1 being *strongly disagree* and 5 *strongly agree*. All items were adapted from the 1977 Quality of Employment Survey (Quinn & Staines, 1979).

Intrinsic work rewards. Participants responded to three items identical to the ones used to assess intrinsic work values – "the job lets me use my skills and abilities", "the work is interesting", and "the job gives me a feeling of accomplishment". Cronbach's α reliability for the three items were .89 in 1989, .87 in 1992, and .84 in 1999. At each wave, the mean score of these three items was calculated. Higher scores indicated higher intrinsic work rewards.

The validity of these items was checked by correlating them with the Pineo-Porter Occupational Prestige Score (Pineo, Porter, & McRoberts, 1977). Results showed that, at each wave, less prestigious occupations were correlated with lower levels of intrinsic work rewards (see Appendix A). This suggested that these intrinsic work rewards items did not only capture

participants' subjective perception of what they obtained through working, but also corresponded to the objective measure of participants' occupational prestige.

Extrinsic work rewards. Corresponding to the extrinsic work values items, participants rated the item, "the pay is good" and "the job security is good." Higher scores indicated higher good pay reward and higher job security reward, respectively. Poor confirmatory factor analysis results suggested that these two items represented different dimensions of the extrinsic work rewards construct. Thus, they were used separately. The validity of the good pay reward item was examined by correlating it with participants' reports of weekly income, and they were moderately positively correlated (see Appendix B).

Outcome variables. Work-related and well-being outcomes were measured in 1999.

Work related outcomes. *Job satisfaction* was measured with the item, "how satisfied are you with your main job?" *Career satisfaction* was measured with the item, "how satisfied are you with your career to this point?" Both items were scored on a 5-point Likert scale, 1 being *very dissatisfied* and 5 *very satisfied*. Higher scores indicated greater job satisfaction and greater career satisfaction, respectively. *Career evaluation* was measured with the item, "my career has worked out the way I hoped that it would." Participants were asked to rate this statement using a 5-point Likert scale, 1 being *strongly disagree* and 5 *strongly agree*. Higher scores indicated a more positive evaluation with respect to whether participants' careers met their expectations.

Well-being outcomes. *Physical well-being* was measured with the item, "in the past few months, how healthy have you felt physically?" *Mental well-being* was measured with the item, "in the past few months, how healthy have you felt mentally?" Both items were scored using a 5-point Likert scale, 1 being *very unhealthy* and 5 *very healthy*. Higher scores indicated better physical and mental well-being, respectively. *Happiness* was measured with the item, "thinking

about your life in general, how happy are you with your life?" Participants rated their happiness on a 3-point scale, 1 being *very happy*, 2 *somewhat happy*, and 3 *not very happy at all*. The scores were reverse coded prior to the analysis so that higher scores indicated greater happiness.

1989 covariates. In 1989 participants were asked about their *job satisfaction*, *physical well-being*, *mental well-being*, and *happiness* using the same items and response scales as the 1999 outcome variables. Inclusion of the available 1989 covariates in the analyses provides for a conservative test of the extent to which the fit profile transition patterns explained variance in the 1999 outcome variables.

Demographic variables. Because occupational prestige, educational attainment, and work and educational statuses are likely to influence work-related outcomes, I controlled for a set of relevant demographic variables. Participants' *sex* was coded as female = 0, male = 1. *Cohort* was coded such that participants who belonged to the high school cohort = 0, and those who belonged to the university cohort = 1. *Concurrent educational status*, *concurrent work status*, and *concurrent occupational prestige* were measured at each wave. Concurrent educational status was coded such that not attending any school/educational programs = 0, attending school/some form of educational programs = 1. Concurrent work status was coded as part-time work = 0 and full-time work = 1. Concurrent occupational prestige was recoded from the Pineo-Porter Occupational Prestige Score (Pineo, Porter, & McRoberts, 1977) such that professional and senior management jobs = 1, semi-professional and middle management jobs = 2, skilled clerical, craft, sales, and trade jobs = 3, and unskilled labour = 4.

Analysis Plan

Taking a person-centered analytic approach, this study first identified profiles of work values-work rewards fit within time (i.e., at each of three waves) using latent profile analysis

(LPA). This approach sorted heterogeneous work values-work rewards fit configurations within the sample into more homogeneous and interpretable classes of fit profiles (i.e., cross-sectional latent classes, which I refer to as *work values-work rewards fit profiles*). In the second step, patterns of transition among the classes across time were explored using latent transition analysis (LTA). This analysis demonstrated how participants moved into and out of the fit profiles across the three waves. Framed as a latent variable model, the LPA models were the *measurement models* and the LTA model was the *structural model* (Masyn, 2013). The final set of analyses addressing the third research question featured a series of multiple regression analyses that examined the effect of transition patterns obtained from the LTA model on work-related and well-being outcomes measured at the third wave. All analyses were conducted using *Mplus* 7.4 (Muthén & Muthén, 2015). Parameters were estimated using full information maximum likelihood (FIML) estimation that allowed the inclusion of participants with missing data.

Latent Profile Analysis

LPA is one type of *finite mixture* modeling that expresses the overall distribution of the indicator variables as a *mixture* of a *finite* number of component distributions (Masyn, 2013). LPA models can identify common underlying patterns emerging from the data without imposing any fixed structure (Dowdy, Nylund-Gibson, Felix, Morovati, Carnazzo, & Dever, 2014). For this study, the overall distribution of the six work values and work rewards indicator variables was modeled as a composite of subsets of distributions, each subset expressing the distribution of the six item responses and exemplifying a latent work values-work rewards fit profile. Participants in a given profile did not give the exact same responses to the six items. Instead, item responses provided by these participants could be described by the density function of that subset of distributions.

The decision to retain a model among a set of candidate models is based on the consideration of a combination of model fit indices, latent class classification diagnostics, and theoretical interpretability of the latent classes (Masyn, 2013; Nylund, 2007). Although there is a lack of statistical techniques to evaluate the absolute fit of LPA models, relative fit indices were used to determine the fit of a *K*-class model in comparison with a (*K*-1)-class model. For example, relative fit indices were used to determine whether a 2-class model fit the data significantly better than a 1-class model, and whether a 3-class model fit the data significantly better than a 2-class model. The relative fit indices used in this study included Bayesian Information Criterion (BIC), Consistent Akaike's Information Criterion (CAIC), Approximate Weight of Evidence Criterion (AWE), the approximate Bayes Factor (*BF*), the adjusted Lo-Mendell-Rubin likelihood ratio test (adjusted LMR-LRT), and the parametric bootstrapped likelihood ratio test (BLRT). Among these fit indices, BIC is the most consistent indicator of latent classes (Nylund, Asparouhov, & Muthén, 2007). A model with smaller BIC, CAIC, and AWE demonstrates better statistical fit than a model with one less class (Masyn, 2013). A *BF* value greater than 1 favors the model with one less class (Kass & Wasserman, 1995). Significant *p*-values from adjusted LMR-LRT and BLRT indicate better model fit for a *K*-class model compared to a (*K*-1)-class model.

In addition to model fit, it is critical to evaluate the precision of the latent profile assignment for individuals by a candidate model (i.e., *classification diagnostics*). High precision in profile assignment indicates the extraction of empirically well-separated and highly-differentiated latent classes whose members have a high degree of homogeneity in their responses on the indicator variables. Classification diagnostics are based on estimated *posterior class probabilities*, the model-estimated probabilities of each individual being in each of the latent classes based on the

maximum likelihood parameter estimates and the individual's observed responses on indicator variables (Masyn, 2013). One classification diagnostics index is relative entropy, which summarizes the overall precision of classification for the whole sample across all the latent classes. Relative entropy ranges from 0 to 1. When relative entropy equals zero, posterior classification is no better than random guessing. When relative entropy approaches one, posterior classification depicts clear latent classes (Celeux & Soromenho, 1996). An entropy value of greater than .80 is considered good precision in classification (Clark & Muthén, 2009; Lanza, Collins, Lemmon, & Schafer, 2007).

The other classification diagnostics index used in this study is the average posterior class probability, which evaluates the specific classification uncertainty for each of the latent classes (Masyn, 2013). In contrast to relative entropy, average posterior class probabilities are class-specific measures of how well indicator variables predict latent class membership in a sample. Nagin (2005) recommends that average posterior class probabilities for all latent classes in a model be above 0.70 for the latent classes to be considered well separated and the class assignment accuracy adequate.

When fitting the latent profile variable model at each wave, class enumeration process was performed to determine the number of profiles and within-class variance-covariance structures. The class enumeration process performed in this study followed the steps delineated by Masyn (2013). First, a one-class model was fitted. Its log likelihood values (*LL*), number of parameters estimated (*npar*), and BIC, CAIC, and AWE values were recorded. In the second step, a two-class model was fitted. In addition to the values recorded in the first step, the adjusted LMR-LRT *p*-value, BLRT *p*-value, and *BF* were also noted. In the next step, the same procedure was repeated, increasing the number of latent classes by one each time, until a model was not well

identified. In the fourth step, I selected several "best" fitting models based on their model fit indices, and then used classification diagnostics indices and the theoretical interpretability of the latent classes to arrive at a final model.

Because LPA allows all indicator variables to covary with all other indicator variables within class, this adds another layer of complexity to the model building process. In this study the class enumeration process delineated in the previous paragraph was repeated four times, each time with one of four types of within-class variance-covariance model specification. The first type of within-class variance-covariance structure is the *class-varying, unrestricted* model specification. This model specification is the least restrictive. In this structure, all indicator variables were allowed to covary within class, and variances and covariances were allowed to differ across latent classes. The second type of within-class variance-covariance structure is the *class-invariant, unrestricted* model specification. In this structure, all indicator variables were allowed to covary within class, but variances and covariances were constrained to be equal across latent classes. The third type is the *class-varying, diagonal* model specification, in which indicator variables were not allowed to covary within class but variances were allowed to differ across latent classes. The fourth type is the *class-invariant, diagonal* model specification, in which indicator variables were not allowed to covary within class and variances were constrained to be equal across latent classes. Class enumeration process was performed for each of the four within-class variance-covariance structures. One "best" model from each structure was selected, and all selected models were compared to arrive at the final model. As hypothesized, I expected the model to include at least one good work values-work rewards fit latent class and one poor fit latent class.

Latent Transition Analysis

After deciding on a final LPA model for each of the three waves, latent transition analysis was conducted to combine the cross-sectional measurement of the latent class variables to describe the longitudinal change in latent class membership probabilities across waves (Nylund, 2007). The relationship between these latent class variables was estimated through logistic regression (Asparouhov & Muthén, 2014). The LTA model estimates the transition probabilities of participants moving into and out of the latent classes across time as well as the most likely transition pattern each participant would follow.

The estimation procedure for the LTA model in this study followed the 3-step method recommended by Asparouhov and Muthén (2014). The first step was the estimation of the LPA measurement models for the latent class variables at each of the 1989, 1992, and 1999 waves as described above. Along with the estimation of the latent class variable at each wave, I obtained the most likely class variables, N_{89}, N_{92}, and N_{99}, respectively. The most likely class variables were created using the latent class posterior distribution obtained during the LPA estimation such that each participant's most likely class variable value reflected the latent class a participant would have the greatest probability to be in at a given wave. For example, at the 1989 wave, if a participant had a 90% probability to be in Class 1, 7% probability to be in Class 2, 3% probability to be in Class 3, and 0% probability to be in Class 4, then this participant's most likely class variable value would be 1 (i.e., Class 1) in 1989. These most likely class variables were nominal variables and served as indicators of the latent class variables in the third step of the 3-step method.

In the second step, I obtained the measurement errors for the most likely class variables. Because the most likely class variables were imperfect measurements of the latent class variables, it was essential to take into consideration the uncertainty rates that reflected a

participant's probabilities to be in classes other than the most likely group membership. In the example above, aside from the most likely class membership, the participant also had a 7% probability to be in Class 2 and a 3% probability to be in Class 3. Such uncertainty rates need to be accounted for in the LTA model estimation. The measurement errors were expressed as logits for the classification probabilities of latent class membership. In the third step, the LTA model was estimated using the most likely class variables, N_{89}, N_{92}, and N_{99}, in place of the latent group variables, and the measurement errors were fixed to the logit values obtained in Step 2.

An important advantage of the 3-step estimation approach is that participants' latent class membership identified in the cross-sectional LPA models remains unchanged in the LTA model. The alternative 1-step LTA estimation approach in which latent class variables were directly regressed on one another would result in change in the LPA models as well as participants' latent class membership. This could include change to the shape of the latent work values-work rewards fit profiles as well as the number of participants in each of the latent classes. The 3-step approach estimates the latent transition probabilities while retaining both the latent fit profiles and the latent class membership estimated by the LPA models.

Results

Descriptive Statistics

Table 1 shows the means and standard deviations for intrinsic and extrinsic work values and work rewards measured in the 1989, 1992, and 1999 waves. Participants consistently desired high intrinsic work across the three waves and variation among participants in their intrinsic work values was relatively small (*M*s ranged from 4.60 to 4.62, *SD*s ranged from .45 to .48). Participants also highly valued receiving good pay from their work (an extrinsic value) across waves, and there was somewhat more variation than with intrinsic work values (*M*s ranged from 4.09 to 4.17, *SD*s ranged from .66 to .78). On the other hand, job security values decreased from 4.13 in 1989 to 4.01 in 1992 to 3.81 in 1999, and there was greater variability among participants (*SD*s ranged from .92 to 1.13).

On average, work rewards were not as high as their corresponding work values at each wave. Mean levels of intrinsic work rewards increased over time from 3.62 (*SD* = 1.08) in 1989 to 3.84 (*SD* = .99) in 1992 to 4.12 (*SD* = .83) in 1999. Good pay rewards also showed slight increases across waves from 3.42 (*SD* = 1.10) in 1989 to 3.53 (*SD* = 1.13) in 1992 to 3.61 (*SD* = 1.12) in 1999. Job security rewards, however, did not show much mean-level change: 1989: *M* = 3.63, *SD* = 1.22; 1992: *M* = 3.52, *SD* = 1.26; 1999: *M* = 3.63, *SD* = 1.23.

Table 2 presents the means, standard deviations, and bivariate correlations of the outcome variables measured in 1999. Participants reported moderately high levels of work-related outcomes (job satisfaction, career satisfaction, career evaluation) and high levels of well-being (physical and mental well-being and happiness). All work-related and well-being variables were significantly, positively intercorrelated.

Latent Profile Analysis

Table 1

Means and standard deviations of work values and work rewards in 1989, 1992, and 1999

	1989		1992		1999	
	M	*SD*	*M*	*SD*	*M*	*SD*
Intrinsic Work Values						
Interesting work	4.62	.56	4.68	.51	4.67	.53
Develops skills and abilities	4.56	.60	4.54	.63	4.57	.59
Feeling of accomplishment	4.62	.54	4.62	.56	4.60	.56
Intrinsic work values[a]	4.60	.48	4.61	.47	4.62	.45
Extrinsic Work Values						
Pays well	4.17	.66	4.09	.78	4.16	.77
Little chance of being laid off	4.13	.92	4.01	1.00	3.81	1.13
Intrinsic Work Rewards						
Interesting work	3.69	1.20	3.90	1.13	4.13	.96
Uses skills and abilities	3.55	1.26	3.83	1.11	4.14	.96
Feeling of accomplishment	3.61	1.15	3.79	1.08	4.09	.94
Intrinsic work rewards[b]	3.62	1.08	3.84	.99	4.12	.83
Extrinsic Work Rewards						
Pay is good	3.42	1.10	3.53	1.13	3.61	1.12
Job security is good	3.63	1.23	3.52	1.26	3.63	1.23
N	754-756		666-668		753-755	

[a]mean of the three intrinsic work values items. [b]mean of the three intrinsic work rewards items.

Table 2

Means, standard deviations, and bivariate correlations of work-related and well-being outcomes measured in 1999

	1	2	3	4	5	6
1. Job satisfaction	-					
2. Career satisfaction	.61*	-				
3. Career evaluation	.51*	.70*	-			
4. Physical well-being	.19*	.15*	.16*	-		
5. Mental well-being	.25*	.23*	.22*	.49*	-	
6. Happiness	.38*	.37*	.34*	.26*	.42*	-
M	3.85	3.76	3.48	4.00	4.14	2.68
SD	.92	.96	1.10	.91	.84	.49
N	754	753	854	857	857	858

*$p < .05$.

Latent profile analysis (LPA) was conducted to explore the groupings of participants based on their work values-work rewards fits. Figure 1 Panel A shows a latent profile model in which the shared variance among the work values and work rewards variables was explained by the latent fit profile variable. This figure (Panel A) depicts the best LPA model identified at each wave in the current study where only the class-specific means were estimated. Variances were constrained to be equal across latent classes while within class covariances were fixed to zero (more details on model specifications and parameter estimates are presented in the following sections). At each wave, the final LPA model retained was a four-class class-invariant diagonal model. All three models across the waves exhibited similar fit profile shapes.

