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RESEARCH ARTICLE

Financial inadequacy and the disadvantageous changes in time perspective and goal-striving strategies throughout life

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Summary

As inequality in wealth and income continues to grow, it is important to consider the implications of financial disparities for worker motivation and behavior. While workers with socioeconomic disadvantages have a decreased chance of career success and upward social mobility, the potential mechanisms linking financial status to work motivation outcomes are not fully known. Drawing on theory on resource scarcity, we address this issue and propose that financial inadequacy shapes the extent to which workers consider and plan for the future, with consequences for goal-striving strategies throughout adulthood. Latent change analyses of data from a heterogeneous sample of 4,446 working adults largely supported the hypotheses. Results showed that a high level of financial inadequacy predicted increases in short-term time horizon and decreases in future-oriented planning, which then predicted disadvantageous changes in goal-striving strategies over an 18-year period. Short-term time horizon also predicted subsequent increases in financial inadequacy. By highlighting the motivational challenges associated with inadequate finances that accompany low-wage employment, our study offers evidence for the motivational mechanisms that may reinforce economic inequality and social mobility in the workforce.

KEYWORDS

financial inadequacy, future-oriented planning, goal-striving strategies, inequality, mobility, resource scarcity, short-term time horizon, time perspective

1 | INTRODUCTION

According to the US Bureau of Labor Statistics (https://www.bls.gov/home.htm), approximately 7.6 million workers in the United States live below the poverty line, while many others live paycheck to paycheck and have trouble meeting their financial obligations (Leana & Meuris, 2015). Meanwhile, there is evidence that income and wealth disparities are growing (Economic Policy Institute, 2019). Workers with inadequate income levels are more likely to suffer from a number of detrimental outcomes, including lower life satisfaction (Howell & Howell, 2008) and higher risk of mental disorders (Link, Lennon, & Dohrenwend, 1993) and mortality (Adler et al., 1994). Low-income workers are also much less likely to escape from undesirable circumstances and improve their socioeconomic status (Pitesa & Pillutla, 2019).

Organizational behavior researchers delving into this issue have found that individuals with socioeconomic disadvantages have a lower likelihood of career success (Ng, Eby, Sorensen, & Feldman, 2005; Pitesa & Pillutla, 2019). Research also found low-income individuals tend to have lower self-efficacy and to believe that there are uncontrollable obstacles interfering with their goals (Lachman & Weaver, 1998). Workers can improve their life situation by striving toward higher levels of job performance and career advancement, and yet low-income workers seem to engage less in proactive learning and developmental behavior at work (Pitesa & Pillutla, 2019) although the mechanisms are not fully known. In order to tackle the causes of

social immobility, it is critical to consider and identify potential explanations for this pattern of behavior as a result of one's financial status.

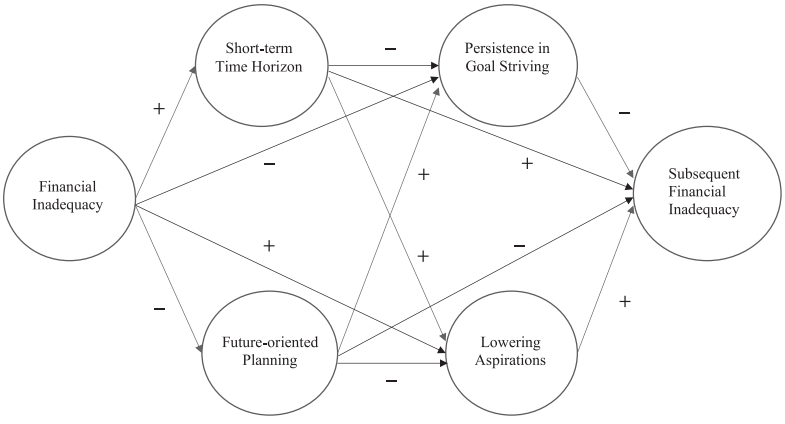
One factor that may help explain the effect of financial status on goal-striving patterns is the worker's time perspective. Research on time perspective (Kooij, Kanfer, Betts, & Rudolph, 2018; Rudolph, Kooij, Rauvola, & Zacher, 2018) has highlighted the benefits of focusing on the future. However, behavioral perspectives on resource scarcity suggest that low-income individuals may suffer from barriers that make them less able to shape their own future (Kraus, Piff, & Keltner, 2009; Mullainathan & Shafir, 2013; Shah, Shafir, & Mullainathan, 2015). We therefore develop and test the hypothesis that financial resource scarcity inspires motivational states that may be maladaptive to long-term success.

We focus specifically on the role of financial *inadequacy* as a threat to a workers' goal-striving patterns and define it as the perceived inadequacy or insufficiency of a worker's income and wealth to meet his/her household's needs. We chose to focus on perceived financial inadequacy because it captures a worker's subjective evaluation of his/her financial condition, which explains greater variance in life quality outcomes than objective income or wealth does (Ackerman & Paolucci, 1983; Leana & Meuris, 2015).

In this study, we investigate how financial inadequacy predicts changes in time perspective and goal striving over an 18-year period, and in doing so, we make three contributions to the literature. First, our findings provide insight into the motivation of workers from different financial backgrounds to pursue activities that have long-term benefits and may have implications for their career achievement and social mobility. There has been considerable recent interest in time perspective in the organizational behavior literature (e.g., Kooij et al., 2018; Shipp, Edwards, & Lambert, 2009), but most of this work has focused on its trait antecedents and its consequences. There has been less work examining how situational factors can shorten one's time perspective and reduces one's planning tendency. Here, we integrate theory on resource scarcity to identify financial inadequacy as a potentially important situational antecedent of time perspective. Second, we consider the downstream effects of financial inadequacy and time perspective for the development of goal-striving strategies. Thus, our findings may help explain how financial inadequacy predicts the development of disadvantageous goal-striving strategies through changes in time perspective, with potential implications for social mobility. Third, we develop and test the effects of goal-striving strategies on subsequent levels of financial inadequacy. Existing research on financial inadequacy in organizational behavior has generally focused on concurrent or more immediate consequences of financial distress. In this study, we test these relationships over a longer period, extending theory on resource scarcity and motivation to a broader time span. In doing so, our findings will offer insight into the worker poverty trap and economic inequality (Amis, Mair, & Munir, 2020; Laajaj, 2017). Figure 1 illustrates the conceptual model among our core constructs.

2 | THEORY ON RESOURCE SCARCITY

Theory on resource scarcity has argued that the feeling of scarcity influences motivation and behavioral choices (e.g., Mullainathan & Shafir, 2013). In their work on this topic, Mullainathan and Shafir (2013) argued that perceived scarcity in resources can promote a scarcity mindset that encourages individuals to allocate most of their attention and effort toward immediate demands, especially those relevant to the resources that are scarce. For example, research has shown that being hungry or thirsty makes people respond more quickly to food- or drink-related cues than to other needs or desires (Aarts, Dijksterhuis, & De Vries, 2001; Radel & Clément-Guillotin,-2012). Research also shows that individuals facing time scarcity accomplish immediate tasks with a greater efficiency than those without deadline pressure (Karau & Kelly, 1992). Experimental research has found that individuals with fewer material resources tend to report a higher level of fatigue when performing a task than individuals assigned more plentiful resources, suggesting that resource scarcity promotes increased effort expenditure toward immediate tasks (Mullainathan & Shafir, 2013; Shah et al., 2015; Shah, Mullainathan, & Shafir, 2012). A recent attempt to replicate classic research on self-



Note. This figure only illustrates the conceptual model. This is not the analysis model and the figure does not present all estimated paths in the analysis. The full serial mediation from initial financial inadequacy to increase in subsequent financial inadequacy was not hypothesized or tested.

FIGURE 1 The proposed conceptual model. *Note*. This figure only illustrates the conceptual model. This is not the analysis model, and the figure does not present all estimated paths in the analysis. The full serial mediation from initial financial inadequacy to increase in subsequent financial inadequacy was not hypothesized or tested

control (Shoda, Mischel, & Peake, 1990) found that the willingness of children to delay gratification was strongly related to the child's socioeconomic (including financial) background and that once researchers accounted for socioeconomic background, a child's willingness to delay gratification had a much weaker relationship with subsequent achievement (Watts, Duncan, & Quan, 2018). Some interpreted this as suggesting that it is easier to delay gratification and pursue a long-term goal when one's resources were plentiful to begin with (e.g., Calarco, 2018). These findings all suggest that resource scarcity inspires individuals to focus on immediate needs and demands.

The theory further suggests that running short on resources changes the way people behave because the scarcity mindset can create a fear of near-term loss (Mullainathan & Shafir, 2013). In order to reduce that fear, people experiencing resource scarcity tend to develop a tunnel focus on scarcity-related goals and attentional neglect of other goals (Shah et al., 2012; Shah et al., 2015). Consistent with this notion, low-income individuals have been found to take short-term, high-interest loans more often than others do (Shah et al., 2012), because not being able to pay bills or debts is associated with greater immediate consequences. Low-income homeowners also tend to ignore long-term home maintenance needs while focusing on more urgent expenses (Meuris & Leana, 2015). A fear of immediate consequences causes individuals to focus heavily on meeting daily needs without considering future costs (Meuris & Leana, 2015; Shah et al., 2012), potentially postponing long-term goal pursuit.

