CrossMark

ORIGINAL ARTICLE

Financial Preparation for Retirement in Brazil: a Cross-Cultural Test of the Interdisciplinary Financial Planning Model

Lucia H. F. França[1] · Douglas A. Hershey[2]

Abstract In this investigation, we attempt to replicate the Interdisciplinary Financial Planning Model advanced by Hershey et al. (*International Journal of Aging and Human Development*, *70*, 1-38, 2010) using a sample of Brazilian adults. This model, which was originally tested on individuals from The Netherlands and the United States, posits that psychological, social, and economic forces are key determinants of retirement planning practices and perceptions of saving adequacy. Taken together, fifteen hypotheses were subject to evaluation. Participants were 167 Brazilian working adults, 21–69 years of age, who were married or cohabitating at the time of testing. A path analysis model showed substantial support for the theoretical framework, with all variables found to contribute directly or indirectly to the prediction of financial planning and saving adequacy. Furthermore, two new paths were found to emerge in the Brazilian model that were not observed in the original investigation. This cross-national replication of the Interdisciplinary Financial Planning Model extends research on the topic to a developing country in which relatively few empirical studies of retirement planning have been carried out. Other analyses in the article focus on direct comparisons between the Brazilian model and the models developed based on American and Dutch respondents, with an eye toward better understanding how cultural forces shape the retirement planning process. The discussion focuses on how models of financial planning, such as the Hershey et al. (2010) model, can inform the development of savings-oriented education and intervention programs.

Keywords Retirement · Financial planning · Psychology · Brazil · Cross-cultural · Planning

✉ Lucia H. F. França
  lucia.franca@gmail.com

✉ Douglas A. Hershey
  douglas.hershey@okstate.edu

[1] Graduate Studies in Psychology, UNIVERSO, R. Mal. Deodoro, 263 - Centro, Niterói, RJ 24030-060, Brazil

[2] Department of Psychology, Oklahoma State University, Stillwater, OK 74078, USA

⌀ Springer

Over the past few decades, many countries around the world have witnessed a shift in the locus of responsibility for amassing and managing individual worker retirement resources. A significant portion of a task that had primarily been the charge of employers and the state, has now fallen squarely onto the shoulders of workers (Banks et al. 2005; Munnell 2006). This is a trend that is taking place in developing and industrialized countries across the Western world (Hershey et al. 2012; Whitehouse et al. 2009), and as might be expected, in the wake of the global financial crisis pension programs in different countries have been judged to be differentially fair, effective, and sustainable (Maurer et al. 2012). For most retirees, voluntary savings "nest eggs" are bolstered by one or more other means of financial support including public assistance for low-income retirees, mandatory redistributive state-based "social security" programs, employer pensions, housing wealth, and private intergenerational transfers (i.e., financial support received from family members). In many countries, personal savings make up an increasingly important percentage of the retirement resource stream, yet how individuals make financial planning and investing decisions remains poorly understood (Ackert and Deaves 2010; Banks and Oldfield 2007). In the present investigation we examine the psychological, social, and economic motivational forces that underlie the tendency to plan and save for retirement among working adults who live in Brazil.

The Brazilian Retirement Financing Landscape

Brazil, like many other countries around the globe, is experiencing a "graying" of its population. As of 2013, the total population of the country stood at 199 million, with 7.4% of individuals being over the age of 65 (Instituto Brasileiro de Geografia e Estatistica [IBGE] 2013). Thus, there are some 14.9 million older Brazilians who are either at or very near retirement age. However, the number of older adults is projected to increase nearly fourfold between now and 2060, when the percentage of individuals age 65 and older is expected to reach 26.7% (IBGE 2013). Without a doubt, increases in life expectancy, in conjunction with falling fertility rates, has resulted in an accelerated aging of the Brazilian population. The population is expected to stop increasing by 2030, at which point it is projected to be the 6th most elderly population in the world (Instituto de Pesquisa Econômica Aplicada, [IPEA] 2010). In light of these demographic changes that lie on the horizon, the issue of how older Brazilian adults will sustain themselves after leaving employment has become a critical point of social and economic concern. On this point, França (2012) notes that serious challenges lie ahead for the country's retirement financing system given that only 50% of working adults currently contribute to the welfare state.