One important concern with the identification of LPA models is that, without a closed-form solution for the maximum likelihood estimation available, it is not possible to determine with certainty whether a model converged at the *global maximum* or one of the *local maxima* (Masyn, 2013). The global maximum (the highest peak in log likelihood distribution) or global solution is the unique solution for estimated parameters that provides the optimal (most likely) fit to the data. Local maxima (smaller peaks in log likelihood distribution) or local solutions provide more likely parameter estimates than their nearby points but these estimates are less likely than those offered by the global solution. Because the log likelihood functions for most mixture models are multi-modal (i.e., multiple local maxima), model convergence is likely to occur often at local maxima. To ensure the trustworthiness of the parameter estimates, the LPA model identification procedure used in this study followed recommendations by Masyn (2013) and Asparouhov and Muthén (2014). All models were estimated using 100 randomly generated starting values, and a high frequency of replication of the best log likelihood value for each model was required for a model to be considered identified. When a model failed to converge or when the best log

likelihood value was not replicated with 100 random starting points, random starting points were increased to 500 and, subsequently, 1,000. If a *K* class model with 1,000 random starting points was not identified or its best log likelihood value was not replicated, then the *K* class model was considered not well identified, and the *K*-1 class model was retained as the model with the largest number of latent classes specified. In addition, *condition number*, the ratio of observed information in the data to the unknown estimated parameters, is used for consideration of model identification (Masyn, 2013). A condition number of less than 10^{-6} could indicate model non-identification.

Work Values-Work Rewards Fit Profiles in 1989

Appendix C shows the *Mplus* syntax for the final four-class class-invariant diagonal LPA model for the 1989 wave. Table 3 shows the model fit statistics generated through the class enumeration process for each model specification. Specifically, four-class models demonstrated the best statistical fit for class-invariant diagonal and class-varying diagonal model specifications while three-class models demonstrated the best statistical fit for class-invariant unrestricted and class-varying unrestricted model specifications. Inspection of fit profiles in each of the "best fitting" models supports the selection of the four-class model with class-invariant diagonal specification based on its interpretability. The selected model showed good classification quality indicated by an entropy value of .89, and average classification probabilities of .94, .99, .86, and .90, which indicated that participants were correctly assigned to each of the four profiles.

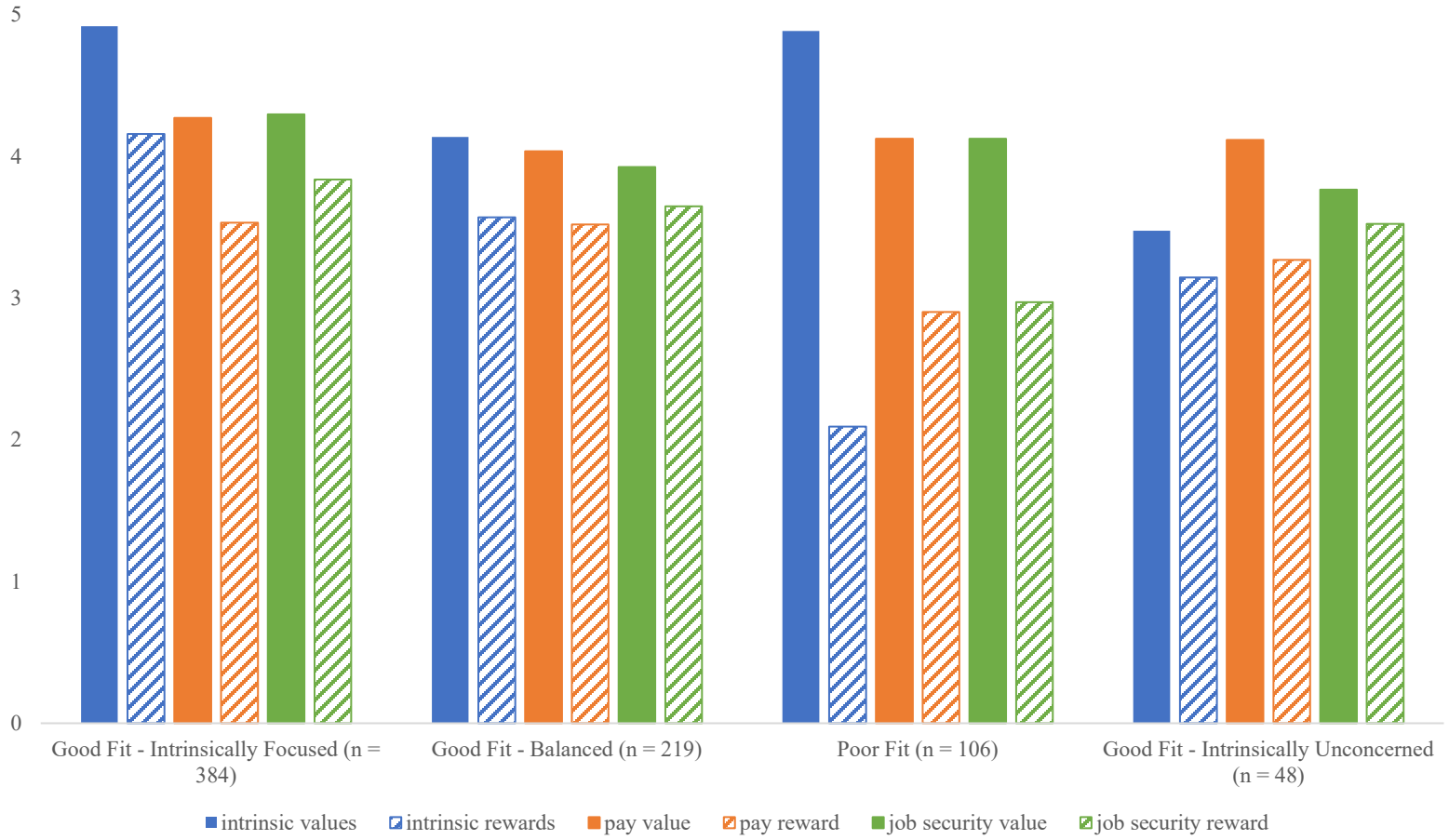
Figure 2 shows the four profiles of work values-work rewards fit from the final four-class model. Participants in the first profile (n = 384) reported close, but not exact, fit between their intrinsic work values (M = 4.92, SE = .01) and rewards (M = 4.16, SE = .05; $\chi^2(1) = 242.26$, $p < .05$), good pay values (M = 4.27, SE = .04) and good pay rewards (M = 3.53, SE = .07; $\chi^2(1) =$

Table 3

Model fit statistics generated through class enumeration, based on four types of LPA model specification in 1989

							H_0: K classes; H_1: K⇓1 classes		
Σ_k	# of classes (*K*)	*LL*	*npar*	BIC	CAIC	AWE	Adj. LMR-LRT *p*-value	$BF_{K,\ K⇓1}$	cmP_K
Class-invariant, diagonal	1	-5781.99	12	11643.54	11655.54	11759.09	.001	<.001	<.001
	2	-5640.33	19	11406.62	11425.62	11589.58	<.001	<.001	<.001
	3	-5537.49	26	11247.35	11273.35	11497.72	.001	<.001	<.001
	4	-5472.05	33	11162.86	11195.86	11480.63	-	-	<.001
Class-varying, diagonal	1	-5781.99	12	11643.54	11655.54	11759.09	<.001	<.001	<.001
	2	-5597.77	24	11354.64	11378.65	11585.75	.001	<.001	<.001
	3	-5522.61	36	11283.89	11319.89	11630.54	<.001	<.001	<.001
	4	-5404.90	48	11128.00	11176.00	11590.21	-	-	<.001
Class-invariant, unrestricted	1	-5656.32	27	11491.64	11518.64	11751.63	.01	<.001	<.001
	2	-5534.68	34	11294.76	11328.76	11622.16	<.001	<.001	<.001
	3	-5433.72	41	11139.24	11180.24	11534.04	-	-	<.001
Class-varying, unrestricted	1	-5656.32	27	11491.64	11518.64	11751.63	<.001	<.001	<.001
	2	-5469.91	54	11297.80	11351.80	11817.78	.001	<.001	<.001
	3	-5348.15	81	11233.28	11314.28	12013.26	<.001	<.001	>.99
	4	-5238.76	108	11193.53	11301.50	12233.47	-	-	>.99

Figure 2. Work values-work rewards fit profiles in 1989 (*n* = 757).



95.58, $p < .05$), and job security values ($M = 4.30$, $SE = .05$) and job security rewards ($M = 3.84$, $SE = .08$; $\chi^2(1) = 25.78$, $p < .05$). For all three dyads, work values slightly exceeded work rewards. In addition, these participants had higher intrinsic work values than good pay values ($\chi^2(1) = 308.53$, $p < .05$) and job security values ($\chi^2(1) = 173.80$, $p < .05$). Hence, this profile is labelled *good fit-intrinsically focused (GF-IF)*. The second profile ($n = 219$) also showed close, but not exact, fit between intrinsic work values ($M = 4.14$, $SE = .02$) and rewards ($M = 3.57$, $SE = .07$; $\chi^2(1) = 51.38$, $p < .05$), good pay values ($M = 4.04$, $SE = .04$) and good pay rewards ($M = 3.52$, $SE = .07$; $\chi^2(1) = 44.16$, $p < .05$), and job security values ($M = 3.93$, $SE = .06$) and job security rewards ($M = 3.65$, $SE = .08$; $\chi^2(1) = 8.86$, $p < .05$). In this profile participants' intrinsic work values were close to their good pay values ($\chi^2(1) = 4.23$, $p < .05$) and job security values ($\chi^2(1) = 10.70$, $p < .05$). Hence, this profile is labelled *good fit-balanced (GF-B)*. The third profile ($n = 106$) showed large discrepancies between intrinsic work values ($M = 4.89$, $SE = .02$) and rewards ($M = 2.09$, $SE = .14$; $\chi^2(1) = 406.58$, $p < .05$), good pay values ($M = 4.17$, $SE = .08$) and good pay rewards ($M = 2.90$, $SE = .17$; $\chi^2(1) = 36.68$, $p < .05$), as well as job security values ($M = 4.13$, $SE = .12$) and job security rewards ($M = 2.97$, $SE = .19$; $\chi^2(1) = 20.28$, $p < .05$). While intrinsic work values ($\chi^2(1) = 1.72$, $p = .19$), good pay values ($\chi^2(1) = 2.19$, $p = .14$), and job security values ($\chi^2(1) = 1.58$, $p = .21$) in this profile did not differ from those in the GF-IF profile, there were significant differences in intrinsic work rewards ($\chi^2(1) = 229.51$, $p < .05$), good pay rewards ($\chi^2(1) = 10.28$, $p = .001$), and job security rewards ($\chi^2(1) = 15.39$, $p < .05$) between the two profiles. Hence, this profile is labelled *poor fit (PF)*. The last profile ($n = 48$) demonstrated close fit between intrinsic work values ($M = 3.48$, $SE = .05$) and rewards ($M = 3.15$, $SE = .20$; $\chi^2(1) = 3.65$, $p = .06$), good pay values ($M = 4.12$, $SE = .13$) and good pay

rewards (M = 3.27, SE = .21; $\chi^2(1) = 16.18$, $p < .05$), and job security values (M = 3.77, SE = .19) and job security rewards (M = 3.52, SE = .22; $\chi^2(1) = 1.60$, $p = .21$). Participants in this profile did not value the intrinsic aspects of work as highly as the good pay aspects ($\chi^2(1) = 26.06$, $p < .05$). Hence, this profile is labelled *good fit-intrinsically unconcerned (GF-IU)*.

Validity of the 1989 Four-Class Model

Model fit statistics and interpretability of the identified profiles supported the selection of the 4-class model described above. Cross examination of participants' profile membership with other work-related and demographic variables could demonstrate the meaningfulness of the profiles, substantiating the external aspect of the model's validity (Messick, 1995). Table 4 shows that work values-work rewards fit profile membership distinguished participants based on variables relevant to work (educational status in 1989, work status in 1989, and occupational prestige in 1989), as well as sex and cohort. Specifically, more participants in the good fit-intrinsically focused (33%) and good fit-balanced (28%) profiles were working high prestige jobs than those in the poor fit (8%) and good fit-intrinsically unconcerned (17%) profiles ($\chi^2(9) = 68.23$, $p < .001$). More participants in the poor fit (25%) and good fit-intrinsically unconcerned (15%) were working part-time than their peers in the good fit-intrinsically focused (8%) and good fit-balanced (8%) profiles ($\chi^2(3) = 28.48$, $p < .05$). And fewer participants in the good fit-intrinsically focused profile (43%) were attending school while more participants in the poor fit profile (67%) continued their education in 1989 ($\chi^2(3) = 18.54$, $p < .05$). With respect to sex and cohort, more women were in the good fit-intrinsically focused (55%) and poor fit (58%) profiles while more men were in the good fit-balanced (56%) and good fit-intrinsically unconcerned (62%) profiles ($\chi^2(3) = 12.82$, $p < .05$). And more participants in the poor fit (70%) and good fit-intrinsically unconcerned (67%) profiles were from the high school cohort ($\chi^2(3) = 16.76$, p

Table 4

Class-specific frequencies and percentages by sex, cohort, educational status, work status, and occupational prestige measured in 1989

Variables	*Category*	GF-IF (%)	GF-B (%)	PF (%)	GF-IU (%)
Sex	Female	213 (55%)	97 (44%)	62 (58%)	18 (38%)
	Male	171 (45%)	122 (56%)	44 (42%)	30 (62%)
Cohort	High school	190 (49%)	120 (55%)	74 (70%)	32 (67%)
	University	194 (51%)	99 (45%)	32 (30%)	16 (33%)
Educational status	Not attending school	217 (57%)	109 (50%)	35 (33%)	25 (52%)
	Attending school	167 (43%)	110 (50%)	71 (67%)	23 (48%)
Work status	Part-time	31 (8%)	18 (8%)	27 (25%)	7 (15%)
	Full-time	353 (92%)	201 (92%)	79 (75%)	41 (85%)
Occupational prestige	Professional/senior management	127 (33%)	61 (28%)	9 (8%)	8 (17%)
	Semi-professional/middle management	128 (34%)	62 (28%)	20 (19%)	13 (28%)
	Skilled clerical, craft, sale, or trade	97 (26%)	67 (31%)	59 (56%)	14 (30%)
	Unskilled labour	28 (7%)	29 (13%)	18 (17%)	12 (25%)

Note. GF-IF: Good fit-intrinsically focused; GF-B: Good fit-balanced; PF: Poor fit; GF-IU: Good fit-intrinsically unconcerned.

< .05). These observed differences based on participants' profile membership further increased confidence in the model selection.

Work Values-Work Rewards Fit Profiles in 1992

Table 5 shows the model fit statistics generated through the class enumeration process for each model specification for the 1992 wave. Four-class models demonstrated the best statistical fit for class-invariant diagonal, class-varying diagonal, and class-invariant unrestricted model specifications while the two-class model demonstrated the best statistical fit for class-varying unrestricted model specification. Model interpretability supports the selection of the four-class model with class-invariant diagonal specification. The four-class model showed good classification quality indicated by an entropy value of .91, and average classification probabilities of .96, .98, .89, and .89 indicating participants were correctly assigned to each of the four profiles.