3 | FINANCIAL INADEQUACY AND THE DEVELOPMENT OF TIME PERSPECTIVE

On the basis of resource scarcity theory, we propose that financial inadequacy, as a form of resource scarcity, predicts how workers allocate effort toward immediate and distal goals. Multiple goals compete for a worker's finite time and energy. For instance, workers may wish to develop their skills and advance in their careers to earn a higher salary, while at the same time, they can attend to their immediate work demands or relax at home. Past research has shown that long-term personal goals are often overlooked when there are more urgent needs (Hellevik & Settersten, 2012; Jacobs, 2004). This shift toward urgent needs is especially salient for those in poverty or in undesirable work situations with unstable incomes (Hellevik & Settersten, 2012).

We propose that financial inadequacy, as an important signal of resource scarcity, may cause workers to develop a *short-term time horizon*. Time horizon refers to "how far into the future an individual normally looks or is capable of looking when making decisions" (Bluedorn & Denhardt, 1988, p. 308). Short-term time horizon refers to a tendency to think only within a short time span when making plans and decisions, without much consideration of the distal future (Bluedorn & Denhardt, 1988; Daltrey & Langer, 1984; Joireman, Kamdar, Daniels, & Duell, 2006). This short-term time horizon construct uniquely encompasses one's belief in the usefulness of considering the future when making decisions, reflecting one's tendency to live only for the present day (Husman & Shell, 2008).

Research has shown that for individuals in poverty, anticipating the future can be associated with more distress. Individuals in poverty therefore learn to develop a shorter time horizon in order to reduce the distress that often comes with projecting upcoming hardships (Laajaj, 2017). It has also been found that those who expect instability or life-changing events are more likely to favor immediate rewards over the delayed ones (Bartels & Rips, 2010). We posit that experiencing material resource scarcity may cause workers to develop a short-term time horizon, facilitating the pursuit of near-term goals rather than long-term goals.

For a similar reason, inadequate finances may discourage individuals from investing time and effort toward long-term planning. Research suggests that workers with fewer financial resources are less able to predict the future effectively, especially when planning for future triggers distress (Hellevik & Settersten, 2012; Laajaj, 2017). Additionally, long-term rewards tend to be uncertain, and employees with inadequate finances may be less able to tolerate the risk of investing time and capital toward uncertain future goals. Moreover, workers with scarce resources may believe less in their own ability to influence long-term outcomes (Kraus et al., 2009), resulting in a diminished belief about the instrumentality of planning toward future rewards. We propose that the focus on immediate needs, uncertainty of delayed rewards, and the lack of self-efficacy for influencing long-term outcomes may reduce the motivation of workers with inadequate finances to plan for the future. We anticipate that the influence of financial resources on time perspective takes place over time as workers progress through their careers.

Hypothesis 1. Greater financial inadequacy predicts increases in short-term time horizon (H1a) and decreases in future-oriented planning (H1b) among workers over time.

4 | TIME PERSPECTIVE AND THE DEVELOPMENT OF GOAL-STRIVING STRATEGIES

We expect that there are downstream consequences of financial inadequacy for workers' goal-striving patterns through changes in time perspective. According to the motivational theory of life-span development, individuals may employ two types of control strategies to adapt to environments: *primary control strategies* and *secondary control strategies* (Heckhausen & Schulz, 1995; Heckhausen, Wrosch, & Schulz, 2010; Rothbaum, Weisz, & Snyder, 1982; Wrosch, Heckhausen, & Lachman, 2000). Primary control strategies refer to actions directed at changing the external environment to fit one's wishes (Rothbaum et al., 1982). An example of a primary control strategy is persistence in goal striving (Wrosch et al., 2000), which involves the continuation of effort toward one's goals. On the other hand, secondary control strategies refer to actions directed at changing the self to fit environmental forces (Rothbaum et al., 1982). A prime example of a secondary control strategy is lowering one's own aspirations because this involves

adjusting one's own goals downward to minimize the negative impact of failures (Wrosch et al., 2000). Via proactive attempts to change the environment, primary control strategies are likely to produce not only some satisfying outcomes but also frustrating results. As an auxiliary process, secondary control strategies can be adopted to adjust to frustrations through rescaling or disengaging from goals (Heckhausen et al., 2010; Heckhausen & Schulz, 1993); however, this strategy may not be beneficial for goal achievement in the long run (Wrosch et al., 2000).

Persistence in goal striving, as a type of primary control strategy, is most effective for goal attainment when the rewards of goal attainment outweigh its costs and when the opportunity for success exceeds the level of constraints (Heckhausen et al., 2010; Wrosch et al., 2000). *Lowering aspirations*, as a type of secondary control strategy, is particularly important when primary control fails (Rothbaum et al., 1982). By adjusting the standards for goal attainment downward, an individual may minimize the psychological losses associated with failures (Rothbaum et al., 1982; Wrosch, Scheier, Miller, Schulz, & Carver, 2003).

Workers with a short-term time horizon may perceive the investment of time, effort, and capital toward long-term goals as especially costly and as having a low likelihood of success. Empirical evidence has shown that workers who focus on fulfilling immediate needs are more vulnerable to shocking life events because of the lack of preparedness. For example, employees who live one day at a time are less likely to save and engage in long-term planning (Meuris & Leana, 2015). The lack of emergency saving makes it difficult for people to overcome unexpected expenses (Leana & Meuris, 2015), reinforcing their perceived helplessness in influencing their own future and persisting toward long-term goals. Important goals with delayed rewards often require enduring engagement to obtain the goal, because these goals are often more challenging and harder to obtain with transient effort. However, it may not appear realistic for workers with short-term time horizon to persist toward a goal that is too far to reach. To avoid such frustrations, these workers may adjust goals downward and lower aspirations, while reducing their persistence in long-term goal striving.

On the other hand, future-oriented planning enables the anticipation of the future self in relation to the environment (Trommsdorff, 1994). Future-oriented planning also enhances the predictability between one's actions and outcomes, thereby increasing one's sense of control over the future (Lachman & Burack, 1993; Trommsdorff, 1994). With a stronger efficacy to carry out plans and attain goals, workers who plan more for the future may be more inclined to persist toward long-term goals. Workers who plan for the future may perceive more value in and have higher hope for delayed rewards, further encouraging them to remain persistent in long-term goal pursuit (Joireman et al., 2006; Trommsdorff, 1994). Because we expect that workers who plan for the future tend to maintain their expectancies and persist in their pursuit of long-term goals, we also expect that they are less likely to lower their aspirations as a control strategy.

Hypothesis 2. Greater short-term time horizon predicts decreases in persistence in goal striving (H2a) and increases in lowering aspirations (H2b) among workers over time.

Hypothesis 3. Greater future-oriented planning predicts increases in persistence in goal striving (H3a) and decreases in lowering aspirations (H3b) among workers over time.

The experience of financial inadequacy is associated with limited choices and difficulty in obtaining goals and therefore would reduce a worker's sense of control over their external environment (Friedman & Lackey, 1991; Kraus et al., 2009; Lachman & Weaver, 1998; Prenda & Lachman, 2001; Reay, Davies, David, & Ball, 2001), with meaningful consequences for goal-striving strategies. We argue that workers' time perspective in setting, planning, and pursuing goals helps to explain some of the difficulties that are associated with financial inadequacy. Specifically, we propose that financial inadequacy leads workers to focus more on present needs and discount the value of planning for the future. Accompanied with the discounted value placed on those long-term goals, a short-term time horizon would in turn discourage persistence and encourage lowering aspirations as goal-striving strategies over the life course.

Hypothesis 4. Changes in short-term time horizon mediate the relationship between financial inadequacy and changes in persistence in goal striving (H4a) and the relationship between financial inadequacy and changes in lowering aspirations (H4b).

Hypothesis 5. Changes in future-oriented planning mediate the relationship between financial inadequacy and changes in persistence in goal striving (H5a) and the relationship between financial inadequacy and changes in lowering aspirations (H5b).

5 | GOAL-STRIVING STRATEGIES AND FUTURE FINANCIAL INADEQUACY

Persistence toward goals increases one's sense of control, self-efficacy, and opportunity to overcome constraints (Locke & Latham, 2002), all of which enable workers to better forecast the trade-offs between resource investments and costs, allowing them to adjust their effort allocation accordingly. Applying this style of living to financial and career management, we argue that persistence in long-term goal striving is critical because it helps workers balance resource investments that focus on immediate needs with those focused on long-term goals. We expect that such goal-striving patterns contribute to workers' financial well-being by facilitating better financial and career decision making and by promoting the self-development that enables stronger career performance and greater mobility. Therefore, we argue that a worker's tendency to persist toward goals can be beneficial for improving one's financial situation over time. On the other hand, individuals who lower their aspirations tend to minimize psychological loss by reinterpreting and disengaging

from goals. This tendency to lower aspirations may result in a worker's maladaptation to unexpected events and a neglect of developmental opportunities. The lower effort investment and goal attainment associated with the lowering of aspirations may therefore result in a worsening of one's financial condition over time.