Much of the concern about retirement financing stems from what appears to be a lack of an aptitude toward saving among Brazilians. This lack of savings aptitude could be interpreted as the result of exceptionally high inflation rates that occurred in the country in the years between 1980 and 1994, which created a culturally-based norm of thinking more about the present than the future (França 2004). According to one report, "More than half of Brazilian adults have bank accounts, but only two in ten save money." (Fraga and Carneiro 2013). The report went on to say that "…in 2011, only 21% of Brazilians said they had saved money in the previous year. And only half of them did so in banks." A different survey found that "87% of families do not save for the future, and that 40% do not make any sort of investments with excess income" (World Bank 2012).

Four Pillars of Support Since the 2003 Brazilian Retirement reforms, the retirement financing system in Brazil has rested upon four pillars of support. The so-called "zero pillar" serves a social assistance function by providing poverty relief for low-income adults over the age of 65. It is a non-contributory program that is administered by the National Social Security Institute (abbreviated INSS).

The first pillar of support is the (mandatory) national retirement pension system (RGPS), which is comparable to "social security" systems in most countries. It is designed to provide benefits to workers who were employed in the private sector. The RGPS is based on a PAYG (i.e., pay as you go) system, in which payroll contributions made by the individual worker and employer are used to pay the benefits of current retirees. Benefits are provided to Brazilian men who reach the age of 65 and women who reach the age of 60, with those living in rural areas being eligible five years earlier (60 and 55, respectively). Benefits are also available irrespective of one's age to men who have made payroll contributions of 8–11% of their wages for at least 35 years, or women who have made comparable contributions for 30 years. Benefits are even received by individuals from non-labor market sectors who have never contributed to the program, which is one reason this pension tier runs at a deficit and the equity and sustainability of this pillar is often called into question (Camarano and Kanso 2007). RGPS benefits typically range from 289.75 per month to US$ 1720.18 R$954 to R$5645.80), depending on the worker's salary (based on the Central Bank of Brazil in 12th Feb, 2018). Moreover, there exists a first pillar system that runs parallel to the RGPS which is called the RJU, which is designed for Federal, State, and Municipal workers.

The second pillar of support is also a mandatory system, but as of yet it has not been implemented—only the regulation has been stipulated (Van Tol 2009). In the future this system will be specifically designed to serve civil service workers.

To complement the (public) first pillar of support derived from the state, in the 1970s large Brazilian organizations began to establish their own (third pillar) pension funds. Investments in these voluntary plans—referred to as "closed" funds—were limited exclusively to employees of organizations who sponsored such a plan. As of 2012, only six million workers (or their dependents) were benefitting from these closed funds either directly or indirectly (Exame 2012). ABRAPP (2013) revealed that of these six million beneficiaries, some 2.3 million workers were working and actively contributing to the fund, while roughly three-quarters of a million individuals had already retired and were receiving benefits. To be part of a closed pension fund is considered one of the best ways to engage in saving. However, the total number of contributors at the moment in Brazil is less than 3% of all active workers. That is, there are only 2.3 million contributors among 100 million active workers (Previc 2013).

About twenty years ago authorized financial institutions began to promote "open" funds for retirement, which were less restrictive than the closed funds described above, These open funds were also third pillar voluntary investment plans open to any individuals—working or not—who sought to invest.

Beyond private and public pension institutions there exists the possibility of both housing wealth and private intergenerational transfers as additional sources of retirement support for aging Brazilians. However, evidence to date suggests that both potential sources of support appear underutilized. Despite the fact that home ownership is relatively high in Brazil, the likelihood of ownership varies as a function of income, with those in the upper income quintile benefiting the most from housing assets (Davies 2008). One reason housing wealth is

underutilized as a source of retirement income has to do with the fact that many homeowners have informal tenure; that is, they do not hold title to the land (DeFerranti et al. 2004). This makes the logistics of leveraging housing wealth into a liquid asset difficult at best. Another reason housing wealth is underutilized has to do with an unwillingness among pensioners to relocate to a new dwelling, and a hesitancy to use mechanisms such as reverse mortgage annuities as a tool either due to the fees involved or unfavorable terms. Private intergenerational transfers from children to parents in Brazil is also a limited form of support for pensioners except in extreme cases—such as when the parent is disabled or faces a financial crisis situation. Even in such cases, such transfers are typically limited to those located in the higher income brackets. Elderly consumption in Brazil—among all socioeconomic classes—is far more likely to be based on public intergenerational transfers (Turra and Queiroz 2005; Turra et al. 2011).