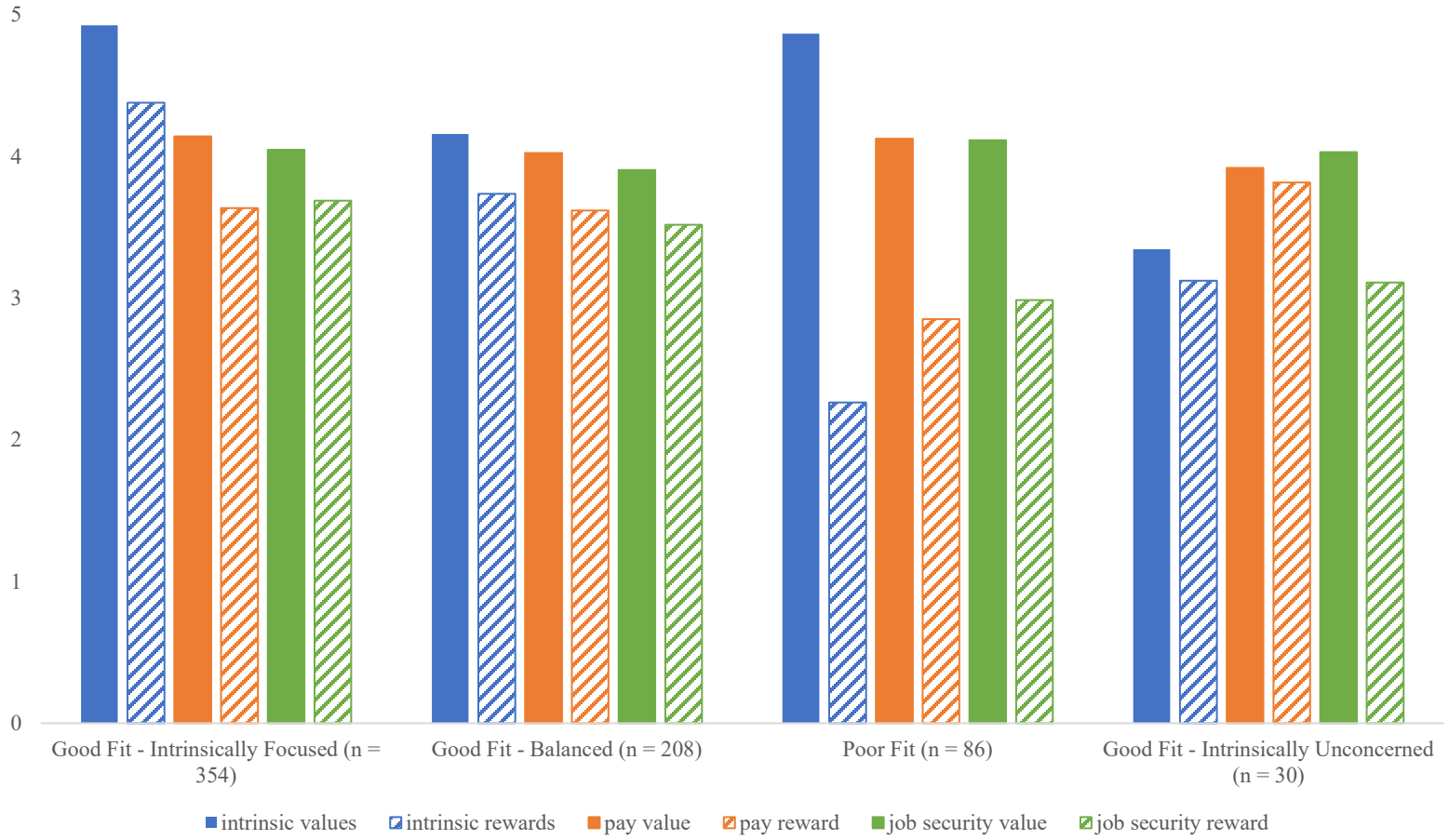
Figure 3 shows the work values-work rewards fit profiles from the four-class model. The four profiles showed similar patterns to those from the 1989 wave. Participants in the first profile (n = 354) reported close fit between their intrinsic work values (M = 4.93, SE = .01) and rewards (M = 4.38, SE = .05; $\chi^2(1) = 133.76$, $p < .05$), good pay values (M = 4.14, SE = .05) and good pay rewards (M = 3.64, SE = .07; $\chi^2(1) = 37.66$, $p < .05$), and job security values (M = 4.05, SE = .06) and job security rewards (M = 3.69, SE = .08; $\chi^2(1) = 15.54$, $p < .05$). For all three dyads, work values slightly exceeded work rewards. In addition, these participants had higher intrinsic work values than good pay ($\chi^2(1) = 299.87$, $p < .05$) and job security ($\chi^2(1) = 226.53$, $p < .05$) values. Hence, this profile is labelled *good fit-intrinsically focused (GF-IF)*. The second profile (n = 208) also showed close fit between intrinsic work values (M = 4.16, SE = .10) and rewards (M = 3.74, SE = .06; $\chi^2(1) = 17.38$, $p < .05$), good pay values (M = 4.02, SE = .10) and good pay

Table 5

Model fit statistics generated through class enumeration, based on four types of LPA model specification in 1992

							H_0: K classes; H_1: K⇓1 classes		
Σ_k	# of classes (*K*)	*LL*	# of parameters	BIC	CAIC	AWE	Adj. LMR-LRT *p*-value	$BF_{K, K⇓1}$	cmP_K
Class-invariant, diagonal	1	-5813.75	12	11707.02	11719.02	11822.54	.04	<.001	<.001
	2	-5688.37	19	11502.66	11521.66	11685.56	.001	<.001	<.001
	3	-5589.57	26	11351.42	11377.43	11601.72	.02	<.001	<.001
	4	-5515.23	33	11249.14	11282.14	11566.82	-	-	<.001
Class-varying, diagonal	1	-5813.75	12	11707.02	11719.02	11822.54	<.001	<.001	<.001
	2	-5603.13	24	11365.31	11389.31	11596.35	.09	<.001	<.001
	3	-5497.51	36	11233.57	11269.57	11580.14	.02	<.001	<.001
	4	-5417.78	48	11153.63	11201.63	11615.72	-	-	<.001
Class-invariant, unrestricted	1	-5164.33	27	10504.68	10531.68	10761.70	.09	<.001	<.001
	2	-5088.38	34	10398.42	10432.42	10722.07	<.001	<.001	<.001
	3	-4973.23	41	10213.75	10254.75	10604.03	<.001	<.001	<.001
	4	-4903.75	48	10120.43	10168.43	10577.35	-	-	<.001
Class-varying, unrestricted	1	-5164.33	27	10504.68	10531.68	10761.70	<.001	<.001	<.001
	2	-5004.37	54	10360.77	10414.77	10874.81	.55	118.33	.99
	3	-4921.14	81	10370.32	10451.32	11141.37	-	-	.01

Figure 3. Work values-work rewards fit profiles in 1992 (*n* = 678).



rewards (M = 3.62, SE = .07; $\chi^2(1) = 10.69$, $p < .05$), and job security values (M = 3.90, SE = .14) and job security rewards (M = 3.52, SE = .10; $\chi^2(1) = 9.44$, $p < .05$). Participants in this profile had intrinsic work values close to their good pay values ($\chi^2(1) = 6.18$, $p < .05$) and job security values ($\chi^2(1) = 11.63$, $p < .05$). Hence, this profile is labelled *good fit-balanced (GF-B)*. The third profile (n = 86) showed large discrepancies between intrinsic work values (M = 4.87, SE = .03) and rewards (M = 2.26, SE = .12; $\chi^2(1) = 467.63$, $p < .05$), good pay values (M = 4.13, SE = .10) and good pay rewards (M = 2.85, SE = .18; $\chi^2(1) = 33.50$, $p < .05$), as well as job security values (M = 4.12, SE = .12) and job security rewards (M = 2.99, SE = .18; $\chi^2(1) = 29.31$, $p < .05$). While intrinsic work values ($\chi^2(1) = 3.54$, $p = .06$), good pay values ($\chi^2(1) = .02$, $p = .90$), and job security values ($\chi^2(1) = .24$, $p = .63$) in this profile were comparable to those in the GF-IF profile, the intrinsic work rewards ($\chi^2(1) = 363.82$, $p < .05$), good pay rewards ($\chi^2(1) = 14.46$, $p < .05$), and job security rewards ($\chi^2(1) = 11.41$, $p < .05$) were significantly lower than those in the GF-IF profile. Thus, this profile is labelled *poor fit (PF)*. The last profile (n = 30) demonstrated good fit between intrinsic work values (M = 3.35, SE = .44) and rewards (M = 3.12, SE = .59; $\chi^2(1) = 1.05$, $p = .30$), good pay values (M = 3.92, SE = .45) and good pay rewards (M = 3.82, SE = .47; $\chi^2(1) = .09$, $p = .76$), and job security values (M = 4.03, SE = 1.05) and job security rewards (M = 3.11, SE = .24; $\chi^2(1) = .66$, $p = .42$). As with the previous wave, this profile was labelled *good fit-intrinsically unconcerned (GF-IU)*.

Validity of the 1992 Four-Class Model

Table 6 shows the frequencies and percentages of sex, cohort, and work-related variables (educational status in 1992, work status in 1992, and occupational prestige in 1992) based on profile membership. Similar to the 1989 wave, more participants in the good fit-intrinsically focused (42%) and good fit-balanced (31%) profiles were working high prestige jobs than those

Table 6

Class-specific frequencies and percentages by sex, cohort, educational status, work status, and occupational prestige measured in 1992

Variables	*Category*	GF-IF (%)	GF-B (%)	PF (%)	GF-IU (%)
Sex	Female	207 (58%)	86 (41%)	50 (58%)	6 (20%)
	Male	147 (42%)	122 (59%)	36 (42%)	24 (80%)
Cohort	High school	177 (50%)	106 (51%)	55 (64%)	20 (67%)
	University	177 (50%)	102 (49%)	31 (36%)	10 (33%)
Educational status	Not attending school	234 (66%)	163 (78%)	49 (57%)	27 (90%)
	Attending school	120 (34%)	45 (22%)	37 (43%)	3 (10%)
Work status	Part-time	28 (8%)	18 (9%)	18 (21%)	5 (17%)
	Full-time	318 (92%)	189 (91%)	68 (79%)	25 (83%)
Occupational prestige	Professional/senior management	146 (42%)	63 (31%)	12 (14%)	7 (23%)
	Semi-professional/middle management	116 (34%)	64 (31%)	22 (26%)	7 (23%)
	Skilled clerical, craft, sale, or trade	64 (18%)	63 (31%)	38 (44%)	9 (30%)
	Unskilled labour	20 (6%)	16 (7%)	14 (16%)	7 (23%)

Note. GF-IF: Good fit-intrinsically focused; GF-B: Good fit-balanced; PF: Poor fit; GF-IU: Good fit-intrinsically unconcerned.

in the poor fit (14%) and good fit-intrinsically unconcerned (23%) profiles ($\chi^2(9) = 57.90$, $p < .05$). More participants in the poor fit (21%) and good fit-intrinsically unconcerned (17%) profiles were working part-time compared to their peers in the good fit-intrinsically focused (8%) and good fit-balanced (9%) profiles ($\chi^2(3) = 14.22$, $p < .05$). By 1992, the majority of the participants in each profile had discontinued schooling. However, a larger proportion of participants in the poor fit profile (43%) were still attending some form of education compared to participants in other fit profiles ($\chi^2(3) = 22.04$, $p < .05$). In addition, more women were in the good fit-intrinsically focused (58%) and poor fit (58%) profiles while more men were in the good fit-balanced (59%) and good fit-intrinsically unconcerned (80%) profiles ($\chi^2(3) = 28.92$, $p < .05$). More participants in the poor fit (64%) and good fit-intrinsically unconcerned (67%) profiles were from the high school cohort ($\chi^2(3) = 8.00$, $p < .05$).

Work Values-Work Rewards Fit Profiles in 1999

Table 7 shows the model fit statistics generated through the class enumeration process for each model specification for the 1999 wave. The four-class model demonstrated the best statistical fit for class-invariant diagonal model specification, three-class models had the best statistical fit for class-varying diagonal and class-invariant unrestricted model specifications, and the two-class model demonstrated best statistical fit for class-varying unrestricted model specification. Model interpretability again supports the selection of the four-class model with class-invariant diagonal specification. The four-class model showed good classification quality indicated by an entropy value of .93, and average classification probabilities of .98, .95, .91, and .99; participants were correctly assigned to each of the four profiles.

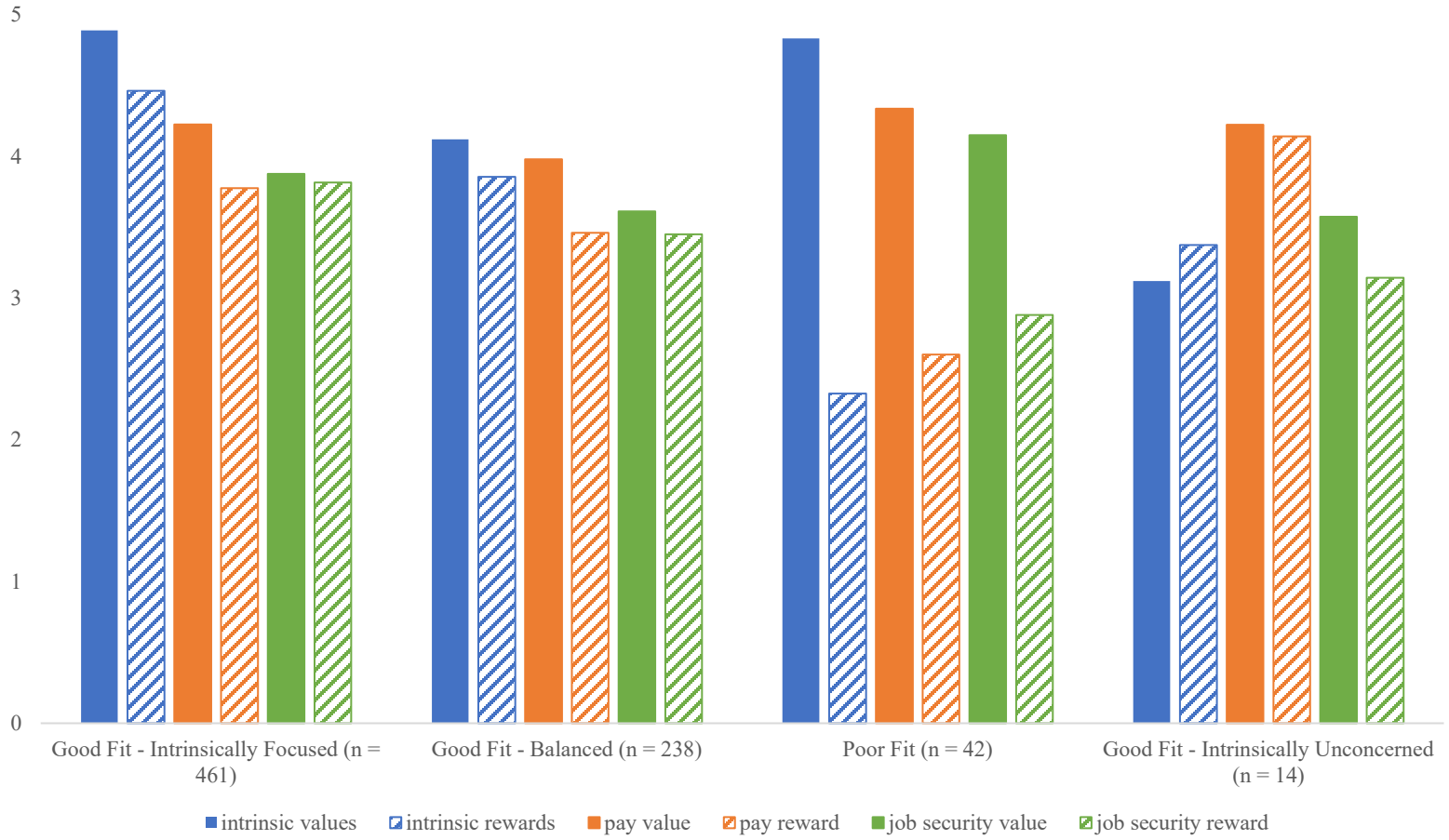
Figure 4 shows the work values-work rewards fit profiles from the final model. The four profiles showed similar patterns to those from the previous two waves. Participants in the first

Table 7

Model fit statistics generated through class enumeration, based on four types of LPA model specification in 1999

							H_0: K classes; H_1: K⇓1 classes		
Σ_k	# of classes (K)	*LL*	# of parameters	BIC	CAIC	AWE	Adj. LMR-LRT *p*-value	$BF_{K, K⇓1}$	cmP_K
Class-invariant, diagonal	1	-5813.75	12	11707.02	11719.02	11822.54	.04	<.001	<.001
	2	-5688.37	19	11502.66	11521.66	11685.56	.001	<.001	<.001
	3	-5589.57	26	11351.42	11377.43	11601.72	.02	<.001	<.001
	4	-5515.23	33	11249.14	11282.14	11566.82	-	-	<.001
Class-varying, diagonal	1	-5813.75	12	11707.02	11719.02	11822.54	<.001	<.001	<.001
	2	-5603.13	24	11365.31	11389.31	11596.35	.09	<.001	<.001
	3	-5497.51	36	11233.57	11269.57	11580.14	.02	<.001	<.001
	4	-5417.78	48	11153.63	11201.63	11615.72	-	-	<.001
Class-invariant, unrestricted	1	-5682.51	27	11543.93	11570.93	11803.86	.13	<.001	<.001
	2	-5603.72	34	11432.76	11466.75	11760.06	.01	<.001	<.001
	3	-5515.89	41	11303.47	11344.47	11698.17	<.001	<.001	<.001
	4	-5447.35	48	11212.78	11260.78	11674.87	-	-	<.001
Class-varying, unrestricted	1	-5682.51	27	11543.93	11570.93	11803.86	<.001	<.001	<.001
	2	-5516.98	54	11391.81	11445.81	11911.65	.01	<.001	<.001
	3	-5409.70	81	11356.16	11437.16	12135.92	-	-	>.99

Figure 4. Work values-work rewards fit profiles in 1999 (n = 755).