Hypothesis 6. Greater persistence in goal striving predicts decreases in financial inadequacy among workers over time.

Hypothesis 7. Greater lowering aspirations in goal striving predicts increases in financial inadequacy among workers over time.

6 | METHODS

6.1 | Participants

To examine the implications of financial inadequacy on the development of time perspective and goal-striving strategies over an 18-year period, we analyzed data from the *National Survey of Midlife Development in the United States (MIDUS)* conducted by the MacArthur Foundation Research Network. Responses were collected from 25- to 75-year-old adults living in the United States at three time points (i.e., 1995–1996, 2004–2006, and 2013–2014), covering a period of approximately 18 years. The data set contains responses from 7,309 participants. We only included in our analysis 4,446 participants who indicated they were working for pay at Time 1 because we were mainly interested in how much workers' financial inadequacy level at Time 1 predicted the development of time perspective and goal-striving strategies in later adulthood.

There was some attrition throughout the study: 1,452 participants were lost during the first 9-year time lag, and another 965 were lost in the second 9-year time lag. Thus, the sample at Time 3 contained 2,229 participants, about 50% of the original sample. The participant dropout at Time 2 did not correlate with most of the key variables. The two exceptions are that participants who dropped out at Time 2 were slightly higher on financial inadequacy and short-term time horizon at Time 1. We also found that participants who dropped out showed a similar demographic makeup to the remaining participants.

In this final sample of 4,446 participants, 48.2% of participants were women. The majority of participants were White Americans (78.2%). The mean age was 42.88 (*SD* = 10.90) at Time 1 and 61.56 (*SD* = 10.10) at Time 3; 64.8% of participants from Time 1, 51.6% from Time 2, and 34.4% from Time 3 indicated they were married. The sample worked an average of 42.03 h/week (*SD* = 12.42) at Time 1, 39.34 h/week (*SD* = 14.07) at Time 2, and 37.86 h/week (*SD* = 15.16) at Time 3. Based on responses reported at Time 1, 26.2% of the sample indicated having a high school degree, and 19.7% indicated having a 4- or 5-year college degree as their highest level of education completed. Participants came from a variety of industries and occupations, including teachers, nurses, retail sales workers, accountants, truck drivers, and administrative support workers, among many others. Based on responses at Time 1, 42.9% of the sample had a total personal income below $25,000, 40.2% earned between $25,000 and $50,000, 14.3% earned between $50,000 and $100,000, and 2.6% earned over $100,000 in the year prior to the study. Based on responses at Time 2, 37.5% of the sample had personal income below $25,000, 29.2% earned between $25,000 and $50,000, 24.9% earned between $50,000 and $100,000, and 8.4% earned over $100,000 in the year prior to the second wave.

6.2 | Measures

A complete list of items used in our study is provided in Supporting Information. All measures were given at each of the three time points. For a reliability coefficient, we reported congeneric reliability instead of the commonly used coefficient alpha because congeneric reliability is more suitable for the framework of structural equation modeling (SEM; Cho, 2016).

6.2.1 | Financial inadequacy

Financial inadequacy was assessed with three items. The first item was "Using a scale from 0 to 10 where 0 means the worst possible financial situation and 10 means the best possible financial situation, how would you rate your financial situation these days?" Scoring was based on an 11-point scale from 0 (worst) to 10 (best). The second item was "In general, would you say you (and your family living with you) have more money than you need, just enough for your needs, or not enough to meet your needs?" Scoring was based on a 3-point scale from 1 (more money) to 3 (not enough money). The third item was "How difficult is it for you (and your family) to pay your monthly bills?" Scoring of this item was based on a 4-point scale from 1 (very difficult) to 4 (not at all difficult). Because these three items from MIDUS were not developed for a scale under a common factor model, we conducted confirmatory factor analysis (CFA) to confirm the fit of this one-factor model with three indicators. The factor loadings of the three items ranged from .76 to 1.42 at Time 1, from .75 to 1.45 at Time 2, and from .76 to 1.47 at Time 3.[1] Results from this CFA offer supporting evidence that the three items loaded onto a single latent factor. The congeneric reliability of this measure at each time point was .84, .86, and .87, respectively.

6.2.2 | Short-term time horizon

Short-term time horizon was assessed with three items from MIDUS that describe one's tendency to focus on immediate needs. Example

[1]As described in results section, we adopted the effects coding method instead of the common referent indicator method for all models tested, unless noted otherwise. With the effects coding method, each indicator's scales is weighted by indicator loadings, and each latent factor is scaled based on the average of indicators' scales (see Breitsohl, 2019 for a review).

items were "I live one day at a time" and "I have too many things to think about today to think about tomorrow." Scoring of these items was based on a 4-point scale from 1 (a lot) to 4 (not at all). Higher values represent a higher short-term time horizon. This scale has been used in other research (e.g., Chen, Miller, Lachman, Gruenewald, & Seeman, 2012; Prenda & Lachman, 2001). The congeneric reliability at each time point was .70, .69, and .66, respectively.

6.2.3 | Future-oriented planning

Future-oriented planning was assessed with a three-item scale. Example items were "I like to make plans for the future" and "I find it helpful to set goals for the near future." Scoring of these items was based on a 4-point scale from 1 (a lot) to 4 (not at all). Higher values represent higher future-oriented planning. This scale has been used in other research (Figueredo, Vasquez, Brumbach, & Schneider, 2004; Prenda & Lachman, 2001). The congeneric reliability at each time point was .82, .82, and .83, respectively.

6.2.4 | Persistence in goal striving

Persistence in goal striving was measured with a five-item scale. Example items were "When faced with a bad situation, I do what I can do to change it for the better" and "Even when I feel I have too much to do, I find a way to get it all done." Scoring of these items was based on a 4-point scale from 1 (a lot) to 4 (not at all). Higher values represent a higher tendency to persist in goal striving. This scale has been used in other research using the MIDUS data set (e.g., Honda & Jacobson, 2005; Wrosch et al., 2000). The congeneric reliability at each time point was .84, .86, and .87, respectively.

6.2.5 | Lowering aspirations in goal striving

Lowering Aspirations was measured with a five-item scale. Example items were "When my expectations are not being met, I lower my expectations" and "To avoid disappointments, I don't set my goals too high." Scoring of these items was based on a 4-point scale from 1 (a lot) to 4 (not at all). Higher values represent a higher tendency to lower one's aspirations. This scale has been used in other research based on the MIDUS data set (e.g., Honda & Jacobson, 2005; Wrosch et al., 2000). The congeneric reliability of this measure at each time point was .70, .69, and .70, respectively.

6.2.6 | Control variables

Because age plays an important role in the development of control strategies and motivation over the life course, we controlled for age using the responses at Time 1 (e.g., Heckhausen et al., 2010). We also controlled for gender (1 = women, 0 = men) and race because gender has been shown to covary with financial inadequacy and motivational outcomes in previous studies (e.g., Odle-Dusseau, McFadden, & Britt, 2015) and race has been shown as a covariate of socioeconomic status (e.g., Ulbrich, Warheit, & Zimmerman, 1989). To accommodate the small number of participants in certain racial groups, we coded race dichotomously as 1 = White and 0 = non-White.

6.3 | Scale validation

Because these scales were developed specifically for the MIDUS study, we collected additional data via Amazon Mechanical Turk (Mturk; N = 283) to examine the psychometric quality and nomological network of these scales. A full summary of the results of this study is reported in Supporting Information. Results suggest that the measures in this study correlated generally as expected with other common measures of similar constructs. However, we acknowledge that these correlations may have been unique to the sample recruited through Mturk and thus are not definitive evidence of scale validity for this study.

7 | RESULTS

Descriptive statistics and correlations among key variables are reported in Table 1. All of the following analyses were based on SEM performed with *Mplus 8*[2] (Muthén & Muthén, 1998–2017). Before we tested the hypotheses, we performed a series of longitudinal measurement invariance tests to ensure that the measures could be interpreted across time points. Unless noted otherwise, we treated all 3-point and 4-point indicators as categorical because items with fewer than five response options are arguably ordinal rather than interval.

7.1 | Longitudinal measurement invariance

To test the extent to which the measures reflected the same latent factors across time points, we tested the factor structure, indicator loading, and indicator threshold invariances over the three measurement time points (Liu et al., 2017; Vandenberg & Lance, 2000; Widaman, Ferrer, & Conger, 2010). Following Liu et al.'s (2017) method of testing longitudinal data with categorical indicators, we first tested a baseline model to ensure that the factor structure was equivalent across time points. This baseline model constrained the factor structure to be equal across the three time points and allowed the factor loadings and thresholds to be freely estimated. We then tested a loading invariance model by constraining the loadings of the same items across time to be equal. Then, we tested a threshold invariance model by constraining the thresholds of the same items across time to be equal. Fit indices and chi-square difference tests

[2]Mplus codes for all the analyses in this study can be obtained from the corresponding author upon request.