profile (n = 461) reported close fit between intrinsic work values (M = 4.89, SE = .01) and rewards (M = 4.46, SE = .03; $\chi^2(1) = 178.11$, $p < .05$), good pay values (M = 4.23, SE = .04) and rewards (M = 3.78, SE = .05; $\chi^2(1) = 50.18$, $p < .05$), and job security values (M = 3.88, SE = .06) and rewards (M = 3.82, SE = .06; $\chi^2(1) = .67$, $p = .41$). Again, work values slightly exceeded work rewards for all three dyads, and intrinsic work values were higher than good pay values ($\chi^2(1) = 324.02$, $p < .05$) and job security values ($\chi^2(1) = 320.40$, $p < .05$). As with the previous waves, this profile is labelled *good fit-intrinsically focused (GF-IF)*. The second profile (n = 238) also showed close fit between intrinsic work values (M = 4.12, SE = .02) and rewards (M = 3.86, SE = .06; $\chi^2(1) = 22.39$, $p < .05$), good pay values (M = 3.98, SE = .05) and good pay rewards (M = 3.46, SE = .08; $\chi^2(1) = 36.42$, $p < .05$), and job security values (M = 3.61, SE = .07) and job security rewards (M = 3.45, SE = .08; $\chi^2(1) = 2.22$, $p = .14$). Participants in this profile had intrinsic work values comparable to their good pay values ($\chi^2(1) = 2.46$, $p = .12$) and job security values ($\chi^2(1) = 5.95$, $p < .05$). This profile was labelled *good fit-balanced (GF-B)*. The third profile (n = 42) again showed large discrepancies between intrinsic work values (M = 4.83, SE = .05) and rewards (M = 2.33, SE = .16; $\chi^2(1) = 197.35$, $p < .05$), good pay values (M = 4.34, SE = .13) and good pay rewards (M = 2.60, SE = .23; $\chi^2(1) = 50.69$, $p < .05$), as well as job security values (M = 4.15, SE = .19) and job security rewards (M = 2.88, SE = .26; $\chi^2(1) = 13.13$, $p < .05$). Compared to those in GF-IF profile, participants in this profile had similar levels of intrinsic work values ($\chi^2(1) = 1.14$, $p = .28$), good pay values ($\chi^2(1) = .70$, $p = .40$), and job security values ($\chi^2(1) = 1.80$, $p = .18$), but lower levels of intrinsic work rewards ($\chi^2(1) = 207.40$, $p < .05$), good pay rewards ($\chi^2(1) = 23.96$, $p < .05$), and job security rewards ($\chi^2(1) = 11.94$, $p < .05$). Hence, this profile is labelled *poor fit (PF)*. The last profile (n = 14) demonstrated close

fit between intrinsic work values (M = 3.12, SE = .15) and rewards (M = 3.38, SE = .26; $\chi^2(1)$ = .57, p = .45), good pay values (M = 4.23, SE = .14) and good pay rewards (M = 4.14, SE = .20; $\chi^2(1)$ = .13, p = .72), and job security values (M = 3.57, SE = .34) and job security rewards (M = 3.15, SE = .35; $\chi^2(1)$ = 1.36, p = .24). Because these participants rated their intrinsic work values lower than good pay values ($\chi^2(1)$ = 24.63, p < .05), this profile is labelled *good fit-intrinsically unconcerned (GF-IU)*.

Validity of the 1999 Four-Class Model

Table 8 shows the frequencies and percentages of sex, cohort, and variables relevant to work (educational status, work status, and occupational prestige) measured in 1999 based on profile membership. Similar to the previous waves, more participants in the good fit-intrinsically focused (38%) and good fit-balanced (31%) profiles were working high prestige jobs than those in the poor fit (20%) and good fit-intrinsically unconcerned (21%) profiles ($\chi^2(9)$ = 58.13, p < .05). In 1999, over 80% of the participants in each fit profile had discontinued education and over 70% of the participants in each fit profile had full-time work. There were no significant differences in educational status ($\chi^2(3)$ = 7.42, p = .06) and work status ($\chi^2(3)$ = 4.30, p = .23) based on fit profile membership. With regard to sex, more women were in the good fit-intrinsically focused (53%) profile while more men were in the good fit-balanced (60%), good fit-intrinsically unconcerned (57%), and poor fit (55%) profiles ($\chi^2(3)$ = 10.61, p < .05). Lastly, a larger proportion of participants in the poor fit (81%) and good fit-intrinsically unconcerned (79%) profiles were from the high school cohort than those in the good fit-intrinsically focused (57%) and good fit-balanced (57%) profiles ($\chi^2(3)$ = 11.90, p < .05).

Latent Transition of Fit Profile Membership from 1989 to 1999

Table 8

Class-specific frequencies and percentages by sex, cohort, educational status, work status, and occupational prestige measured in 1999

Variables	*Category*	GF-IF (%)	GF-B (%)	PF (%)	GF-IU (%)
Sex	Female	243 (53%)	95 (40%)	19 (45%)	6 (43%)
	Male	218 (47%)	143 (60%)	23 (55%)	8 (57%)
Cohort	High school	261 (57%)	136 (57%)	34 (81%)	11 (79%)
	University	200 (43%)	102 (43%)	8 (19%)	3 (21%)
Educational status	Not attending school	377 (82%)	212 (89%)	34 (81%)	13 (93%)
	Attending school	84 (18%)	26 (11%)	8 (19%)	1 (7%)
Work status	Part-time	85 (18%)	34 (14%)	10 (24%)	4 (29%)
	Full-time	376 (82%)	204 (86%)	32 (76%)	10 (71%)
Occupational prestige	Professional/senior management	175 (38%)	74 (31%)	8 (20%)	3 (21%)
	Semi-professional/middle management	163 (36%)	81 (34%)	12 (29%)	2 (14%)
	Skilled clerical, craft, sale, or trade	110 (24%)	73 (31%)	12 (29%)	6 (43%)
	Unskilled labour	10 (2%)	9 (4%)	9 (22%)	3 (21%)

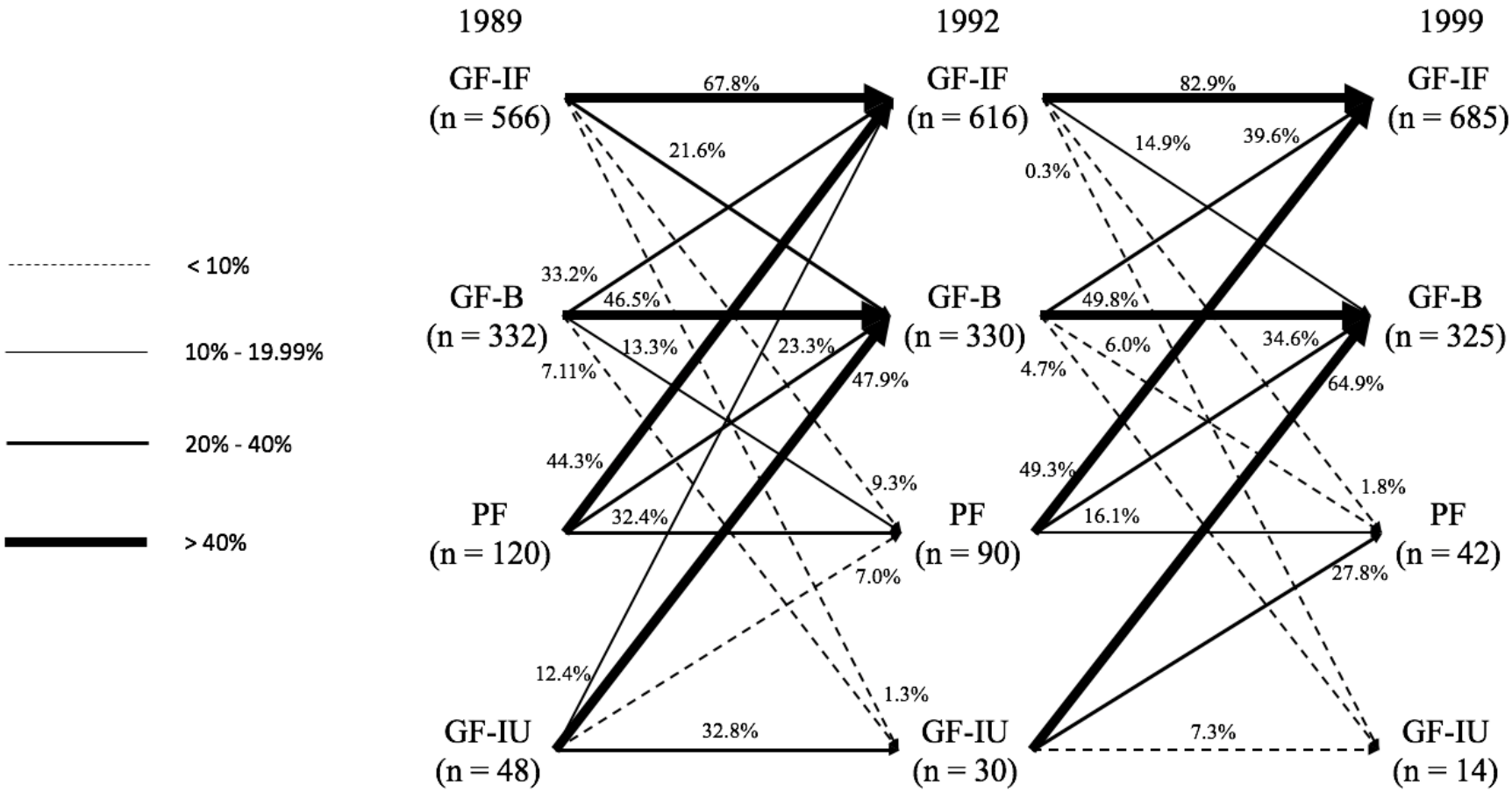
Note. GF-IF: Good fit-intrinsically focused; GF-B: Good fit-balanced; PF: Poor fit; GF-IU: Good fit-intrinsically unconcerned.

The LTA model is a latent variable autoregressive model that examines the transition paths between work values-work rewards fit profiles across three waves: 1989 to 1992 to 1999. The key parameter estimates in the LTA model are the latent transition probabilities, the probabilities that participants in a given fit profile would transition to the same or a different profile in the following wave. The use of maximum likelihood estimation allowed the inclusion of participants with incomplete data. Thus, the final LTA model for this study included participants who contributed data to at least one of the LPA models (N = 1,066). Appendix D presents the *Mplus* syntax for the final LTA model.

Figure 5 shows the latent transition probabilities between work values-work rewards fit profiles across the three waves. Membership in the GF-IF and GF-B profiles was relatively stable across time while the majority of participants in the PF profile moved into the GF-IF profile and the majority of participants in the GF-IU profile moved into the GF-B profile from one wave to the next (as indicated by the thickest arrows). Specifically, of the 566 participants classified in the GF-IF profile in 1989, 67.8% retained the same profile membership in 1992, 21.6% moved into the GF-B profile, and less than one tenth of the participants moved into the PF (9.3%) and GF-IU (1.3%) profiles, respectively (see Table 9). And of the 616 participants classified in the GF-IF profile in 1992, 82.9% remained in the same profile in 1999, and 14.9% moved into the GF-B profile. Only 1.8% of the GF-IF participants in 1992 transitioned to the PF profile in 1999 and 0.3% of the participants transitioned to the GF-IU profile.

Of the 332 participants classified in the GF-B profile in 1989, 46.5% remained in the same profile in 1992 while 33.2% moved into the GF-IF profile. In addition, 13.3% of the GF-B participants in 1989 moved into the PF profile in 1992 and 7.1% moved into the GF-IU profile. Of the 330 participants classified in the GF-B profile in 1992, 49.8% remained in the same

Figure 5. Latent Transition Probabilities of Work Values-Work Rewards Fit Profiles from 1989 to 1999 (*N* = 1,066).



Note. GF-IF: Good fit-intrinsically focused; GF-B: Good fit-balanced; PF: Poor fit; GF-IU: Good fit-intrinsically unconcerned.

Table 9

Work Values-Work Rewards Fit Profiles Latent Transition Probabilities from 1989 to 1999 (N = 1,066)

	1992					1999			
1989	GF-IF	GF-B	PF	GF-IU	1992	GF-IF	GF-B	PF	GF-IU
GF-IF	67.8%	21.6%	9.3%	1.3%	GF-IF	82.9%	14.9%	1.8%	0.3%
GF-B	33.2%	46.5%	13.3%	7.1%	GF-B	39.6%	49.8%	6.0%	4.7%
PF	44.3%	23.3%	32.4%	0%	PF	49.3%	34.6%	16.1%	0%
GF-IU	12.4%	47.9%	7.0%	32.8%	GF-IU	0%	64.9%	27.8%	7.3%

Note. GF-IF: Good fit-intrinsically focused; GF-B: Good fit-balanced; PF: Poor fit; GF-IU: Good fit-intrinsically unconcerned.

profile in 1999 while 39.6% transitioned to the GF-IF profile. Less than ten percent of the participants in the GF-B profile in 1992 transitioned to the PF (6.0%) and GF-IU (4.7%) profiles in 1999.

For participants in the PF profile in 1989 (n = 120), 32.4% retained the same profile membership in 1992 while 44.3% transitioned to GF-IF profile and 23.3% transitioned to the GF-B profile. No PF participants transitioned to the GF-IU profile from 1989 to 1992. For participants in the PF profile in 1992 (n = 90), 16.1% remained in the same profile in 1999 while 49.3% moved into the GF-IF profile and 34.6% moved into the GF-B profile. Again, no participants from the PF profile transitioned to the GF-IU profile from 1992 to 1999.

Lastly, of the 48 participants classified in the GF-IU profile in 1989, 32.8% stayed in the same profile in 1992 while the majority of participants (47.9%) transitioned to the GF-B profile. Of the remaining participants, 12.4% transitioned to the GF-IF profile and 7.0% transitioned to the PF profile. Of the 30 participants classified in the GF-IU profile in 1992, 7.3% remained in the same profile in 1999 while 64.9% transitioned to the GF-B profile. Another 27.8% transitioned to the PF profile while no participant moved into the GF-IF profile.

Latent Transition Patterns Predicting Work-related and Well-being Outcomes

The final research question of this study was whether and how patterns of transitioning in and out of different work values-work rewards fit profiles across three waves over ten years in young adulthood would predict a number of work-related and well-being outcomes. Given that four latent fit profiles were identified at each wave, there were a total of 64 possible transition patterns across the three waves. However, based on the model estimated latent transition pattern memberships, there were a few transition patterns with no participants (e.g., GF-IF → GF-IF → GF-IU, PF → GF-IU → GF-IF), some transition patterns with only one participant (e.g., GF-IF

→ GF-IU → PF, GF-B → GF-IF → GF-IU), and several other transition patterns with less than ten participants (e.g., GF-IF → GF-B → PF, PF → GF-IF → PF). To examine the effect of transition patterns on the outcomes using multiple regression analysis, it was necessary to methodically aggregate all possible transition patterns into a smaller number of broader and manageable patterns.

Table 10 displays the classification criteria used to form the four broader transition patterns, each representing a common theme of transition. First, the majority of participants in this study were categorized into the *continued good fit* (CGF; n = 860) transition pattern. Participants belonging to this transition pattern were required to be a member of one of the three good fit profiles (i.e., GF-IF, GF-B, or GF-IU) at each wave. The second transition pattern was *improved fit* (IF; n = 113). Participants in this pattern reported improvement in their work values-work rewards fit across the three waves. Specifically, these participants were in the PF profile in 1989 and either transitioned to a good fit profile in 1992 and remained in one of the three good fit profiles in 1999 or stayed in the PF profile in 1992 and transitioned to a good fit profile in 1999. The third transition pattern was *unstable fit* (UF; n = 51). Participants with this pattern had ups and downs in their work values-work rewards fit. They first reported good fit in 1989, but transitioned to the PF profile in 1992, and moved back to one of the good fit profiles in 1999. The last transition pattern was *ultimately poor fit* (UPF; n = 42). The common feature of participants in this pattern was that they reported poor fit between their work values and work rewards at the 1999 wave, regardless of their fit profile membership in the first two waves.

Aside from the commonalities among the model estimated latent transition patterns that facilitated the decision to form the four broader transition patterns, sample size also played a role. For example, there were two possible unstable fit transition patterns, one of which was

Table 10

Classification criteria for work values-work rewards fit profile transition patterns across three waves

Transition Patterns	Classification Criteria
Continued good fit (CGF) (*n* = 860)	belonged to one of the good fit profiles at all three waves e.g., GF-IF → GF-IF → GF-IF, GF-IF → GF-B → GF-B, GF-IU → GF-B → GF-B
Improved fit (IF) (*n* = 113)	belonged to the PF profile in 1989, transitioned to one of the good fit profiles in 1992, and remained in one of the good fit profiles in 1999 e.g., PF → GF-B → GF-B, PF → GF-IF → GF-B, PF → GF-B → GF-IU OR belonged to the PF profile in both 1989 and 1992, and transitioned to one of the good fit profiles in 1999 e.g., PF → PF → GF-IF, PF → PF → GF-B
Unstable fit (UF) (*n* = 51)	belonged to one of the good fit profiles in 1989, transitioned to the PF profile in 1992, and moved to one of the good fit profiles in 1999 e.g., GF-IF → PF → GF-IF, GF-B → PF → GF-IF, GF-IU → PF → GF-B
Ultimately poor fit (UPF) (*n* = 42)	belonged to the PF profile in 1999, regardless of profile membership in 1989 and 1992 e.g., PF → PF → PF, PF → GF-IF → PF, GF-B → GF-B → PF

Note. GF-IF: Good fit-intrinsically focused; GF-B: Good fit-balanced; PF: Poor fit; GF-IU: Good fit-intrinsically unconcerned.

described above. The other pattern reflected a pathway of poor fit in 1989 to good fit in 1992 and back to poor fit in 1999. However, only three participants would have belonged to this transition pattern, rendering it with too little statistical power for subsequent multiple regression analyses. Thus, the three participants who exhibited this pattern were assigned to the UPF transition pattern.

An intriguing speculation put forward in the introduction concerns the route to improved fit (IF); in other words, did participants improve because their work values changed, their work rewards changed, or both changed? Although not equipped to fully answer these questions, follow-up descriptive data (percentages who increased, decreased, or showed no change in values and rewards) and dependent t-tests (assessing the significance of mean-level change) tentatively explored how much work values and work rewards changed for IF participants prior to and after their transitions from the PF profile to either the GF-IF profile or GF-B profile across two consecutive waves (from 1989 to 1992, from 1992 to 1999, or from 1989 to 1999 in cases where the participants were absent in 1992). Among IF participants who moved from the PF profile to the GF-IF profile, 58 responded to the work values and rewards items at both waves. The mean level of work rewards (particularly intrinsic work rewards) increased while the mean for work values remained unchanged (see Table 11). Specifically, 96.6% reported an increase in intrinsic work rewards across waves ($t(57) = 16.30$, $p < .05$) while 67.2% had no change in intrinsic work values ($t(57) = 2.20$, $p < .05$). For good pay values and rewards, 51.7% experienced an increase in rewards across waves ($t(57) = 2.75$, $p < .05$) while 58.6% reported no change in values ($t(57) = 1.18$, $p = .24$). And for job security values and rewards, while 48.3% of the participants reported an increase in rewards over time ($t(57) = 2.92$, $p < .05$), 51.7% experienced no change in values ($t(57) = -.42$, $p = .68$).

Table 11

Descriptive statistics of work values and work rewards for participants in the improved fit pattern transitioning from poor fit to good fit-intrinsically focused profile (n = 58) and to good fit-balanced profile (n = 27) across two consecutive waves

	Intrinsic work values		Intrinsic work rewards		Good pay values		Good pay rewards		Job security values		Job security rewards	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
PF	4.89	.17	2.03	.67	4.03	.84	2.83	1.29	4.14	1.08	2.95	1.42
GF-IF	4.95	.12	4.30	.67	4.17	.78	3.47	1.20	4.09	1.08	3.71	1.32
Difference[a]	.06	.20	2.27	1.06	.14	.89	.64	1.76	-.06	.94	.76	1.98
Percentage increase[b]	22.4		96.6		24.2		51.7		20.7		48.3	
Percentage unchanged[c]	67.2		3.4		58.6		25.9		51.7		31.0	
Percentage decrease[d]	8.6		0		17.2		22.4		27.6		20.7	
PF	4.86	.17	2.09	.71	4.07	.83	3.00	1.24	4.11	.89	3.19	.96
GF-B	4.20	.17	3.63	.99	4.07	.55	3.00	1.18	3.96	.98	3.26	1.40
Difference[a]	-.67	.23	1.54	1.08	.00	.73	.00	1.78	-.15	1.23	.07	1.27
Percentage increase[b]	100		92.6		14.8		44.5		29.7		44.5	
Percentage unchanged[c]	0		3.7		70.4		14.8		37.0		22.2	
Percentage decrease[d]	0		3.7		14.8		40.7		33.3		33.3	

Note. PF: Poor fit; GF-IF: Good fit-intrinsically focused; GF-B: Good fit-intrinsically balanced.
[a]mean differences in work values and work rewards across two waves. [b]percentage of participants who increased across two waves. [c]percentage of participants with no change across two waves. [d]percentage of participants who decreased across two waves.

For IF participants who transitioned from the PF profile to the GF-B profile, 27 had relevant values and rewards data across two waves (see Table 11). All reported reduced intrinsic work values ($t(26) = -15.30$, $p < .05$) and 92.6% experienced improved intrinsic work rewards ($t(26) = 7.41$, $p < .05$). Good pay values and rewards as well as job security values and rewards did not change significantly.

The following section presents results from a series of multiple regression analyses using the four transition patterns identified above to predict work-related and well-being outcomes in 1999. Because the outcome variables were measured in 1999, only participants who responded to the items in the 1999 wave were included in these analyses. This reduced the sample size to 832 participants. Of these, 754 reported their job satisfaction, 753 reported on career satisfaction, 830 evaluated their career, 831 rated their physical and mental well-being, and all 832 responded to the happiness item.

Work-related Outcomes

Job satisfaction. Table 12 shows that work values-work rewards fit transition patterns predicted job satisfaction in 1999. Model 1 only included the transition patterns as predictors, with CGF the reference group. Compared to CGF participants, UF and UPF participants reported significantly lower levels of job satisfaction in 1999 while IF participants reported similar levels of job satisfaction. The transition patterns explained 17% of the variation in job satisfaction. Covariates (gender, cohort, occupational prestige in 1999, work status in 1999, educational status in 1999, and job satisfaction in 1989) were added in Model 2 to determine whether the transition patterns would remain significant. Moreover, by controlling for job satisfaction in 1989 ($M = 3.60$, $SD = 1.05$), Model 2 examined how the transition patterns predicted change in job satisfaction from 1989 to 1999. Compared to CGF participants, IF participants reported an

Table 12

Regression of work values-work rewards fit transition patterns on job satisfaction in 1999, with and without covariates (n = 754)

	Job satisfaction			
	Model 1		Model 2	
Predictors	*B*	*SE*	*B*	*SE*
Improved fit (IF)	.05	.03	.14*	.04
Unstable fit (UF)	-.07*	.03	-.05	.03
Ultimately poor fit (UPF)	-.40*	.03	-.34*	.03
Male			-.01	.04
University			.09*	.04
Occupational prestige				
Unskilled labour			-.06	.04
Skilled clerical, craft, sale, or trade			-.04	.04
Semi-professional/middle management			.03	.04
Work status				
Part-time work			-.02	.04
Educational status				
Attending school			-.02	.03
1989 job satisfaction			.20*	.05
R^2	.17*		.21*	

Note. Continued good fit transition pattern (CGF) is the reference group.
*$p < .05$.

increase in job satisfaction from 1989 to 1999 whereas UPF participants reported a decrease in job satisfaction. UF participants did not differ from CGF participants in their change in job satisfaction. Post hoc tests showed that IF participants also reported job satisfaction increase in comparison to UF ($\chi^2(1) = 15.49$, $p < .05$) and UPF participants ($\chi^2(1) = 114.52$, $p < .05$) while UF participants reported increased job satisfaction compared to UPF ($\chi^2(1) = 33.37$, $p < .05$). Occupational prestige, work status, and educational status measured in 1999 as well as gender did not predict change in job satisfaction. However, participants from the university cohort reported an increase in job satisfaction relative to the high school cohort. In addition, job satisfaction in 1989 demonstrated a positive association with job satisfaction in 1999. The covariates explained an additional 4% of variance in job satisfaction.

Career satisfaction. Regression results for career satisfaction are presented in Table 13. Model 1 revealed that compared to CGF participants, UF and UPF participants reported lower levels of career satisfaction while IF participants had similar levels of career satisfaction. The transition patterns explained 12% of the variance in career satisfaction. After including covariates in Model 2, the effects for transition patterns were similar; UF and UPF participants still had lower levels of career satisfaction. Post hoc tests showed that IF ($\chi^2(1) = 41.15$, $p < .05$) and UF participants ($\chi^2(1) = 20.69$, $p < .05$) also reported greater career satisfaction than UPF participants while IF and UF participants were not significantly different from each other ($\chi^2(1) = 1.22$, $p = .27$). Work status and educational status as well as gender and cohort did not predict career satisfaction. On the other hand, occupational prestige in 1999 was a significant predictor of career satisfaction. Compared to participants who were professionals or in senior management, those employed in unskilled labour or worked in skilled clerical, craft, or trade fields reported lower levels of career satisfaction while participants who were semi-professionals

Table 13

Regression of work values-work rewards fit transition patterns on career satisfaction in 1999, with and without covariates (n = 753)

	Career satisfaction			
	Model 1		Model 2	
Predictors	*B*	*SE*	*B*	*SE*
Improved fit (IF)	.05	.03	-.05	.03
Unstable fit (UF)	-.09*	.03	-.08*	.03
Ultimately poor fit (UPF)	-.34*	.03	-.32*	.03
Male			-.02	.04
University			-.00	.04
Occupational prestige				
Unskilled labour			-.11*	.04
Skilled clerical, craft, sale, or trade			-.25*	.04
Semi-professional/middle management			-.07	.04
Work status				
Part-time work			-.05	.04
Educational status				
Attending school			.01	.03
R^2	.12*		.18*	

Note. Continued good fit transition pattern (CGF) is the reference group.
*$p < .05$.

or in middle management did not differ significantly in career satisfaction. The addition of the covariates increased the explained variance in career satisfaction by 6%.

Career evaluation. Table 14 presents the regression results for career evaluation. Model 1 showed that CGF participants were more likely to agree they had reached the career stage they expected to reach by 1999 than did IF, UF and UPF participants. The transition patterns explained 11% of the variance in career evaluation. Model 2 showed that similar relationships between transition patterns and career evaluation held after adding the covariates. CGF participants agreed more strongly than IF, UF, and UPF participants that they had reached their expected career stage by 1999. Post-hoc tests showed that IF ($\chi^2(1) = 26.57$, $p < .05$) and UF participants ($\chi^2(1) = 13.70$, $p < .05$) agreed more strongly that they had reached their expected career stage than UPF participants while IF and UF participants were not significantly different from each other ($\chi^2(1) = .69$, $p = .41$). Work status and educational status as well as gender and cohort did not predict career evaluation while occupational prestige did. Specifically, compared to participants who were in the top tier of occupational prestige, those in the bottom two tiers agreed less strongly that they had reached their expected career stage; participants in the second tier did not differ significantly from those in the top tier. The covariates explained an additional 6% variance in career evaluation.

Well-being Outcomes

Physical well-being. Table 15 shows the effect of work values-work rewards fit transition patterns on physical well-being in 1999. Model 1 showed that, while IF and UF participants reported similar levels of physical well-being as CGF participants, UPF participants reported worse physical well-being than CGF participants. The transition patterns explained 2% of the variance in physical well-being. With the addition of physical well-being in 1989 ($M = 4.01$, *SD*

Table 14

Regression of work values-work rewards fit transition patterns on career evaluation in 1999, with and without covariates (n = 830)

	Career evaluation			
	Model 1		Model 2	
Predictors	*B*	*SE*	*B*	*SE*
Improved fit (IF)	-.09*	.03	-.09*	.03
Unstable fit (UF)	-.10*	.03	-.10*	.03
Ultimately poor fit (UPF)	-.31*	.03	-.27*	.03
Male			-.01	.03
University			.05	.03
Occupational prestige				
Unskilled labour			-.12*	.03
Skilled clerical, craft, sale, or trade			-.22*	.04
Semi-professional/middle management			-.02	.04
Work status				
Part-time work			-.05	.03
Educational status				
Attending school			-.03	.03
R^2	.11*		.17*	

Note. Continued good fit transition pattern (CGF) is the reference group.
*$p < .05$.

Table 15

Regression of work values-work rewards fit transition patterns on physical well-being in 1999, with and without covariates (n = 831)

	Physical well-being			
	Model 1		Model 2	
Predictors	*B*	*SE*	*B*	*SE*
Improved fit (IF)	.03	.04	.04	.03
Unstable fit (UF)	-.06	.03	-.06	.03
Ultimately poor fit (UPF)	-.12*	.03	-.12*	.03
Male			.05	.04
University			.04	.04
Occupational prestige				
Unskilled labour			.02	.04
Skilled clerical, craft, sale, or trade			.04	.04
Semi-professional/middle management			.04	.04
Work status				
Part-time work			-.01	.04
Educational status				
Attending school			-.02	.03
1989 physical well-being			.32*	.04
R^2	.02*		.12*	

Note. Continued good fit transition pattern (CGF) is the reference group.
*$p < .05$.

= .91), Model 2 tested the relationships between the transition patterns and change in physical well-being from 1989 to 1999. UPF participants reported a decrease in physical well-being compared to CGF participants whereas IF and UF participants did not differ from CGF participants. Post hoc tests revealed that IF participants reported an increase in physical well-being in comparison with UF ($\chi^2(1) = 5.66$, $p < .05$) and UPF participants ($\chi^2(1) = 13.12$, $p < .05$) whereas UF participants did not differ from UPF participants ($\chi^2(1) = 1.14$, $p = .29$). Physical well-being in 1989 was positively related to physical well-being in 1999. Covariates explained another 10% of the variance in physical well-being.

Mental well-being. Regression results for mental well-being are presented in Table 16. As Model 1 showed, UPF participants reported lower levels of mental well-being than CGF participants. IF and UF participants, on the other hand, had similar levels of mental well-being compared to CGF participants. The transition patterns explained only 1% of the variance in mental well-being. Similar to physical well-being, by controlling for mental well-being in 1989 ($M = 3.91$, $SD = .90$), Model 2 examined the association between transition patterns and change in mental well-being from 1989 to 1999. IF and UF participants did not differ from CGF participants in their change in mental well-being over time whereas UPF participants had a decrease in mental well-being relative to CGF participants. Post hoc tests showed that IF participants reported an increase in mental well-being compared to UF ($\chi^2(1) = 3.95$, $p < .05$) and UPF participants ($\chi^2(1) = 8.93$, $p < .05$) whereas UF participants did not differ from UPF participants ($\chi^2(1) = .74$, $p = .39$). Mental well-being in 1989 and 1999 were positively related. Moreover, the university cohort showed an increase in mental well-being in comparison to the high school cohort. The covariates increased explained variance in mental well-being to 11%, with 1989 mental well-being the strongest predictor.

Table 16

Regression of work values-work rewards fit transition patterns on mental well-being in 1999, with and without covariates (n = 831)

	Mental well-being			
	Model 1		Model 2	
Predictors	*B*	*SE*	*B*	*SE*
Improved fit (IF)	.02	.04	.06	.03
Unstable fit (UF)	-.04	.04	-.03	.03
Ultimately poor fit (UPF)	-.09*	.03	-.08*	.03
Male			.02	.04
University			.09*	.04
Occupational prestige				
Unskilled labour			-.02	.04
Skilled clerical, craft, sale, or trade			.03	.04
Semi-professional/middle management			.01	.04
Work status				
Part-time work			-.02	.04
Educational status				
Attending school			.01	.03
1989 mental well-being			.30*	.04
R^2	.01		.11*	

Note. Continued good fit transition pattern (CGF) is the reference group.
*$p < .05$.

Happiness. Table 17 reveals significant associations between work values-work rewards fit transition patterns and happiness. Specifically, Model 1 showed that IF and UF participants reported similar levels of happiness as CGF participants, but UPF participants reported being less happy than CGF participants. The transition patterns explained 4% of the variance in happiness. Model 2 showed that, after controlling for happiness in 1989 (M = 2.60, SD = .51), UPF participants reported a decrease in happiness over time relative to CGF participants whereas IF and UF participants did not differ from CGF participants in their change in happiness. Post hoc tests showed that UPF participants' happiness also decreased when compared to both IF ($\chi^2(1) = 15.24$, $p < .05$) and UF participants ($\chi^2(1) = 11.56$, $p < .05$) while IF and UF participants were not significantly different from each other ($\chi^2(1) = .00$, $p = .96$). Happiness in 1989 was positively related to happiness ten years later. Adding the covariates increased explained variance by 9%.