TABLE 1 Descriptive statistics and correlations among key variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Financial inadequacy (T1)	–																	
2. Financial inadequacy (T2)	.51**	–																
3. Financial inadequacy (T3)	.46**	.56**	–															
4. ST time horizon (T1)	.16**	.19**	.20**	–														
5. ST time horizon (T2)	.13**	.21**	.22**	.53**	–													
6. ST time horizon (T3)	.13**	.19**	.24**	.51**	.57**	–												
7. Planning (T1)	−.19**	−.15**	−.14**	−.25**	−.19**	−.17**	–											
8. Planning (T2)	−.18**	−.20**	−.13**	−.18**	−.22**	−.17**	.57**	–										
9. Planning (T3)	−.16**	−.17**	−.19**	−.17**	−.19**	−.21**	.52**	.60**	–									
10. Persistence (T1)	−.17**	−.12**	−.08**	−.05**	−.02	−.03	.48**	.35**	.33**	–								
11. Persistence (T2)	−.10**	−.17**	−.10**	−.07**	−.04	−.06*	.36**	.51**	.39**	.57**	–							
12. Persistence (T3)	−.08**	−.11**	−.10**	−.04**	−.03	−.05*	.35**	.38**	.50**	.54**	.63**	–						
13. Lower aspirations (T1)	.11**	.09**	.11**	.37**	.26**	.28**	−.17**	−11**	−.11**	−.14**	−.11**	−.12**	–					
14. Lower aspirations (T2)	.09**	.14**	.14**	.29**	.41**	.35**	−.15**	−.14**	−.14**	−.12**	−.10**	−.11**	.46**	–				
15. Lower aspirations (T3)	.09**	.09**	.13**	.27**	.30**	.41**	−.14**	−.08**	−.10**	−.12**	−.13**	−.09**	.47**	.54**	–			
16. Race	−.09**	−.08**	−.05	−.06**	−.11**	−.11**	−.06**	−.05*	−.04	−.06**	−.05*	−.04	−.00	−.04	.00	–		
17. Gender	.06**	.08**	.09**	.13**	.13**	.14**	−.02	.02	.02	.02	.03	.03	.15**	.19**	.16**	−.03	–	
18. Age	−.18**	−.13**	−.08**	.03	.08**	.13**	.00	.07**	.01	.10**	.08**	.02	.07**	.10**	.09**	.09**	.04*	–
Mean	3.04	2.85	2.76	2.26	2.24	2.24	3.17	3.11	3.06	3.24	3.20	3.19	2.26	2.20	2.21	.90	.49	43.31
Std. deviation	1.03	1.07	1.09	.73	.72	.70	.66	.67	.68	.54	.55	.55	.56	.54	.54	.30	.50	11.89

Note: N = 4,446. ST refers to short-term. Planning refers to future-oriented planning. Persistence refers to persistence in goal striving. For race, 1 = White, 0 = non-White.
Abbreviations: T1, Time 1; T2, Time 2; T3, Time 3.
*$p < .05$.
**$p < .01$.

TABLE 2 Longitudinal invariance models

Variable	χ^2	*df*	CFI	RMSEA	$\Delta\chi^2$	Δdf	Sig.	Δ CFI
The baseline CFA	7175.59	1377	.933	.032				
Indicator loading invariance CFA	6920.23	1405	.936	.031	104.89	28	Yes	.003
Partial indicator loading invariance CFA	6905.41	1397	.936	.031	30.51	20	No	.003
Threshold invariance CFA	7797.13	1504	.927	.032	1145.70	107	Yes	−.009
Partial threshold invariance CFA	7555.90	1480	.930	.032	650.49	83	Yes	−.006

Note: The WLSMV estimator was used in all models. With the WLSMV estimator being used, traditional chi-square difference testing is not appropriate. Therefore, significant testing was conducted using the DIFFTEST option in Mplus. Four indicators (i.e., the third financial inadequacy item, the third short-term time horizon item, the third future-oriented planning item, and the fourth lowering aspiration item) were allowed to be freely estimated in the partial indicator and partial threshold CFA models.

Abbreviations: CFA, confirmatory factor analysis; CFI, comparative fit index; RMSEA, root mean square error of approximation.

$^{*}p < .05$.

$^{**}p < .01$.

between nested models were evaluated to assess whether the indicator loadings and thresholds were equivalent or similar across time.

The results for these invariance models are reported in Table 2. The baseline model showed adequate fit according to general cutoff guidelines (e.g., comparative fit index [CFI] > .90, SRMR < .08, and RMSEA < .06; Hu & Bentler, 1999). Thus, we concluded in favor of factor structure invariance. We then tested indicator loading invariance, and, as shown in Table 2, the indicator loading invariance model exhibited adequate model fit based on the general cutoff guidelines (Hu & Bentler, 1999). However, the chi-square difference test[3] comparing this model to the baseline model was significant ($\Delta\chi^2$ = 104.89, Δdf = 28), suggesting the indicator invariance model had significantly worse fit than the baseline model.

Then, we conducted a partial indicator loading invariance model by allowing some indicator loadings to be freely estimated across time points (Vandenberg, 2002). Four items were selected (i.e., the third financial inadequacy item, the third short-term time horizon item, the third future-oriented planning item, and the fourth lowering aspiration item) to be freely estimated because the baseline model suggested that these items' loadings were relatively weaker and varied more across time than the others. The fit indices of this partial loading invariance model were adequate. The chi-square difference test between this partial loading invariance model and the baseline model was not significant ($\Delta\chi^2$ = 30.51, Δdf = 20), supporting partial loading invariance. Additionally, it has been argued that the chi-square difference test can be highly sensitive to sample size, which can cause an upward bias in large samples (e.g., *N* more than 1,000) such as that in our current study (Hooper, Coughlan, & Mullen, 2008; Meade, Johnson, & Braddy, 2008). It has thus been recommended that researchers report alternative fit indices (e.g., differences in CFI) to evaluate measurement invariance with large samples (Meade et al., 2008). Following this suggestion, we reported differences in the CFI in Table 2 and found that the difference, .003, fell well below the recommended cutoff value for poor invariance, which was .02 (Meade et al., 2008). Therefore, we concluded that for the majority of items, indicator loadings were comparable across time points.

Then, we tested a threshold invariance model in which thresholds of the indicators were constrained to be equal across time points. As shown in Table 2, the threshold invariance model exhibited adequate model fit based on general cutoff guidelines (Hu & Bentler, 1999). However, the chi-square difference test[4] comparing this threshold invariance model to the loading invariance model was significant ($\Delta\chi^2$ = 1145.70, Δdf = 107), suggesting this threshold invariance model fit significantly worse than the loading invariance model. We again tested a partial threshold invariance model with the thresholds freely estimated for the same four items for which loadings were freely estimated in the partial loading invariance model. The chi-square difference test was still significant ($\Delta\chi^2$ = 650.49, Δdf = 83). We then conducted the difference in CFI test and found the difference in CFI, −.006, fell below the cutoff value for poor invariance (Meade et al., 2008). This suggests that the partial threshold invariance model showed fit that was significantly worse than but still similar to the partial loading invariance model. Because of the potential upward bias of the chi-square difference test with large samples, we relied on the difference in CFI to suggest that most of the indicators used in our study were comparable across time points. We then moved forward with conceptual model testing although we acknowledge potential nonequivalence in the scores across time.

7.2 | Conceptual model testing

Before testing the hypotheses, we first conducted a CFA of all five latent factors and their indicators across the three measurement time points. Among the various latent variable scaling methods, we followed a recent recommendation to adopt the effects coding method because the commonly used referent variable method could falsely assume that the referent indicator is invariant

[3]Please note that the chi-square difference test here could not be performed in a regular way while accounting for categorical items with the WLSMV estimator at the same time. It was instead performed using the DIFFTEST command in Mplus.

[4]Please note that the chi-square difference test here could not be performed in a regular way while accounting for categorical items with the WLSMV estimator at the same time. It was instead performed by the DIFFTEST command in Mplus.

(Breitsohl, 2019).[5] With the effects coding method, each latent factor is scaled based on the average of its indicators' scales, which are weighted by indicator loadings. Although the scaling method does not generally affect model fit, it can affect estimate interpretation (see Breitsohl, 2019 for a review). In addition, all 3-point or 4-point scale items were specified as categorical, and the weighted least square mean and variance (WLSMV) adjusted estimator was used to handle these categorical indicators. The residuals for the same repeated items for all scales were allowed to freely correlate across time points. Fit indices for this measurement model showed adequate fit, $\chi^2(1377) = 7175.591$, CFI = .933, RMSEA = .032. The standardized factor loadings and correlated item residuals are reported in Table 3.