Table 17

Regression of work values-work rewards fit transition patterns on happiness in 1999, with and without covariates (n = 832)

	Happiness			
	Model 1		Model 2	
Predictors	*B*	*SE*	*B*	*SE*
Improved fit (IF)	-.04	.03	-.01	.03
Unstable fit (UF)	-.02	.03	-.00	.03
Ultimately poor fit (UPF)	-.20*	.03	-.16*	.03
Male			-.06	.03
University			.02	.04
Occupational prestige				
Unskilled labour			-.06	.04
Skilled clerical, craft, sale, or trade			-.00	.04
Semi-professional/middle management			.04	.04
Work status				
Part-time work			.03	.04
Educational status				
Attending school			.02	.03
1989 happiness			.29*	.04
R^2	.04*		.13*	

Note. Continued good fit transition pattern (CGF) is the reference group.
*$p < .05$.

Discussion

Three major inquiries constituted the current study. The first concerns what conceptually and empirically coherent *profiles* exemplifying the degree of fit between work values and work rewards would be uncovered at each of the three times of measurement in a sample of young Canadians. Second, patterns of transitioning among the profiles across the three time points were investigated. The third part of the study examined the potential influence of transition patterns on work-related and well-being outcomes assessed in the participants' early to middle 30s. The following sections review the findings from the current study and consider their implications for understanding person-environment fit in the work setting. Limitations and strengths of this study and directions for future research are also discussed.

Work Values-Work Rewards Fit Profiles

Adopting a person-centered approach, the first research question explored heterogeneity in work values-work rewards fit. It was hypothesized that there would be at least one good fit profile and one poor fit profile at each wave, as well as the possibility of additional fit profiles. Using LPA analyses, four distinct fit profiles were identified at each wave – three profiles manifesting good fit, albeit with differentiating features, and one profile exhibiting poor fit. This finding supports the hypothesis that some individuals report their work values and work rewards match one another (i.e., good fit) and others report there are discrepancies between what they desire out of work and what they actually obtain (i.e., poor fit).

At each wave, participants in all four fit profiles exhibited moderate to high levels of work values. In other words, they valued intrinsic aspects of work such as feelings of accomplishment and they also valued good pay and job security. This is consistent with previous research showing that young people today tend to "want it all" when it comes to work (Johnson &

Monserud, 2012). What differentiated the good fit profiles from the *poor fit* (PF) profile was that work rewards, both intrinsic and extrinsic, in the three good fit profiles were much closer to their corresponding work values compared to those in the poor fit profile. Participants in the poor fit profile exhibited large discrepancies between their work values and work rewards.

On the other hand, the distinguishing feature among the three good fit profiles was the differing levels of intrinsic work values-work rewards dyads. That is, although participants in the three good fit profiles had similar levels of work values and work rewards regarding pay and job security, they were differentiated by their values and rewards on the intrinsic aspects of work. Among participants in the three good fit profiles, those in the *good fit-intrinsically focused* (GF-IF) profile reported the highest levels of intrinsic values and rewards, followed by those in the *good fit-balanced* (GF-B) profile. Participants in the *good fit-intrinsically unconcerned* (GF-IU) profile exhibited the lowest levels of intrinsic work values and rewards.

The GF-IF profile had the largest membership at each wave, ranging from 51% of the participants in 1989 to 61% of the participants in 1999. Participants in the GF-IF profile rated it more important that their work was inherently interesting, let them use their skills, and gave them a sense of accomplishment than their work granting good pay and good job security. The fact that more than half the participants in the sample placed stronger emphasis on intrinsic work values than on extrinsic work values at each wave lends support to the notion that people living in affluent regions of the world tend to stress intrinsic work values over extrinsic work values (Johnson & Mortimer, 2011). The GF-B profile had the second largest membership at each wave, ranging from 29% of participants in 1989 to 32% of participants in 1999. These participants placed equally strong emphasis on their intrinsic and extrinsic work values. On the other hand, the GF-IU profile had the smallest membership at each wave, dwindling from 6% in

1989 down to 2% in 1999. For the GF-IU participants, the intrinsic aspects of their work were not as important as the extrinsic aspects.

The percentage of participants in the PF profile decreased from 14% in 1989 to 5% in 1999. These individuals reported levels of intrinsic and extrinsic work values similar to those of GF-IF participants, but their work rewards fell short of their work values. Their intrinsic work values were more important than extrinsic work values, but none of the values was sufficiently matched by the rewards obtained from work. In particular, they reported the lowest levels of intrinsic work rewards among all four profiles at each wave.

Demographic characteristics may shed some light on why PF participants' work rewards were underwhelming. Compared to GF-IF and GF-B participants, a greater proportion of the PF participants were from the high school cohort and were still attending school while working part-time low-prestige jobs in 1989 and 1992. By 1999, differences in educational and work status had disappeared across fit profiles, but more than half of the PF participants still reported working in low-prestige jobs. Part-time low-prestige jobs tend to have lower job quality, reflected in lower income, less job security, and menial work tasks that do not require high levels of cognitive ability and skills and have less autonomy (Krahn et al., 2015). Lower job quality might have contributed to PF participants' perception of low work rewards, especially when they had set the bars high for their work values. In contrast, the higher levels of work rewards reported by GF-IF and GF-B participants might be due to these participants having full-time higher-quality jobs.

GF-IU participants shared some demographic similarities with PF participants. At each wave the majority of the participants in both profiles were from the high school cohort and were working low-prestige jobs. Such jobs would explain why GF-IU participants reported lower

levels of intrinsic work rewards than GF-IF and GF-B participants. However, unlike PF participants, GF-IU participants accomplished good work values-work rewards fit because they had lower intrinsic work values.

Another finding worth noting from the LPA models was that in all good fit profiles across waves, work values slightly exceeded work rewards, except the GF-IU profile in 1999 in which the intrinsic work rewards were slightly higher than the intrinsic work values. In no instance was there a work values-work rewards dyad demonstrating perfect fit. Subsequent analyses showed that individuals who reported good fit at all three waves had better work-related and well-being outcomes than those who experienced poor fit at some point.

These findings lend some support for the critical difference and the optimal congruence models suggesting close P-E fit, but not perfect fit, is necessary for achieving optimal outcomes (Kristof-Brown & Guay, 2011). The critical difference models assume there is a range of tolerance around perfect P-E fit such that optimal outcomes are obtained as long as the degree of fit is within the range (Kulka, 1979). The optimal congruence models posit that close fit, but not poor fit or perfect fit, would be associated with optimal outcomes. One explanation may be that exact correspondence between a person and the environment may lead to stagnation and lack of motivation (Kulka, 1979). The finding that work rewards fell slightly short of work values in the good fit profiles suggests that these participants still have room to push for more desirable work experiences.

Longitudinal Transition Patterns of Work Values-Work Rewards Fit

The second research question explored stability of work values-work rewards fit profiles across waves. It was hypothesized that more people would be in the poor fit profile in earlier waves, and many would transition to a good fit profile in subsequent waves. Furthermore, I

expected to identify a number of fit profile transition patterns, including ones in which participants did not change their profile membership across waves and ones in which participants transitioned from good fit to poor fit or from poor fit to good fit. Partially supporting the hypotheses, the LPA models showed that the percentage of participants in the PF profile decreased gradually from 1989 to 1999. Also in line with the hypotheses, the LTA model showed that, of the four profiles identified at each wave, PF participants were most likely to move to the GF-IF profile, and GF-IU participants were most likely to move to the GF-B profile by the next wave. GF-IF and GF-B participants, however, were most likely to remain in the same profile. In addition, close to a quarter of PF participants moved to the GF-B profile from 1989 to 1992 and approximately a third of PF participants in 1992 moved to the GF-B profile by 1999. It was encouraging that over time more participants transitioned from poor fit into a good fit profile and that a relatively small proportion of good fit participants transitioned to the PF profile.

Given the descriptive nature of identifying fit profiles within time and transition patterns over time, explanations for why or how participants transitioned could not be ascertained. However, the finding that more than 40% of PF participants at each of the 1989 and 1992 waves moved to the GF-IF profile in the following wave (Figure 5) was consistent with the speculation that greater work rewards might lead to better fit between work values and work rewards. Specifically, descriptive data suggested that, for the majority of participants, their intrinsic and extrinsic work rewards increased across waves while their work values remained unchanged (Table 11). Given that respondents were early in their careers at initial observation, the observed improvement in work rewards could be because participants changed jobs to obtain better work rewards or advanced in their original position (Super, 1980). What cannot be known is whether the upward trend in work rewards was facilitated by improvements in the overall economy or by

other events in the respondent's life. For example, employers view married male employees more favorably than unmarried male employees (Jordan & Zitek, 2012).

The transition patterns also showed that another 20-35% of PF participants moved to the GF-B profile across waves (Figure 5). Their improvement in fit appeared to be particularly due to increased intrinsic work rewards and decreased intrinsic work values (Table 11). This is in line with the proposition that, for some people, their work values were adjusted to match their work experiences, perhaps as they gained a better understanding of what to expect over the course of their early career (Johnson, 2001). However, caution is warranted that the exploratory and descriptive analyses conducted in this study lacked the ability to understand why or how people transitioned from poor fit to good fit. Future studies with variables that could potentially explicate the mechanisms of these transitions are needed.

For the good fit profiles, the GF-IF profile was the most stable over time with more than two thirds of the participants staying. The GF-B profile also demonstrated stability, with close to half of participants remaining in this profile across waves. However, the identified transition patterns also indicated that more than a third of GF-B participants moved to the GF-IF profile and close to half and two thirds of GF-IU participants moved to the GF-B profile across waves (Figure 5). Given the shapes of the fit profiles observed at each wave, such transitions could suggest that a sizable portion of participants who were already in one of the good fit profiles might have further improved on both intrinsic work values and rewards over time, potentially highlighting the importance of the intrinsic aspects of work. Future research is needed to verify and expand on these findings.

Effect of Change in Work Values-Work Rewards Fit on Work-related and Well-being Outcomes

In addition to examining the nature of the fit between person characteristics and environmental characteristics, another important goal of research on P-E fit in workplace is to understand the impact of fit on work-related affect and behavior. Research has shown that a good P-E fit (e.g., person-job fit and person-organization fit) is associated with positive outcomes such as higher levels of job satisfaction, job performance, and organizational commitment, and lower levels of stress and psychological strain (Arthur et al., 2006; Kristof-Brown, Zimmerman, & Johnson, 2005; Verquer, Beehr, & Wagner, 2003). However, few studies had taken a developmental perspective by inspecting the effect of longitudinal change in P-E fit on such outcomes. Taking the first step to fill the gap, the third research question of this study examined how change in work values-work rewards fit during the early career stage was associated with work-related and well-being outcomes. Change in fit was determined by classifying participants into one of four groups based on their fit profile transition patterns (UPF, IF, CGF, UF).

Importantly, findings from this study showed that change in fit predicted change in job satisfaction from 1989 to 1999. *Improved fit* (IF) participants (improved from poor fit to good fit) reported an increase in job satisfaction in comparison to *continued good fit* (CGF) participants (good fit at all three waves) and *unstable fit* (UF) participants (good fit in 1989 and 1999 but poor fit in 1992). Because P-E fit is positively associated with job satisfaction, it makes sense that as fit improved over time, job satisfaction was enhanced as well. On the other hand, *ultimately poor fit* (UPF) participants who ended up experiencing poor work values-work rewards fit in 1999 reported a decrease in job satisfaction relative to participants of the other three transition patterns. These findings highlight the need for examining P-E fit not only cross-sectionally but also longitudinally to unravel its effect on work-related affect. After taking into account demographic variables, CGF and UF participants did not differ in their change in job

satisfaction over time despite UF participants' poor fit in the 1992 wave. This suggests that good P-E fit derived from one's current job should remain an important factor to consider, along with the prior history of P-E fit, when assessing a person's satisfaction with the current job.

The four groups of participants were also differentiated in their career satisfaction in 1999. UPF participants reported the lowest levels of career satisfaction. This finding is in line with research that found perceived needs-supplies fit was positively associated with career satisfaction (Cable & DeRue, 2002). In addition, both CGF and IF participants reported higher levels of career satisfaction than UF participants. Despite concurrent good fit, it seems that going through a bout of poor fit after having experienced good fit might be more detrimental to people's perception of career satisfaction than experiencing fit that improved from poor to good. For IF participants, their high levels of career satisfaction might be attributed to the positive contrast between their previous poor work values-work rewards fit and the good fit later on (Edwards, 1998). The improvement in fit might have boosted their contentment with their career.

The third work-related outcome was career evaluation, the perception that people have reached the stage of career they expected by 1999. Unsurprisingly, UPF participants again reported the lowest levels of career evaluation in comparison with the other three groups. Having poor work values-work rewards fit in a person's early to middle 30s hampered satisfaction with both the current job and the career as a whole regardless of earlier experiences with work values-work rewards fit. Interestingly, both IF and UF participants reported lower levels of career evaluation than CGF participants. Despite experiencing an increase in job satisfaction from 1989 to 1999 and being similarly satisfied with their career as CGF participants by 1999, it seems that poor fit in the earlier waves had detracted IF participants from reaching their expected career stage. CGF participants who had always had good fit were the most poised to say that they had

reached the stage of their career they expected. This result corroborates with finding by Bretz and Judge (1994) who showed person-organization fit positively predicted career success, including job level attained. This indicates that continued experience of good P-E fit is important in the perception of positive progression of one's career.

The findings support the use of the lifespan developmental framework to understand the relationships between P-E fit and work-related outcomes. Longitudinal patterns of P-E fit revealed differences in work-related affect that might not be otherwise detected by concurrent fit. In particular, participants who experienced improvement in fit over time showed an increase in job satisfaction, despite having poor work values-work rewards fit in the beginning of their career. Overall, having long-term good fit or improved fit over time was conducive to the positive perception of one's career. A dip in fit early in the career was associated with less than optimal job and career satisfaction. Finally, experiencing poor fit after ten years into a career significantly dampened people's view of their job and career.

These findings could help expand the horizon for P-E fit theory building, especially with respect to P-E fit over time. One theory by Caplan (1983) postulates that both prior and anticipated fit may influence current fit and psychological strain, with some evidence showing that poorer prior and anticipated fits were associated with higher levels of current psychological strain (Caplan, Tripathi, & Naidu, 1985; Sen, 1992). Findings from this study recommend examining prior fit with greater detail. Change in fit could have important implications for a person's attitude towards a job and career. In this study the use of two prior measurements of fit in addition to the measurement of current fit significantly predicted satisfaction and expectation regarding job and career. With more information on past fit, we may better understand current as well as future work-related affect.

In addition to work values-work rewards fit patterns, occupational prestige in 1999 was also a significant predictor of career satisfaction and career evaluation but not of job satisfaction. People working low-prestige jobs some ten years into their career tended to be less satisfied with their career as a whole than those who worked high-prestige jobs. It is interesting that occupational prestige did not predict concurrent job satisfaction. Perhaps for some people whose jobs were of low prestige, they altered their perception of their work and their satisfaction with the work to reduce cognitive dissonance. But they could not as easily change their perception of their whole career. Or, perhaps for some other people, manual work that was typically considered as low prestige, work that required "working with your hands", was more fulfilling and satisfying than high-prestige jobs (Burkeman, 2010).

Another set of analyses examined the effect of change in work values-work rewards fit on physical well-being, mental well-being, and happiness. The effect of workplace P-E fit on general well-being has been less studied compared to its effect on work-related outcomes. Studies that examined well-being found that good P-E fit was related to lower levels of stress and psychological strain, including reduced anxiety, depression, irritation, and somatic symptoms (Edwards & Harrison, 1993; Edwards & Rothbard, 1999; Shaw & Gupta, 2004). In the current study, UPF participants reported decreased physical well-being, mental well-being, and happiness relative to CGF, IF, and UF participants from 1989 to 1999. These findings indicate that experiencing good P-E fit at work was also relevant, to some extent, for having better general well-being. CGF, IF, and UF participants, participants who ended up having good fit by 1999, reported more positive well-being outcomes compared to UPF participants who had poor fit in 1999. However, CGF, IF, and UF participants did not differ among themselves in the three well-being outcomes. It seems that, aside from concurrent fit, prior history of work values-work

rewards fit did not predict change in well-being outcomes, indicating that workplace P-E fit may be a less potent predictor of outcomes outside the work realm. Perhaps poorer physical and mental health at the beginning of the transition to adulthood may contribute more to success in finding a good P-E fit at work rather than the converse.

Limitations and Strengths

Due to the design of the current study, the findings were limited in some aspects. First, sample size was a limitation of this study. Because of the years in between measurement times and the follow-up participation strategy implemented (i.e., for the 1989 and 1992 waves, only respondents who participated in the previous were contacted; for the 1999 wave, nearly all respondents recruited in the 1985 baseline wave were sought), attrition rate was relatively high at each wave. As a result, the GF-IU profile identified in the LPA model contained less than 10% of the total sample at each wave. The small number of cases in the GF-IU profiles limited the number of possible transition patterns that could be estimated in the subsequent LTA model. Even after aggregating all identified transition patterns into four broader patterns, both UF and UPF transition patterns constituted less than 5% of the total sample, which may have hampered the statistical power necessary to detect significant effects in subsequent regression analyses. It is unknown whether similar profiles of fit and similar good fit to poor fit ratio among participants would be observed in other studies. A related limitation was the representativeness of the sample. The current study used data collected from a single city. Replications with larger, nationally representative samples are needed. In addition, participants in the final sample of the study differed from those not in the final sample with respect to gender, cohort, happiness, and two of the four work values items measured at baseline in 1985. These differences may limit the generalizability of the current findings.