On the basis of this well-fitting measurement model, we performed latent change score analysis to test the hypotheses. Figure 2 presents the hypothesized paths from the analysis model. Latent change score analysis creates an additional latent variable to represent the change between two time points, allowing us to directly test between-person differences in change over time in latent constructs (Geiser, 2012). The analysis model included all five latent constructs (i.e., financial inadequacy, short-term time horizon, future-oriented planning, persistence in goal striving, and lowering aspirations) and their indicators at all three time points, as well as the latent change factors between each consecutive time point (i.e., from Time 1 to Time 2 and from Time 2 to Time 3). Changes in short-term time horizon and future-oriented planning were regressed onto financial inadequacy and goal-striving strategies at the previous time point. Changes in persistence in goal-striving and lowering aspirations were regressed onto financial inadequacy and the time perspective variables at the previous time point. In addition, changes in financial inadequacy were regressed onto the time perspective and goal-striving strategy factors at the previous time point. Identical structural paths among the variables were constrained to be equal across time points, and thus, the estimate for these paths is only presented once. To examine the mediation hypotheses, coefficients of the indirect paths were estimated among financial inadequacy at Time 1, changes in time perspectives between Time 1 and Time 2, time perspectives at Time 2, and changes in goal-striving strategies between Time 2 and Time 3 (O'Laughlin, Martin, & Ferrer, 2018). These indirect tests were performed with the BOOTSTRAP command in Mplus.

Because age, gender, and race have potential to influence the trajectories of latent constructs over the life course, we controlled for these variables by entering them as predictors of the latent change factors.[6] As with the measurement model, all 3-point or 4-point scale items were specified as categorical, and thus, the WLSMV estimator was used. With the bootstrap method for testing mediation hypotheses, no model fit statistics were provided by Mplus.

Table 4 presents all path coefficients for the latent change model. Results showed that financial inadequacy significantly predicted increases in short-term time horizon ($B = .09$, $p < .001$) and decreases in future-oriented planning ($B = -.14$, $p < .001$) beyond the control variables over the two 9-year periods. Thus, Hypotheses 1a and 1b were supported. In addition, short-term time horizon significantly predicted changes in persistence in goal striving ($B = -.14$, $p < .001$) and lowering aspirations ($B = .33$, $p < .001$) beyond the control variables. Thus, Hypotheses 2a and 2b were supported. Greater future-oriented planning significantly predicted increases in persistence in goal striving ($B = .36$, $p < .001$) and decreases in lowering aspirations ($B = -.17$, $p < .001$) beyond the control variables. Thus, Hypotheses 3a and 3b were supported.

We then tested the mediation hypotheses. As shown in Table 5, the indirect relationship between financial inadequacy at Time 1 and changes in persistence in goal striving between Time 2 and Time 3 through changes in short-term time horizon between Time 1 and Time 2 was significant ($B = -.014$, $p < .001$, C.I. [−.022, −.006]), supporting Hypothesis 4a. Second, the indirect relationship between financial inadequacy at Time 1 and changes in lowering aspirations between Time 2 and Time 3 through changes in short-term time horizon between Time 1 and Time 2 was significant ($B = .031$, $p < .001$, C.I. [.020, .042]). Thus, Hypothesis 4b was supported. The indirect relationship between financial inadequacy at Time 1 and changes in persistence in goal striving between Time 2 and Time 3 through changes in future-oriented planning between Time 1 and Time 2 was also significant ($B = -.049$, $p < .001$, C.I. [−.064, −.033]), supporting Hypothesis 5a. Finally, the indirect relationship between financial inadequacy at Time 1 and changes in lowering aspirations between Time 2 and Time 3 through changes in future-oriented planning between Time 1 and Time 2 was significant, ($B = .023$, $p < .001$, C.I. [.015, .032]), supporting Hypothesis 5b. These findings suggest that changes in short-term time horizon and future-oriented planning played a mediating role in the relationship between financial inadequacy and the development of goal-striving strategies over time beyond the effects of age, race, and gender.

We further explored the predictive effects of goal-striving strategies on subsequent financial inadequacy. Our results showed that persistence in goal striving predicted changes in financial inadequacy beyond the control variables over time ($B = -.07$, $p = .020$), supporting Hypothesis 6. Similarly, lowering aspirations predicted changes in financial inadequacy beyond the control variables over time ($B = .12$, $p = .008$). Hence, Hypothesis 7 was also supported.

7.3 | Alternative model testing

Because the use of the WLSMV estimator in conjunction with the BOOTSTRAP command in Mplus does not yield model fit indices, we tested an alternative model using the MLR estimator, which is based on maximum likelihood parameters, to verify our findings from the model with the WLSMV estimator. The MLR estimator is considered

[5]The referent variable method was still used for testing invariance models in the previous section, because the DIFFTEST command could not be used at the same time with the nonlinear constraints, which were required for effects coding in *Mplus* (Muthén & Muthén, 2011).

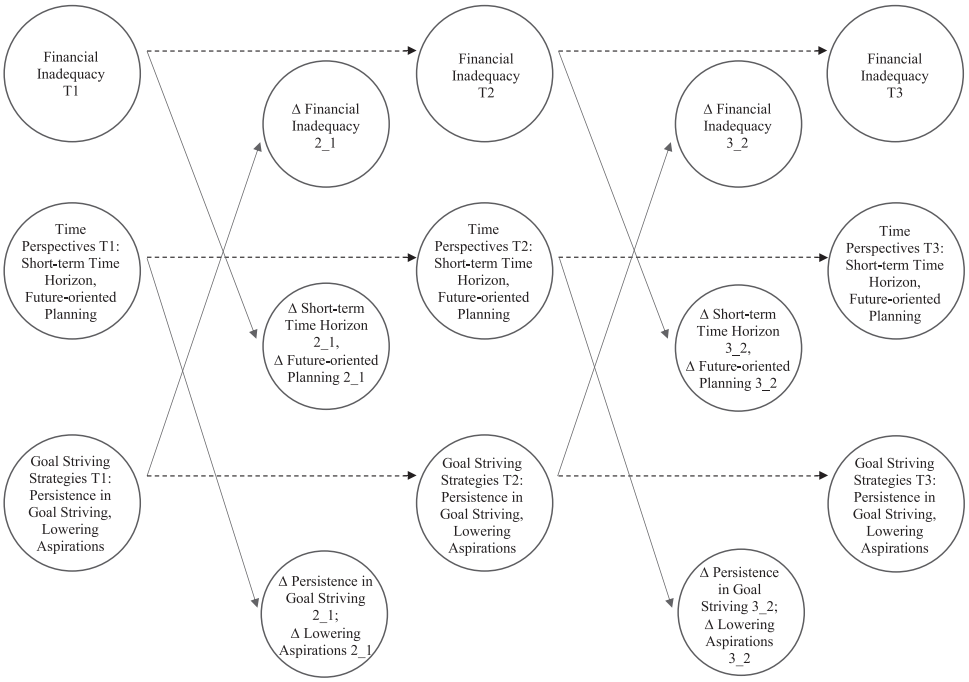
[6]We are aware that some additional covariates may potentially affect the results. These variables include participants' employment status at Time 2 and Time 3, marital status, and number of children. Following Becker et al.'s (2016) recommendations, we ran the analysis with and without these additional covariates and contrasted the findings. Because the result patterns did not differ with respect to the study hypotheses, we retained the model with only three control variables (i.e., age, race, and gender) to improve interpretability and parsimony of the model (Becker et al., 2016). Model results with all additional covariates can be obtained upon request from the authors.

TABLE 3 Standardized factor loadings and correlated residuals across time points

Standardized factor loadings			
Item	**Time 1**	**Time 2**	**Time 3**
Financial inadequacy 1	.79	.81	.82
Financial inadequacy 2	.80	.84	.87
Financial inadequacy 3	.87	.90	.86
Short-term time horizon 1	.48	.46	.42
Short-term time horizon 2	.74	.69	.70
Short-term time horizon 3	.73	.77	.74
Future-oriented planning 1	.78	.85	.86
Future-oriented planning 2	.78	.80	.76
Future-oriented planning 3	.78	.66	.72
Persistence in goal striving 1	.68	.69	.68
Persistence in goal striving 2	.76	.77	.78
Persistence in Goal Striving 3	.62	.62	.64
Persistence in goal striving 4	.81	.84	.83
Persistence in foal striving 5	.73	.78	.82
Lowering aspiration 1	.61	.58	.60
Lowering aspiration 2	.88	.87	.91
Lowering aspiration 3	.38	.39	.36
Lowering aspiration 4	.20	.18	.26
Lowering aspiration 5	.57	.54	.54
Standardized correlated item residuals			
Item	Time 1 to Time 2	Time 1 to Time 3	Time 2 to Time 3
Financial inadequacy 1	.11	.11	.11
Financial inadequacy 2	.45	.37	.53
Financial inadequacy 3	.52	.33	.47
Short-term time horizon 1	.50	.47	.50
Short-term time horizon 2	.15	.16	.22
Short-term time horizon 3	.25	.25	.25
Future-oriented planning 1	.40	.27	.29
Future-oriented planning 2	.29	.36	.37
Future-oriented planning 3	.28	.29	.31
Persistence in goal striving 1	.46	.40	.49
Persistence in goal striving 2	.35	.25	.33
Persistence in goal striving 3	.37	.32	.46
Persistence in goal striving 4	.16	.10	.23
Persistence in goal striving 5	.12	.14	.18
Lowering aspiration 1	.26	.21	.31
Lowering aspiration 2	−.01	−.07	.02
Lowering aspiration 3	.30	.30	.37
Lowering aspiration 4	.30	.32	.37
Lowering aspiration 5	.27	.21	.30

superior for handling data that are missing at random because the Maximum Likelihood missing data technique is less biased and error prone than pairwise or listwise deletion techniques (Newman, 2014). Using the MLR estimator, we added three auxiliary variables, life satisfaction ratings at all three time points,[7] and applied the AUXILIARY

[7]Auxiliary variables should be variables that are correlated with the missingness pattern in the data and the key variables of interest (Enders, 2010; Newman, 2014). Because one's life satisfaction was likely to correlate with the key variables (e.g., financial inadequacy and short-term time horizon) and the missingness pattern in the data, we selected life satisfaction ratings at three time points to be the auxiliary variables.



Note. For purpose of parsimony, only the hypothesized paths are visualized as arrows, autoregressive effects within same variables across time points are illustrated with dashed lines, variables in the same category are placed in the same circles, and control variables are not presented. Δ2_1 refers to the latent change between time 2 and time 1. Δ3_2 refers to the latent change between time 3 and time 2.

FIGURE 2 The analysis model with key variables. *Note*. For purpose of parsimony, only the hypothesized paths are visualized as arrows, autoregressive effects within same variables across time points are illustrated with dashed lines, variables in the same category are placed in the same circles, and control variables are not presented. Δ2_1 refers to the latent change between Time 2 and Time 1. Δ3_2 refers to the latent change between Time 3 and Time 2

command to better handle the missingness in our data set (Muthén & Muthén, 2011). The approach of including auxiliary variables that are corrected with the key variables and missingness was argued to be helpful for handling missingness because it can convert a model with data missing not at random into a model with data missing at random (Newman, 2014). Because the AUXILIARY command cannot be used for analyses with categorical variables and the Bootstrap command, we treated all indicators as continuous.

This alternative model showed acceptable fit, $\chi^2(1600) = 7920.77$, CFI = .87, RMSEA = .03, SRMR = .08. Although the CFI fell below the common cutoff guideline (Hu & Bentler, 1999), the other indices suggested good fit. Scholars have suggested that diagnoses of model fit should rely on a holistic evaluation across indices (Lai & Green, 2016). Because the RMSEA and SRMR suggested adequate fit and the CFI was close to common cutoff guidelines, we moved on to testing the hypotheses in order to compare findings between the two models.

The path coefficients for this alternative latent change model are presented in Table 6. We again started by investigating the predictive effect of financial inadequacy on short-term time horizon and future-oriented planning. Results showed that greater financial inadequacy significantly predicted increases in short-term time horizon (B = .06, p < .001) and decreases in future-oriented planning (B = −.05, p < .001) beyond controls over the two 9-year periods. As in the previous model, Hypotheses 1a and 1b were supported in this alternative model.

We then tested the predictive effects of time perspective on goal-striving strategies. Results showed that short-term time horizon did not predict changes in persistence in goal striving (B = .01, p = .699) but predicted increases in lowering aspirations beyond the control variables (B = .12, p < .001). Thus, unlike the previous model, Hypothesis 2a was not supported in this alternative model, while Hypothesis 2b was supported in both models. Moreover, greater future-oriented planning significantly predicted increases in persistence in goal striving (B = .09, p < .001) and decreases in lowering aspirations (B = −.06, p < .001) beyond the control variables. Thus, similar to the previous model, Hypotheses 3a and 3b were both supported.

We then tested the mediation hypotheses. As Table 7 shows, the indirect relationship between financial inadequacy at Time 1 and changes in persistence in goal striving between Time 2 and Time 3 through changes in short-term time horizon between Time 1 and Time 2 was nonsignificant (B = .000, p = .699). Unlike the previous model, Hypothesis 4a was not supported. Second, the indirect relationship between financial inadequacy at Time 1 and changes in lowering aspirations between Time 2 and Time 3 through changes in short-term time horizon between Time 1 and Time 2 was significant (B = .007, p < .001, C.I. [.004, .010]). Hypothesis 4b was supported as in the previous model. Third, the indirect relationship between financial inadequacy at Time 1 and changes in persistence in goal striving between Time 2 and Time 3 through changes in future-oriented

TABLE 4 Path estimates of the latent change model with the WLSMV estimator

Endogenous variable (outcome)	Exogenous variable (predictor)	*B* (*SE*)	*p* value	95% confidence intervals
Δ Financial inadequacy	Financial inadequacy	−.30** (.02)	.000	[−.34, −.27]
	Short-term time horizon	.41** (.04)	.000	[.34, .48]
	Future-oriented planning	−.18** (.03)	.000	[−.23, −.14]
	Persistence in goal striving	−.07* (.03)	.020	[−.12, −.02]
	Lowering aspirations	.12** (.05)	.008	[.05, .20]
	Age	−.02** (.00)	.000	[−.02, −.01]
	Gender	.26** (.05)	.000	[.18, .34]
	Race	−.25* (.11)	.018	[−.43, −.08]
Δ Short-term time horizon	Financial inadequacy	.09** (.01)	.000	[.07, .12]
	Short-term time horizon	−.45** (.03)	.000	[−.49, −.41]
	Persistence in goal striving	−.07** (.02)	.000	[−.10, −.04]
	Lowering aspirations	.45** (.03)	.000	[.40, .50]
	Age	.01 (.00)	.000	[.00, .01]
	Gender	.16 (.03)	.000	[.12, .21]
	Race	−.25* (.06)	.018	[−.35, −.15]
Δ Future-oriented planning	Financial inadequacy	−.14** (.02)	.000	[−.16, −.11]
	Future-oriented planning	−.45** (.02)	.000	[−.49, −.42]
	Persistence in goal striving	.49** (.03)	.000	[.45, .53]
	Lowering aspirations	−.39** (.04)	.000	[−.46, −.32]
	Age	.01** (.00)	.007	[.00, .01]
	Gender	.07 (.04)	.081	[.00, .13]
	Race	−.13 (.09)	.152	[−.28, .02]
Δ Persistence in goal striving	Financial inadequacy	−.02 (.02)	.330	[−.04., .01]
	Short-term time horizon	−.14** (.03)	.000	[−.19, −.10]
	Future-oriented planning	.36** (.02)	.000	[.33, .39]
	Persistence in goal striving	−.32** (.02)	.000	[−.35, −.29]
	Age	.00** (.00)	.009	[.00, .01]
	Gender	.07* (.03)	.044	[.01, .12]
	Race	−.10 (.07)	.139	[−.22, .01]
Δ Lowering aspirations	Financial inadequacy	.02* (.01)	.023	[.01, .04]
	Short-term time horizon	.33** (.02)	.000	[.29, .36]
	Future-oriented planning	−.17** (.02)	.000	[−.20, −.15]
	Lowering aspirations	−.43** (.03)	.000	[−.47, −.39]
	Age	.00** (.00)	.007	[.00, .01]
	Gender	.18** (.03)	.000	[.14, .22]
	Race	−.00 (.06)	.967	[−.09, .09]

Note: *N* = 4,446. All 3-point and 4-point scale indicators were specified as categorical. The Bootstrap command and WLSMV estimator were used. Control variables were age, gender (1 = women, 0 = men), and race (1 = White, 0 = non-White). The same hypothesized structural paths across time were equated, so the effect of a latent predictor on a latent change factor is only reported once.

Abbreviation: WLSMV, weighted least square mean and variance.

*$p < .05$.

**$p < .01$.

planning between Time 1 and Time 2 was significant (*B* = −.004, *p* = .001, C.I. [−.006, −.002]), supporting Hypothesis 5a, as in the previous model. Finally, the indirect relationship between financial inadequacy at Time 1 and changes in lowering aspirations between Time 2 and Time 3 through changes in future-oriented planning between Time 1 and Time 2 was significant (*B* = .003, *p* = .010, C.I. [.001, .004]), supporting Hypothesis 5b, as in the previous model.

We then examined the predictive effects of goal-striving strategies on subsequent financial inadequacy. Results showed that persistence in goal striving did not predict changes in financial inadequacy

TABLE 5 Indirect path estimates of the latent change model with WLSMV estimator

Indirect paths	*B* (*SE*)	*p* value	95% confidence intervals
Financial inadequacy T1 → Δ Short-term time horizon T2_T1 → Short-term time horizon T2 → Δ Persistence of goal striving T3_T2	−.014** (.003)	.000	[−.022, −.006]
Financial inadequacy T1 → Δ Short-term time horizon T2_T1 → Short-term time horizon T2 → Δ Lowering aspirations T3_T2	.031** (.004)	.000	[.020, .042]
Financial inadequacy T1 → Δ Future-oriented planning T2_T1 → Future-oriented planning T2 → Δ Persistence of goal striving T3_T2	−.049** (.006)	.000	[−.064, −.033]
Financial inadequacy T1 → Δ Future-oriented planning T2_T1 → Future-oriented planning T2 → Δ Lowering aspirations T3_T2	.023** (.003)	.000	[.015, .032]

Note: In this model, all 3-point and 4-point scale indicators were specified as categorical. The Bootstrap command and WLSMV estimator were used. The control variables were age, gender (1 = women, 0 = men), and race (1 = White, 0 = non-White).
Abbreviation: WLSMV, weighted least square mean and variance.
*$p < .05$.
**$p < .01$.

over time beyond the control variables ($B = -.01$, $p = .727$). Lowering aspirations also did not predict changes in financial inadequacy over time ($B = -.06$, $p = .236$). Unlike in the previous model, Hypotheses 6 and 7 were not supported in this alternative model.