Another limitation of this study, and plaguing P-E fit research in general, concerns the assessment of fit. As Edwards and colleagues (2006) argued, how fit was measured (e.g., direct fit vs. indirect fit, subjective fit vs. objective fit) could have implications for the findings. Recent meta-analyses indicate that direct measures of fit (e.g., "how well do you think your current job meets your needs?") tend to have the strongest relationships with work-related outcomes, followed by indirect subjective fit (i.e., person variables and environment variables measured separately from the same informant) and then indirect objective fit (i.e., person variables and environment variables measured separately from different informants; Arthur et al., 2006; Kristof-Brown et al., 2005; Verquer et al., 2003). In this study I assessed indirect subjective fit. This left room for participants to, perhaps unconsciously, distort their perception of their work values and work rewards for a better fit. However, supplementary analyses were conducted to show that the subjective assessments of work rewards were correlated with occupational prestige and weekly income in this study, inspiring some confidence in the validity of the findings. In addition, the questions on work values and work rewards in the current study asked about the importance of the values and the satisfaction with the rewards. As Edwards et al. (1998) proposed, the assessment of fit between values and rewards should concern desired amount, frequency, or intensity of the variables so that the fit comparison is more direct and relevant. For example, instead of asking participants how important receiving good pay is and to what extent they agree/disagree they are receiving good pay from current work, better assessment of fit might be to ask participants how much money they would like to get paid and how much money they are actually being paid from work. It is important to point out, however, that the good pay rewards measured in this study were positively correlated with participants' weekly income.

The third limitation of this study is the use of new modeling techniques, LPA and LTA, to analyze data. LPA models were used to identify distinct within-time profiles when profile membership was not known *a priori*. LTA modeling was used to explore the transitioning among profiles over time when transition pattern membership was also not known *a priori*. These models could encounter convergence problems due to issues such as local maxima and complex likelihood functions, potentially leading to less than optimal estimates. The lack of absolute model fit indices available also are of concern. The analyses presented in the current study followed the most up-to-date analytic strategies so that the potential for errors could be minimized. However, because of the complexity and novelty of the analyses and the restriction rooted in the sample size as noted earlier, the findings should be generalized with caution and replication in future research is needed.

These limitations, however, did not take away from the many strengths of this study. Despite the caution to be heeded in interpreting the findings, the use of LPA and LTA modeling is one strength of this study. By treating person and environment variables separately instead of combining them into a composite score, LPA models were used to obtain parameter estimates for both the person and environment variables. This approach allowed me to observe three good fit profiles at each wave differentiated by their levels of intrinsic work values and work rewards. If composite scores were used, this difference in good fit may not have been detected as composite scores may not retain information on the absolute values of the variables. Furthermore, an important contribution of this study is that LPA analyses allowed the simultaneous modeling of one intrinsic work values-work rewards dyad and two extrinsic work values-work rewards dyads. This is different from previous studies in which different P-E dyads were modeled separately. By modeling one P-E dyad at a time, the focus was more on the relationships between the variables,

and less on the people from whom the variables were derived. LPA analyses provided a new method to study P-E fit by taking a holistic approach. Different P-E fit content dimensions were examined collectively. Heterogeneous profiles of work values-work rewards fit highlighted fit characteristics that distinguished among individuals. The risk inherent in the use of newly emerging analytic techniques should be outweighed by the potential benefits of opening a new way to study P-E fit.

Another strength of this study is the adoption of a lifespan developmental perspective. A significant gap in prior P-E fit research is the paucity of multi-wave longitudinal studies. This study used LTA analysis to facilitate the investigation of intraindividual change in work values-work rewards fit over ten years during early career. It was encouraging to discover that people experiencing poor fit early on tended to see their fit improve over time and that people already experiencing good fit in the early waves were more likely to continuing experiencing good fit. Furthermore, results from the LTA model were used to show that change in work values-work rewards fit had important implications for work related and well-being outcomes. Despite experiencing poor fit earlier in their career, people might still obtain high levels of job and career satisfaction by striving for better P-E fit.

Future Directions

This study showed that different P-E fit dyads could, and should, be studied collectively to describe more accurately the differences among individuals. Longitudinal design is necessary for a better understanding of the effect of change in P-E fit. However, more studies, preferably with larger samples, are needed to verify the findings from this study. This study examined fit between intrinsic and extrinsic work values-work rewards. Future studies should adopt a similar person-centered approach to look at other types of fit, such as person-co-worker and person-

supervisor fit and personal career goals-organizational goals and personality-organizational culture fit.

In addition, further longitudinal research is necessary to enhance our understanding of the effect of P-E fit in the long run. This study analyzed data collected at three time points during the early career. It is intriguing to examine how P-E fit would change during the middle and late stages of a person's career since many workers shift their focus from the establishment phase of their career to the maintenance phrase during the middle stage, and shift again to the decline phase during the late career (Super, 1980). Also, family becomes increasingly important during young adulthood as people get married and become parents. Future studies examining P-E fit in later career stages should include family related outcomes.

Conclusion

This is one of the first studies that adopted a person-centered approach to model three dimensions of work values-work rewards fit simultaneously. Change in fit over ten years and its effect on work-related affect and well-being were examined under the guiding principles of the lifespan developmental perspective. Results suggest that there are multiple distinct profiles of work values-work rewards fit within the population, including both good fit and poor fit profiles. Even though there is much instability in fit over the course of young adulthood, people with poor fit early in their career tend to experience improvement. Having continued good fit and improved fit is positively associated with work-related affects and general well-being.

The theory of person-environment fit has generated a long and fruitful line of research in the past several decades. The pool of evidence expanded the thinking and understanding of P-E fit. While many of the current debates are on issues such as how to better operationalize and measure fit and what types of fit are specifically related to what antecedents and outcomes, it is

time to add another layer of richness to P-E fit research. With time change occurs. A study of the compatibility between people and their environment should not be undertaken without considering how the compatibility will change over time and what will affect and be affected by such change. This study demonstrates one way to incorporate a developmental perspective in the study of P-E fit. By situating P-E fit research in the larger context of human development, researchers can achieve greater real world applicability with the knowledge they engender.

References

Aguinis, H., & Edwards, J. R. (2014). Methodological wishes for the next decade and how to make wishes come true. *Journal of Management Studies, 51*, 143-174.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*, 469-480.

Arthur, W., Jr., Bell, S. T., Villado, A. J., & Doverspike, D. (2006). The use of person-organization fit in employment decision making: An assessment of its criterion-related validity. *Journal of Applied Psychology, 91*, 786-801.

Asparouhov, T., & Muthén, B. (2014). Auxiliary variables in mixture modeling: Three-step approaches using *Mplus*. *Structural Equation Modeling: A Multidisciplinary Journal, 21,* 329-341.

Baltes, P. B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology, 23,* 611-626.

Baltes, P. B., Lindenberger, U., & Staudinger, U. M. (2006). Life span theory in developmental psychology. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 569-664). New York: Wiley.

Baraldi, A. N., & Enders, C. K. (2010). An introduction to modern missing data analyses. *Journal of School Psychology, 48*, 5-37.

Bergman, L. R., & Magnusson, D. (1997). A person-oriented approach in research on developmental psychopathology. *Developmental Psychopathology, 9*, 291-319.

Breaugh, J. A. (1992). *Recruitment: Science and practice*. Boston: PWS-Kent.

Bretz, Jr., R. D., & Judge, T. A. (1994). Person-organization fit and the theory of work adjustment: Implications for satisfaction, tenure, and career success. *Journal of Vocational Behavior, 44*, 32-54.

Burkeman, O. (2010, May 8). Working with your hands: The secret to happiness? *The Guardian.* Retrieved from https://www.theguardian.com/lifeandstyle/2010/may/08/working-hands-happiness-burkeman

Burstein, M., Tienhaara, N., Hewson, P., & Warrander, B. (1975). *Canadian work values – Findings of a work ethic survey and a job satisfaction survey*. Strategic Planning and Research Branch, Manpower and Immigration. Ottawa.

Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology, 87*, 875-884.

Caplan, R. D. (1983). Person-environment fit: Past, present, and future. In C. L. Cooper (Ed.), *Stress research* (pp. 35-78). New York: Wiley.

Caplan, R. D. (1987). Person-environment fit in organizations: Theories, facts, and values. In A. W. Riley & S. J. Zaccaro (Eds.), *Occupational stress and organizational effectiveness* (pp. 103-140). New York: Praeger.

Caplan, R. D., Tripathi, R. C., & Naidu, R. K. (1985). Subjective past, present, and future fit: Effects on anxiety, depression, and other indicators of well-being. *Journal of Personality and Social Psychology, 8*, 180-197.

Celeux, G., Soromenho, G. (1996). An entropy criterion for assessing the number of clusters in a mixture model. *Journal of Classification, 13*, 195-212.

Chatman, J. A. (1989). Improving interactional organizational research: A model of person-organization fit. *Academy of Management Review, 14*, 33-349.

Chow, A., Krahn, H. J., & Galambos, N. L. (2014). Developmental trajectories of work values and job entitlement beliefs. *Developmental Psychology, 50*, 1102-1115.

Clark, S., & Muthén, B. (2009). *Relating latent class analysis results to variables not included in the analysis.* Retrieved from https://www.statmodel.com/download/relatinglca.pdf.

Côté, J., & Bynner, J. (2008). Changes in the transition to adulthood in the UK and Canada: The role of structure and agency in emerging adulthood. *Journal of Youth Studies, 11*, 251-268.

Cotton, L., Bynum, D. R., & Madhere, S. (1997). Socialization forces and the stability of work values from late adolescence to early adulthood. *Psychological Reports, 80*, 115-124.

Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment.* Minneapolis: University of Minnesota Press.

Dekas, K. H., & Baker, W. E. (2014). Adolescent socialization and the development of adult work orientations. *Adolescent Experiences and Adult Work Outcomes: Connections and Causes, 25*, 51-84.

Dowdy, E., Nylund-Gibson, K., Felix, E. D., Morovati, D., Carnazzo, K., & Dever, B. D. (2014). Long-term stability of screening for behavioral and emotional risk. *Educational and Psychological Measurement, 74,* 453-472.

Edwards, J. R. (1991). Person-job fit: A conceptual integration, literature review, and methodological critique. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 6, pp. 283-357). New York: Wiley.

Edwards, J. R. (1994). The study of congruence in organizational behaviour research: Critique and a proposed alternative. *Organizational Behavior and Human Decision Processes, 58*, 51-100.

Edwards, J. R. (2008). Person-environment fit in organizations: An assessment of theoretical progress. *The Academy of Management Annals, 2*, 167-230.

Edwards, J. R., & Cable, D. M. (2009). The value of value congruence. *Journal of Applied Psychology, 94*, 654-677.

Edwards, J. R., Cable, D. M., Williamson, I. O., Lambert, L. S., & Shipp, A. J. (2006). The phenomenology of fit: Linking the person and environment to the subjective experience of person-environment fit. *Journal of Applied Psychology, 91*, 802-827.

Edwards, J. R., Caplan, R. D., & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 28-67). Oxford: Oxford University Press.

Edwards, J. R., & Cooper, C. L. (1990). The person-environment fit approach to stress: Recurring problems and some suggested solutions. Journal of Organizational Behavior, 11, 293-307.

Edwards, J. R., & Harrison, R. V. (1993). Job demands and worker health: Three-dimensional reexamination of the relationship between person-environment fit and strain. *Journal of Applied Psychology, 78*, 628-648.

Edwards, J. R., & Rothbard, N. P. (1999). Work and family stress and well-being: An examination of person-environment fit in the work and family domains. *Organizational Behavior and Human Decision Processes, 77*, 85-129.

Elizur, D. (1984). Facets of work values: A structural analysis of work outcomes. Journal of *Applied Psychology, 69*, 379-389.

Fahlen, G., Goine, H., Edlund, C., Arrelov, B., Knutsson, A., & Peter, R. (2009). Effort-reward imbalance, "locked in" at work, and long-term sick leave. *International Archives of Occupational and Environmental Health, 82*, 191-197.

Feji, J. A., van der Velde, M. E. G., Taris, R., & Taris, T. W. (1999). The development of person-vocation fit: A longitudinal study among young employees. *International Journal of Selection and Assessment, 7*, 12-25.

French, J. R. P., Jr., Caplan, R. D., & Harrison, R. V. (1982). *The mechanisms of job stress and strain*. London: Wiley.

French, J. R. P., Jr., Rodgers, W. L., Cobb, S. (1974). Adjustment as person-environment fit. In G. Coelho, D. Hamburg, & J. Adams (Eds.), *Coping and adaptation* (pp. 316-333). New York: Basic Books.

Ginzberg, E., Ginsburg, S. W., Axelrod, S., & Herma, J. L. (1951). *Occupational choice*. New York: Columbia University Press.

Goldthorpe, J. H., Lockwood, D., Bechhofer, F., & Platt, J. (1968). *The affluent worker: Industrial attitudes and behavior.* Cambridge: Cambridge University Press.

Harrison, R. V. (1978). Person-environment fit and job stress. In C. L. Cooper & R. Payne (Eds.), *Stress at work* (pp. 175-205). New York: Wiley.

Harrison, R. V. (1985). The person-environment fit model and the study of job stress. In T. A. Beehr & R. S. Bhagat (Eds.), *Human stress and cognition in organizations* (pp. 23-55). New York: Wiley.

Hirschi, A. (2010). Positive adolescent career development: The role of intrinsic and extrinsic work values. *The Career Development Quarterly, 58*, 276-287.

Holland, J. L. (1959). A theory of vocational choice. *Journal of Counseling Psychology, 6*, 35-45.

Jin, J., & Rounds, J. (2012). Stability and change in work values: A meta-analysis of longitudinal studies. *Journal of Vocational Behavior, 80*, 326-339.

Johnson, M. K. (2001). Change in job values during the transition to adulthood. *Work and Occupations, 28*, 315-345.

Johnson, M. K., & Monserud, M. A. (2010). Judgments about work and the features of young adults' jobs. *Work and Occupations, 37*, 194-224.

Johnson, M. K., & Mortimer, J. T. (2011). Origins and outcomes of judgments about work. *Social Forces, 89*, 1239-1260.

Johnson, M. K., & Sage, R. A., & Mortimer, J. T. (2012). Work values, early career difficulties, and the U.S. economic recession. *Social Psychology Quarterly, 75*, 242-267.

Jordan, A. H., & Zitek, E. M. (2012). Marital status bias in perceptions of employees. *Basic And Applied Social Psychology, 34*, 474-481.

Judge, T. A., & Bretz, Jr., R. D. (1992). Effects of work values on job choice decisions. *Journal of Applied Psychology, 77*, 261-271.

Kalleberg, A. L. (1977). Work values and job rewards: A theory of job satisfaction. *American Sociological Review, 42*, 124-143.

Kass, R. E., & Wasserman, L. (1995). A reference Bayesian test for nested hypotheses and its relationship to the Schwarz criterion. *Journal of the American Statistical Association, 90*, 928-934.

Kieffer, K. M., Schinka, J. A., & Curtiss, G. (2004). Person-environment congruence and personality domains in the prediction of job performance and work quality. *Journal of Counseling Psychology, 51*, 168-177.

Kohn, M. L., & Schooler, C. (1969). Class, occupation, and orientation. *American Sociological Review, 34*, 659-678.

Kohn, M. L., Slomczynski, K. M., & Schoenback, C. (1986). Social stratification and the transmission of values in the family: A cross-national assessment. *Sociological Forum, 1*, 73-102.

Krahn, H. J., & Galambos, N. L. (2014). Work values and beliefs of "Generation X" and "Generation Y". *Journal of Youth Studies, 17*, 92-112.

Krahn, H. J., Hughes, K. D., & Lowe, G. S. (2015). *Work, Industry, and Canadian Society*. 7th ed. Toronto: Nelson Education.

Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualization, measurement, and implications. *Personnel Psychology, 49*, 1-49.

Kristof-Brown, A. L., & Guay, R. P. (2011). Person-environment fit. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology, volume 3: Maintaining, expanding, and contracting the organization* (pp. 3-50). Washington, DC: American Psychological Association.

Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology, 58*, 281-342.

Kulka, R. A. (1979). Interaction as person-environment fit. In L. R. Kahle (Ed.), *New directions for methodology of behavioral science* (pp. 55-71). San Francisco, CA: Jossey-Bass.