7.4 | Summary of findings

As described, each model carries its own strengths and weaknesses, and no single model can satisfy all needs. We therefore compared the results yielded by the latent change model with the WLSMV estimator and the alternative model with the MLR estimator. A summary of hypothesis testing the results of these two models is presented in Table 8. We found discrepancies in four of the hypotheses (i.e., Hypotheses 2a, 4a, 6, and 7). Hypotheses 2a and 4a were concerned with the relationship between short-term time horizon and persistence in goal striving. This effect was supported by the first latent change model but not the alternative model. This suggests that caution is needed in interpreting the predictive effect of short-term time horizon on persistence in goal striving. The other two hypotheses that showed discrepant findings were Hypotheses 6 and 7, concerning the predictive effects of goal-striving strategies on subsequent change in financial inadequacy. Although these two hypotheses were supported in the first latent change model, they were not supported in the alternative model. Therefore, we again urge caution while interpreting these two findings.

8 | DISCUSSION

Given the prominence of income inequality and the constraints on upward mobility for low-income workers, the purpose of this study was to investigate how financial inadequacy, as a form of resource scarcity, affects long-term changes in a worker's time perspective and goal-striving tendencies. Our results based on latent change models using two different methods of estimation supported several of the hypotheses. With supporting evidence from both models, we found that workers experiencing financial inadequacy tended to develop a shorter time horizon and planned less for the future, reflecting a greater focus on immediate life demands and needs. This is consistent with the notion that resource scarcity decreases one's ability and motivation to focus on and consider the future. While future-oriented planning encourages persistence in goal striving, short-term time horizon reinforces the tendency to lower one's aspirations when difficulties are encountered during goal pursuit. The mediating roles of short-term time horizon and planning were largely confirmed by both latent change models, suggesting that these changes in time perspective helped explain the relationship between financial inadequacy and changes in goal-striving strategy development over an 18-year period. These findings also suggest there were downstream consequences of financial inadequacy for worker motivation and goal striving.

Although the reciprocal effects of goal-striving strategies on subsequent changes in financial inadequacy were only supported in one of the two models, warranting caution, this result suggests the possibility that goal-striving strategies, which may be influenced by one's level of financial resources, may further predict subsequent changes in financial inadequacy. This finding is consistent with the poverty trap notion, representing a vicious cycle associated with socioeconomic disadvantages (Amis et al., 2020; Laajaj, 2017).

Another interesting finding, although not previously hypothesized, was the mutual reciprocal relationship between financial inadequacy and time perspective. Path estimates from both models (see Tables 2 and 4) showed that while financial inadequacy predicted changes in time perspective, time perspective reciprocally predicted subsequent changes in financial inadequacy. More specifically, short-term time horizon predicted subsequent increases in financial inadequacy. This suggests that workers experiencing financial inadequacy were more likely to focus on immediate needs and neglect more distal

TABLE 6 Path estimates of the alternative latent change model with MLR estimator

Endogenous variable (outcome)	Exogenous variable (predictor)	*B* (*SE*)	*p* value	95% confidence intervals
Δ Financial inadequacy	Financial inadequacy	−.32** (.02)	.000	[−.36, −.29]
	Short-term time horizon	.24** (.04)	.000	[.17, .30]
	Future-oriented planning	−.02 (.04)	.642	[−.07, .04]
	Persistence in goal striving	−.01 (.04)	.727	[−.08, .05]
	Lowering aspirations	−.06 (.05)	.236	[−.13, .02]
	Age	−.00* (.00)	.051	[−.00, .00]
	Gender	.06** (.02)	.007	[.03, .10]
	Race	−.02 (.05)	.750	[−.10, .06]
Δ Short-term time horizon	Financial inadequacy	.06** (.01)	.000	[.04, .08]
	Short-term time horizon	−.38** (.03)	.000	[−.43, −.34]
	Persistence in goal striving	.02 (.02)	.341	[−.02, .06]
	Lowering aspirations	.20** (.03)	.000	[.14, .25]
	Age	.00** (.00)	.000	[.00, .01]
	Gender	.05** (.02)	.002	[.02, .07]
	Race	−.12** (.04)	.001	[−.18, −.06]
Δ Future-oriented planning	Financial inadequacy	−.05** (.01)	.000	[−.06, −.03]
	Future-oriented planning	−.34** (.02)	.000	[−.38, −.30]
	Persistence in goal striving	.15** (.03)	.000	[.10, .19]
	Lowering aspirations	−.05 (.03)	.052	[−.09, −.01]
	Age	.00 (.00)	.388	[−.00, .00]
	Gender	.03* (.01)	.014	[.01, .06]
	Race	−.02 (.03)	.638	[−.07, .04]
Δ Persistence in goal striving	Financial inadequacy	.01 (.01)	.308	[−.01, .03]
	Short-term time horizon	.01 (.02)	.699	[−.02, .03]
	Future-oriented planning	.09** (.02)	.000	[.06, .12]
	Persistence in goal striving	−.29** (.02)	.000	[−.33, −.25]
	Age	−.00 (.00)	.376	[−.00, .00]
	Gender	.01 (.01)	.366	[−.01, .03]
	Race	−.00 (.03)	.957	[−.04, .04]
Δ Lowering aspirations	Financial inadequacy	.00 (.01)	.962	[−.02, .02]
	Short-term time horizon	.12** (.02)	.000	[.08, .15]
	Future-oriented planning	−.06** (.02)	.000	[−.09, −.03]
	Lowering aspirations	−.40** (.03)	.000	[−.45, −.35]
	Age	.00** (.00)	.005	[.00, .00]
	Gender	.05** (.01)	.000	[.03, .07]
	Race	.00 (.03)	.979	[−.04, .04]

Note: *N* = 4,446. In this model, items were specified as continuous. The MLR estimator and the AUXILIARY command were used to effectively handle missingness. The control variables were age, gender (1 = women, 0 = men), and race (1 = White, 0 = non-White). The same hypothesized paths across time were equated, so the effect of a latent predictor on a latent change factor is only reported once.
By specifying estimator = MLR, maximum likelihood estimation with robust standard errors was used.
*$p < .05$.
**$p < .01$.

concerns, which may be harmful to their financial well-being and career success over time. This reciprocal effect may be an important finding because it suggests that disparities in financial resources may widen over the life course in part through the time perspectives that those disparities facilitate.

Unexpectedly, future-oriented planning and goal-striving strategies did not consistently predict subsequent changes in financial adequacy across the two models, suggesting that short-term time horizon may be a stronger factor in employee social mobility that deserves further theoretical attention. In some ways, this is consistent with the

TABLE 7 Indirect path estimates of the alternative latent change model with MLR estimator

Indirect paths	*B* (*SE*)	*p* value	95% confidence intervals
Financial inadequacy T1 → Δ Short-term time horizon T2_T1 → Short-term time horizon T2 → Δ Persistence of goal striving T3_T2	.000 (.001)	.699	[−.001, .002]
Financial inadequacy T1 → Δ Short-term time horizon T2_T1 → Short-term time horizon T2 → Δ Lowering aspirations T3_T2	.007** (.002)	.000	[.004, .010]
Financial inadequacy T1 → Δ Future-oriented planning T2_T1 → Future-oriented planning T2 → Δ Persistence of goal striving T3_T2	−.004** (.001)	.001	[−.006, −.002]
Financial inadequacy T1 → Δ Future-oriented planning T2_T1 → Future-oriented planning T2 → Δ Lowering aspirations T3_T2	.003** (.001)	.009	[.001, .004]

Note: In this model, no item was specified as categorical; the AUXILIARY command was used to more effectively handle missingness. The MLR estimator was used. The control variables were age, gender (1 = women, 0 = men), and race (1 = White, 0 = non-White).
Abbreviation: MLR, multiple linear regression.
*$p < .05$.
**$p < .01$.

general proposition from Conservation of Resources theory (Hobfoll, 2001; Hobfoll, Halbeleben, Neveu, & Westman, 2018) that resources are needed to gain further resources. In this case, we suggest that financial resources promote further gains in financial resources in part by allowing and motivating workers to focus on the future; conversely, financial scarcity prevents gains in financial resources by making it more difficult to plan and consider the future when making decisions. Individuals with fewer resources may also experience additional fatigue as a result of the effort they spend meeting immediate demands (Mullainathan & Shafir, 2013), further diminishing their motivation to consider the future.

8.1 | Theoretical and practical implications

This study has implications for both theory and practice on resource scarcity in organizational contexts. Research in organizational settings has found that workers with lower incomes tend to have greater difficulty in moving upward socially (Pitesa & Pillutla, 2019), but the mechanisms underlying these effects have not been clarified. Our findings provide evidence for potential mechanisms through which disparities in motivation and self-determination develop and expand over time. As such, we develop theory by showing that short-term time horizon and future-oriented planning are important factors linking financial inadequacy, and resource scarcity more generally, to changes in worker motivation and well-being.

From a practical standpoint, our findings suggest that low wages and temporary contracts may make it more difficult for employees to pursue long-term career goals as they focus instead on meeting their immediate needs. Additionally, it also appears that low-wage workers feel less empowered to change their own life circumstances, reducing their proactivity at work and in turn reinforcing their disadvantageous financial status. Organizations should therefore consider the costs of inadequate wages for workers' motivation and job performance. Organizations, in order to effectively utilize the talents of their lowest paid employees, might also take action to enhance the self-efficacy of low-wage workers, who tend to suffer from self-doubt and show lesser work performance as a result (Hall, Zhao, & Shafir, 2014). Research has shown that having low-income individuals verbally describe a personal event that they felt proud of can boost their executive control and cognitive performance; an effect was not found for wealthy counterparts (Hall et al., 2014). Additionally, organizations might consider offering self-development and training programs. This may result in internal promotions and increased loyalty, mobility, and human capital, which may be especially beneficial for lower wage workers. Organizations should also consider predictability for workers with temporary contracts or irregular work schedules, allowing them to plan and manage for the long-term. Organizations play an important role in creating an environment for low-income individuals to develop a sense of control and protect them from falling into a cycle of financial inadequacy and neglect of long-term aspirations.

Regarding the practical significance of the study findings, the size of the effects suggests that financial inadequacy is a meaningful predictor changes in time perspective and goal striving across the working population. The practical significance of effect sizes is highly dependent on context, and well-established effect size benchmarks for predicting latent change do not exist. However, meta-analyses of studies predicting outcomes while controlling for baseline levels have tended to find effect sizes ranging from 0 to .12 (Ford et al., 2014; Nohe, Meier, Sonntag, & Michel, 2015; Riketta, 2008). Such effect sizes tend to be smaller than cross-sectional effect sizes or effects that do not control for baseline values, in part because people's attitudes and behavior are somewhat resistant to change. Still, the effect sizes (i.e., coefficients) from this study were comparable with the range typically found in studies predicting change. Using recommended formulas for converting effect sizes into odds ratios (Haddock, Rindskopf, & Shadish, 1998; Hasselblad & Hedges, 1995), an effect size as low as .06 would still convert to an odds ratio of

TABLE 8 Summary of hypotheses testing results

Hypotheses		Latent change model with WLSMV estimator	Alternative latent change model with MLR estimator
H1a	Greater financial inadequacy predicts increases in short-term time horizon.	Supported	Supported
H1b	Greater financial inadequacy predicts decreases in future-oriented planning.	Supported	Supported
H2a	Greater short-term time horizon predicts decreases in persistence in goal striving.	Supported	Unsupported
H2b	Greater short-term time horizon predicts increases in lowering aspirations.	Supported	Supported
H3a	Greater future-oriented planning predicts increases in persistence in goal striving.	Supported	Supported
H3b	Greater future-oriented planning predicts decreases in lowering aspirations.	Supported	Supported
H4a	Changes in short-term time horizon mediate the negative relationship between financial inadequacy and changes in persistence in goal striving.	Supported	Unsupported
H4b	Changes in short-term time horizon mediate the positive relationships between financial inadequacy and changes in lowering aspirations.	Supported	Supported
H5a	Changes in future-oriented planning mediate the negative relationship between financial inadequacy and changes in persistence in goal striving.	Supported	Supported
H5b	Changes in future-oriented planning mediate the positive relationships between financial inadequacy and changes in lowering aspirations.	Supported	Supported
H6	Greater persistence in goal striving predicts decreases in financial inadequacy.	Supported	Unsupported
H7	Greater lowering aspirations in goal striving predicts increases in financial inadequacy.	Supported	Unsupported

Note: In the first latent change model, all 3- and 4-point scale items were treated as categorical, and thus, the WLSMV estimator was used. In the alternative latent change model, all items were treated as continuous, and the MLR estimator was used. Missing value covariates were added to the alternative model to more effectively handle the data missingness.
Abbreviations: MLR, multiple linear regression; WLSMV, weighted least square mean and variance.

1.24. If a .06 effect size was applied to this study, this would hypothetically mean that a worker experiencing high financial inadequacy would have a 24% greater risk of experiencing an increase in short-term time horizon or a decrease in future-oriented planning. Applied across the workforce, an effect size of this magnitude could have substantial implications for the changes in time perspective and behavior. Thus, we interpret these results as having significant practical importance, especially in populations with substantial rates of financial inadequacy.

8.2 | Limitations

We follow Brutus, Aguinis, and Wassmer's (2013) suggested guidelines to explicitly disclose the limitations associated with our study. First, one noticeable limitation is the considerable attrition rate. About 50% of these individuals were lost over the 18-year period. In exploring potential confounds, we found that attrition did not produce a sample with a distinct demographic makeup and did not correlate significantly with most of the key study variables except for financial inadequacy and short-term time horizon. It is possible that having fewer participants on the high end of these two key variables may have resulted in an underestimation of some effects, but it is also possible that our results may have been affected by the attrition in a way that we had not anticipated. It is also possible that there were other underlying differences between those who did and did not remain in the study, which may include participants' health status, economic status, marital status, life events, or death (Radler & Ryff, 2010). We acknowledge that these factors may have resulted in a sample at Time 3 that was not completely representative of the Time 1 sample. This should be considered as a cautionary factor in interpreting the results. Second, the measure of financial inadequacy was not developed under a common factor model and the three items assessing financial inadequacy varied in their response formats. We performed CFA to test the construct validity of this measure and also examined correlations with other measures of financial adequacy in a different sample (see Supporting Information). However, we do not have complete evidence that scores on these three items reflect a single latent factor.

Because there are no pre-established scales of financial adequacy provided by MIDUS, we used the three items described here. We encourage some caution in interpreting our measure of financial inadequacy as a latent construct.

Third, most items used in this study were on a 3- or 4-point response scale, raising concerns about whether these items can be analyzed as continuous variables. There has been debate in the social sciences about whether Likert or ordinal scales can be treated as interval scales as if they function on a continuous spectrum (Allen & Seaman, 2007; Jamieson, 2004). There is consensus that the fewer number of response options an item has, the less appropriate it is to treat the item as being on an interval scale (e.g., Allen & Seaman, 2007). As most of the items in this study had four response options, we first treated these items as having an ordinal scale and employed an appropriate estimator, WLSMV, to test the hypotheses. Along with other commands and specifications, this model could not provide model fit indices. Therefore, we tested an alternative model using the MLR estimator to reevaluate the findings, especially with its advantages of handling missingness. Yet this alternative model carried its own shortcoming in treating all items as on a continuous interval scale. With each model having unique limitations, we presented results from both models and compared the findings across these models before drawing conclusions. We encourage caution in interpreting findings yielded by any one of the two models.

We also acknowledge that the short-term time horizon and lowering aspirations scales showed reliability estimates that fell slightly below the commonly used .70 threshold. We conducted an additional data collection and found adequate psychometric quality for all scales in a second sample (see Supporting Information). However, this does not fully alleviate the caution needed in interpreting the scores from the MIDUS sample on these measures. We must consider this limitation when drawing conclusions on these constructs. In addition, regarding the tests for longitudinal measurement invariance, the chi-square difference tests also showed significant variance over time in indicator loadings and thresholds. There is potential risk in concluding that measures are invariant when chi-square difference tests show significance. By following recommendations from the literature, we supplemented the initial chi-square difference tests with partial invariance tests and alternative model fit indices. However, we still cannot fully rule out the possibility that the measures in our study may not be equivalent across time. Thus, we again encourage caution in interpreting the findings.

8.3 | Future directions

There are several potential future directions for research stemming from our analyses. First, future research on other goal-striving strategies beyond goal persistence and lowering aspirations (for a review, see Heckhausen et al., 2010) might further enhance our understanding of the influence of resource scarcity on motivational development. Second, future research might further delve into the role of financial resource scarcity in more specific behaviors. Many work behaviors require the pursuit of delayed outcomes, including some task performance behaviors, citizenship behaviors, and self-development activities. Also, if financial inadequacy leads individuals to lower aspirations and persist less in pursuit of goals, low-income workers may be less proactive in crafting their own work roles to their advantage. As such, there is potential to integrate resource scarcity theory with theory on work motivation, job crafting, and related behaviors that are commonly studied in organizational behavior.

9 | CONCLUSION

As inequality in wealth and income continues to grow, it is important for organizational theorists, managers, and policymakers to consider the implications of financial disparities for worker motivation and behavior. In this research, we extend our understanding of how financial inadequacy relates to a worker's development of time perspective and goal-striving strategies throughout life, which may have implications for the poverty trap and social immobility. We provide evidence that inadequacy in financial resources predicted the development of a short-term time horizon and future-oriented planning, which in turn predicted lower goal aspirations and persistence over an 18-year period. Our findings highlight the need to promote a broader time perspective, planning, and persistence in goal-striving for those in low-wage work and to consider the motivational implications of low-wage work for organizations and society.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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