Lanza, S. T., Collin, L. M., Lemmon, D. R., & Schafer, J. L. (2007). PROC LCA: A SAS procedure for latent class analysis. *Structural Equation Modeling, 14,* 671-694.

Lerner, R. M., Leonard, K., Fay, K., & Issac, S. S. (2011). Continuity and discontinuity in development across the life span: A developmental systems perspective. In K. L. Fingerman, T. Antonucci, & J. S. Berg (Eds.), *Handbook of lifespan psychology* (pp. 141-160). New York, NY: Springer.

Lewin, K. (1951). *Field theory in social science*. New York: Harper.

Lindsay, P., & Knox, W. E. (1984). Continuity and change in work values among young adults: A longitudinal study. *American Journal of Sociology, 89*, 918-931.

Locke, E. A. (1969). What is job satisfaction? *Organizational Behavior and Human Performance, 4*, 309-336.

Locke, E. A. (1976). The nature and causes of job satisfaction. In M. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297-1350). Chicago, IL: Rand McNally.

Locke, E. A., & Taylor, M. S. (1990). Stress, coping, and the meaning of work. In A. P. Brief & W. R. Nord (Eds.), *Meaning of occupational work* (pp. 135-170). Lexington: Lexington Books.

Lyons, H. Z., Velez, B. L., Mehta, M., & Neill, N. (2014). Tests of the theory of work adjustment with economically distressed African Americans. *Journal of Counseling Psychology, 61*, 473-483.

Magnusson, D. (2003). The person approach: Concepts, measurement models, and research strategy. *New Directions for Child and Adolescent Development, 101*, 3-23.

Malka, A., & Chatman, J. A. (2003). Intrinsic and extrinsic work orientations as moderators of the effect of annual income on subjective well-being: A longitudinal study. *Personality and Social Psychology Bulletin, 29*, 737-746.

Maslow, A. (1954). *Motivation and personality*. New York, NY: Harper.

Masyn, K. E. (2013). Latent class analysis and finite mixture modeling. In T. D. Little (Ed.), *The Oxford handbook of quantitative methods* (pp. 551-611). New York, NY: Oxford University Press.

Messick, S. (1995). Validity of psychological assessment. *American Psychologist, 50*, 741-749.

Meyer, J. P., Hecht, T. D., Gill, H., & Toplonytsky, L. (2010). Person-organization (culture) fit and employee commitment under conditions of organizational change: A longitudinal study. *Journal of Vocational Behavior, 76*, 458-473.

Mitchell, B. A. (2006). *The boomerang age: Transitions to adulthood in families*. New Brunswick, NJ: Aldine Transaction.

Mortimer, J. T., Harley, C., & Staff, J. (2002). The quality of work and youth mental health. *Work and Occupations, 29*, 166-197.

Mortimer, J. T., & Lorence, J. (1979). Work experience and occupational value socialization: A longitudinal study. *American Journal of Sociology, 84*, 1361-1385.

Mortimer, J. T., Pimentel, E. E., Ryu, S., Nash, K., & Lee, C. (1996). Part-time work and occupational value formation in adolescence. *Social Forces, 74*, 1405-1418.

Muchinsky, P. M., & Monahan, C. J. (1987). What is person-environment congruence? Supplementary versus complementary models of fit. *Journal of Vocational Behavior, 31*, 268-277.

Muthén, B., & Muthén, L. K. (1998-2015). *Mplus* (Version 7.4) [Computer software]. Los Angeles, CA: Muthén & Muthén.

Nagin, D. S. (2005). *Group-based modeling of development*. Cambridge: Harvard University Press.

Newton, C. J., & Mazur, A. K. (2016). Value congruence and job-related attitudes in a nonprofit organization: A completing values approach. *The International Journal of Human Resource Management, 27*, 1013-1033.

Nord, W. R., Brief, A. P., Atieh, J. M., & Doherty, E. M. (1990). Studying meanings of work: The case of work values. In A. P. Brief & W. R. Nord (Eds.), Meanings of occupational work (pp. 21-64). Lexington: Lexington Books.

Nylund, K. (2007). *Latent transition analysis: Modeling extensions and an application to peer victimization.* Unpublished doctoral dissertation, University of California, Los Angeles.

Nylund, K., Asparouhov, T., & Muthén, B. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo stimulation study. *Structural Equation Modeling, 14*, 535-569.

Ostroff, C., Shin, Y., & Kinicki, A. J. (2005). Multiple perspectives of congruence: Relationships between value congruence and employee attitudes. *Journal of Organizational Behavior, 26*, 591-623.

Parsons, F. (1909). *Choosing a vocation*. Boston, MA: Houghton Mifflin.

Pineo, P, C., Porter, J., & McRoberts, H. A. (1977). The 1971 Census and the socioeconomic classification of occupations. *Revue Canadienne de Sociologie et d'Anthropologie, 14*, 91-101.

Porfeli, E. J. (2007). Work values system development during adolescence. *Journal of Vocational Behavior, 70*, 42-60.

Porfeli, E. J. (2008). The dynamic between work values and part-time work experiences across the high school years. *Journal of Vocational Behavior, 73*, 143-158.

Porfeli, E. J., & Mortimer, J. T. (2010). Intrinsic work value-reward dissonance and work satisfaction during young adulthood. *Journal of Vocational Behavior, 76*, 507-519.

Post-Kammer, P. (1987). Intrinsic and extrinsic work values and career maturity of 9th- and 11th-Grade boys and girls. *Journal of Counseling and Development, 65*, 420-423.

Quinn, R. P., & Staines, G. L. (1979). *The 1977 Quality of Employment Survey*. Survey Research Center, Institute for Social Research, University of Michigan.

Rice, R. W., McFarlin, D. B., Hunt, R. G., & Near, J. P. (1985). Organizational work and the perceived quality of life: Toward a conceptual model. *Academy of Management Review, 10*, 296-310.

Roest, A. M. C., Dubas, J. S., & Gerris, J. R. M. (2010). Value transmissions between parents and children: Gender and developmental phase as transmission belts. *Journal of Adolescence, 33*, 21-31.

Rokeach, M. (1960). *The open and closed mind*. New York: Basic Books.

Rokeach, M. (1973). *The nature of human values*. New York: Free Press.

Ros, M., Schwartz, S. H., & Surkiss, S. (1999). Basic individual values, work values, and the meaning of work. *Applied Psychology: An International Review, 48*, 49-71.

Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior, 30*, 91-127.

Saks, A. M., & Ashforth, B. E. (1997). A longitudinal investigation of the relationships between job information sources, applicant perceptions of fit, and work outcomes. *Personnel Psychology, 50*, 395-426.

Schmitt, N., Oswald, F. L., Friede, A., Imus, A., & Merritt, S. (2008). Perceived fit with an academic environment. *Journal of Vocational Behavior, 72*, 317-335.

Schneider, B. (2001). Fits about fit. *Applied Psychology: An International Review, 50*, 141-152.

Schneider, B., Goldstein, H. W., & Smith, D. B. (1995). The ASA framework: An update. *Personnel Psychology, 48*, 747-773.

Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues, 50*, 19-45.

Sen, M. (1992). Retrospected and anticipated fits: An exploration into their differential effects in a sample of Indian managers. *Work & Stress, 6*, 153-162.

Shanahan, M. J. (2000). Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective. *Annual Review of Sociology, 26*, 667-692.

Shaw, J. D., & Gupta, N. (2004). Job complexity, performance, and well-being: When does supplies-values fit matter? *Personnel Psychology, 57*, 847-879.

Snipes, R. L., Oswald, S. L., LaTour, M., & Armenakis, A. A. (2005). The effects of specific job satisfaction facets on customer perceptions of service quality: An employee-level analysis. *Journal of Business Research, 58*, 1330-1339.

Sortheix, F. M., Chow, A., & Salmela-Aro, K. (2015). Work values and the transition to work life: A longitudinal study. *Journal of Vocational Behavior, 89*, 162-171.

Statistics Canada. (2016). *Labour force information.* Retrieved from http://www.statcan.gc.ca/pub/71-001-x/2016009/part-partie1-eng.htm.

Super, D. E. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior, 16*, 282-298.

Taris, R., & Feij, J. A. Longitudinal examination of the relationship between supplies-values fit and work outcomes. *Applied Psychology: An international Review, 50*, 52-80.

ter Bogt, T., Raaijmakers, Q., & van Wel, F. (2005). Socialization and development of the work ethic among adolescents and young adults. *Journal of Vocational Behavior, 66*, 420-437.

Tinsley, H. E. (2000). The congruence myth: An analysis of the efficacy of the person-environment fit model. *Journal of Vocational Behavior, 56*, 147-179.

Ton, M. N., & Hansen, J. C. (2001). Using a person-environment fit framework to predict satisfaction and motivation in work and marital roles. *Journal of Career Assessment, 9*, 315-331.

Tong, J., Wang, L., & Peng, K. (2015). From person-environment misfit to job burnout: Theoretical extensions. *Journal of Managerial Psychology, 30*, 169-182.

Verquer, M. L., Beehr, T. A., & Wagner, S. H. (2003). A meta-analysis of relations between person-organization fit and work attitudes. *Journal of Vocational Behavior, 63*, 473-489.

Werbel, J. D., & Gilliland, S. W. (1999). Person-environment fit in the selection process. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 17, pp. 209-243). Stamford, CT: JAI Press.

Wille, B., Tracey, T. J. G., Feys, M., & De Fruyt, F. (2014). A longitudinal and multi-method examination of interest-occupation congruence within and across time. *Journal of Vocational Behavior, 84*, 59-73.

Appendix A: Intrinsic Work Rewards Items Validation

Table 18

The Pineo-Porter Occupational Prestige Score ranking

Pineo-Porter Prestige Score
01 – Self-employed professional
02 – Employed professional
03 – Senior management
04 – Semi-professional
05 – Technician
06 – Middle management
07 – Supervisor
08 – Foremen
09 – Skilled clerical, sales
10 – Skilled craft, trade
11 – Farmers
12 – Semi-skilled clerical
13 – Semi-skilled manual
14 – Unskilled clerical, sales
15 – Unskilled manual
16 – Farm laborers

Table 19

Bivariate correlations between intrinsic work rewards items and the Pineo-Porter Occupational Prestige Score in 1989, 1992, and 1999

	Pineo-Porter Occupational Prestige Score		
	1989	1992	1999
Interesting work	-.38*	-.36*	-.27*
Uses skills and abilities	-.47*	-.39*	-.30*
Feeling of accomplishment	-.37*	-.30*	-.20*
n	751	668	749

Note. The Pineo-Porter Occupational Prestige Score ranged from 1 – self-employed professional to 16 – farm laborers.
*$p < .05$.

Appendix B: Good Pay Reward Item Validation

Table 20

Means, standard deviations, and ranges of weekly income in 1989, 1992, and 1999

	M	*SD*	*Min*	*Max*
1989 weekly income	363.05	142.31	25.00	>1000.00
1992 weekly income	445.02	176.17	5.00	>1000.00
1999 weekly income	890.59	516.08	2.50	>3000.00

Table 21

Bivariate correlations between good pay reward item and weekly income in 1989, 1992, and 1999

	Weekly Income		
	1989	1992	1999
Good pay reward	.31*	.36*	.30*
n	712	620	672

*$p < .05$.

Appendix C: *Mplus* Syntax for the 1989 LPA Model

```
VARIABLE:
NAMES ARE v331 v89acmp v89skil v89intr w89acmp w89skil w89intr v92acmp v92skil
          v92intr w92acmp w92skil w92intr v99acmp v99skil v99intr w99acmp
          w99skil w99intr v89pay v89sec w89pay w89sec v92pay v92sec w92pay
          w92sec v99pay v99sec w99pay w99sec w4wkstat w5wkstat w4edstat w5edstat
          w6edstat rw6wksta;

MISSING ARE ALL (999 999.00);

USEVARIABLES ARE v89sec v89pay w89sec w89pay w4invlu w4inrwd;

AUXILIARY = w4wkstat w4edstat;

IDVARIABLE IS v331;

CLASSES = C(4);

DEFINE: w4invlu = (v89skil + v89intr + v89acmp)/3;
        w4inrwd = (w89skil + w89intr + w89acmp)/3;

ANALYSIS: TYPE = MIXTURE;
    STARTS = 100 50;
```

```
    LRTSTARTS = 0 0 100 20;
    PROCESSORS = 8(STARTS);

MODEL:

%OVERALL%

[ c#1*-0.68756 ];
[ c#2*-1.64479 ];
[ c#3*0.51785 ];

%C#1%

[ v89sec*4.12544 ];
[ v89pay*4.12592 ];
[ w89sec*2.97168 ];
[ w89pay*2.90245 ];
[ w4invlu*4.88648 ];
[ w4inrwd*2.09317 ];

v89sec*0.81810 (7);
v89pay*0.43035 (8);
w89sec*1.41343 (9);
```

w89pay*1.16005 (10);

w4invlu*0.02788 (11);

w4inrwd*0.66582 (12);

%C#2%

[v89sec*3.76671];

[v89pay*4.11661];

[w89sec*3.52398];

[w89pay*3.27102];

[w4invlu*3.47590];

[w4inrwd*3.14572];

v89sec*0.81810 (7);

v89pay*0.43035 (8);

w89sec*1.41343 (9);

w89pay*1.16005 (10);

w4invlu*0.02788 (11);

w4inrwd*0.66582 (12);

%C#3%

[v89sec*4.29694];

[v89pay*4.27280];

[w89sec*3.83688];

[w89pay*3.53165];

[w4invlu*4.92032];

[w4inrwd*4.15781];

v89sec*0.81810 (7);

v89pay*0.43035 (8);

w89sec*1.41343 (9);

w89pay*1.16005 (10);

w4invlu*0.02788 (11);

w4inrwd*0.66582 (12);

%C#4%

[v89sec*3.92556];

[v89pay*4.03662];

[w89sec*3.64849];

[w89pay*3.52124];

[w4invlu*4.13754];

[w4inrwd*3.57011];

v89sec*0.81810 (7);

v89pay*0.43035 (8);

w89sec*1.41343 (9);

w89pay*1.16005 (10);

w4invlu*0.02788 (11);

w4inrwd*0.66582 (12);

OUTPUT:

SAMPSTAT TECH1 SVALUES TECH11 TECH12 TECH14;

Appendix D: *Mplus* Syntax for the LTA Model

```
VARIABLE:
NAMES ARE V89ACMP V89SKIL V89INTR W89ACMP W89SKIL W89INTR V92ACMP
          V92SKIL V92INTR W92ACMP W92SKIL W92INTR V99ACMP V99SKIL
          V99INTR W99ACMP W99SKIL W99INTR V89PAY V89SEC W89PAY
          W89SEC V92PAY V92SEC W92PAY W92SEC V99PAY V99SEC W99PAY
          W99SEC W4WKSTAT W5WKSTAT W4EDSTAT W5EDSTAT W6EDSTAT
          RW6WKSTA P1W89 P2W89 P3W89 P4W89 N89 P1W92 P2W92 P3W92
          P4W92 N92 V331 P1W99 P2W99 P3W99 P4W99 N99;

 MISSING ARE ALL (999 999.00);

 USEVARIABLES ARE n89 n92 n99;

 CLASSES = C4(4) C5(4) C6(4);

 NOMINAL = n89 n92 n99;

 ANALYSIS: TYPE = MIXTURE;
       STARTS = 0;
       PROCESSORS = 8(STARTS);

 MODEL:
```

%OVERALL%

C5 ON C4;

C6 ON C5;

MODEL C4:

%C4#1%

[n89#1@13.775];

[n89#2@7.462];

[n89#3@10.548];

%C4#2%

[n89#1@-0.923];

[n89#2@3.762];

[n89#3@-2.069];

%C4#3%

[n89#1@12.104];

[n89#2@9.434];

[n89#3@13.601];

%C4#4%

[n89#1@-6.228];

[n89#2@-5.104];

[n89#3@-13.807];

MODEL C5:

%C5#1%

[n92#1@13.788];

[n92#2@7.893];

[n92#3@10.120];

%C5#2%

[n92#1@-0.504];

[n92#2@4.102];

[n92#3@-1.160];

%C5#3%

[n92#1@11.928];

[n92#2@9.898];

[n92#3@13.627];

%C5#4%

[n92#1@-6.468];

[n92#2@-2.397];

[n92#3@-13.727];

MODEL C6:

%C6#1%

[n99#1@13.790];

[n99#2@9.847];

[n99#3@8.709];

%C6#2%

[n99#1@3.517];

[n99#2@7.779];

[n99#3@2.485];

%C6#3%

[n99#1@11.944];

[n99#2@10.669];

[n99#3@13.596];

%C6#4%

[n99#1@-8.237];

[n99#2@-2.953];

[n99#3@-13.764];

SAVEDATA: FILE= LTAProb.dat; SAVE=CPROB;

OUTPUT:

RESIDUAL TECH1 TECH15;