Financial Education In 2003 an educationally forward-thinking legislative act was passed in Brazil that was called the Elderly Statute (Brazil 2003). Since that time, Brazilian companies have been obliged by law to implement Retirement Preparation Programs (which include aspects of financial planning) for adults who are within one year of retirement. In all respects, such a program has the potential to impact the quality of life for many future retirees. However, in a culture in which long-range financial planning is not generally encouraged, the real positive impact of financial programs are admittedly limited. In fact, one recent study (França et al. 2012) revealed that only one-quarter of Brazilian companies surveyed had actually implemented the educational programs that had been mandated by statute.

The potential for brighter educational opportunities shines for those at the opposite end of the age spectrum. In 2010, following recommendations by the Organisation for Economic Co-operation and Development (OECD), the Brazilian Ministry of Education and the World Bank started a personal financial education pilot program in 900 high schools, which encompassed thousands of children. The program, entitled "Financial Education for School Children and their Parents," uses textbooks and a financial education case study approach to cultivate and enhance financial literacy levels. As of June 2012, the program is scheduled for widespread distribution to thousands of Brazilian schools in the coming decade (World Bank 2012).

In the section above we have attempted to sketch a profile of the retirement financing situation in Brazil, with an emphasis on streams of financial support for retirees and programs designed to enhance financial literacy. Next, we turn our attention to the theoretical framework that supports the financial planning model that will be tested.

Theoretical Framework

As mentioned above, the purpose of this investigation is to test a psycho-social-economic model of the factors that predict retirement planning and saving tendencies. Toward that end, we rely on the broad conceptual model outlined in Hershey et al. (2010); Fig. 1 in that article) which suggests that one's psychological predispositions (personality and cognitive dimensions) have a proximal impact on planning and saving practices, and social force indicators (the support of friends and relatives) have an indirect influence on planning and saving that is mediated through psychological constructs. Economic indicators (such as one's trust in

providers of one's future pension), in turn, have a direct impact on saving adequacy, but not planning activities.[1]

The psychological core of the interdisciplinary model finds its roots in two well-known theories of individual behavior: Image Theory (Beach 1998; Beach and Mitchell 1987) and the 3 M Theory of Personality (Mowen 2000). In terms of the former, Image Theory posits a well-defined series of predictions involving personality indicators (such as in the present context, future time perspective), cognitive constructs (such as retirement goal clarity and financial planning knowledge), and perceptual and behavioral constructs that are related to perceptions of future events (such as the adequacy of one's savings and financial planning activity level, respectively). In characterizing the image theory basis of the financial planning model Hershey et al. (2010) wrote:

"According to Image Theory, personality traits are fundamental in terms of the motivational sequence. They give rise to one's goals and cognitive representations, which, in turn, motivate specific adaptive behaviors. Beach and colleagues have argued that personality dimensions are part of the "self-image," which forms the decision maker's view of what is right, appropriate, and ethical (Beach and Mitchell 1987). The self-image, in turn, shapes one's "trajectory image," which contains not only the individual's goals, but also beliefs about the incremental behavioral steps that allow one to achieve those goals" (p. 12-13).

Other theoretical support for the interdisciplinary financial planning model is grounded in Mowen's (2000) 3 M model of personality and behavior. With regard to that model, Hershey et al. (2010) wrote:

Mowen's 3M Model…is also consistent with the ordering of the five constructs that form the heart of the model shown in Figure 1. According to theory, central traits (such as future time perspective), are causal precursors to what Mowen refers to as surface traits (such as goal clarity and financial knowledge), which themselves precede behavior (such as financial planning practices). Empirical support for this basic configuration was found in applied investigations of the 3M model carried out by Mowen and his colleagues (Hershey and Mowen 2000; Hershey et al. 2003) (p. 12).

Brazilian Pension Financing in Cross-Cultural Context

The Interdisciplinary Financial Planning Model which was tested cross-nationally in the Hershey et al. (2010) article revealed that the magnitude of the standardized beta weights were (in most cases) larger for American respondents than they were for Dutch respondents. The same was found to be true when mean levels for the different psychological, social, and economic variables were compared—Americans had higher mean scores for financial

---

[1] Three separate economic indicators (trust in government pensions; trust in employer pension fund managers, and the adequacy of one's personal savings nest egg) were included in the original Hershey et al. (2010) model. Our intent was to collect all three indicators for this study as well, but regrettably, due to a technical problem only data for the first of the three indicators was collected.
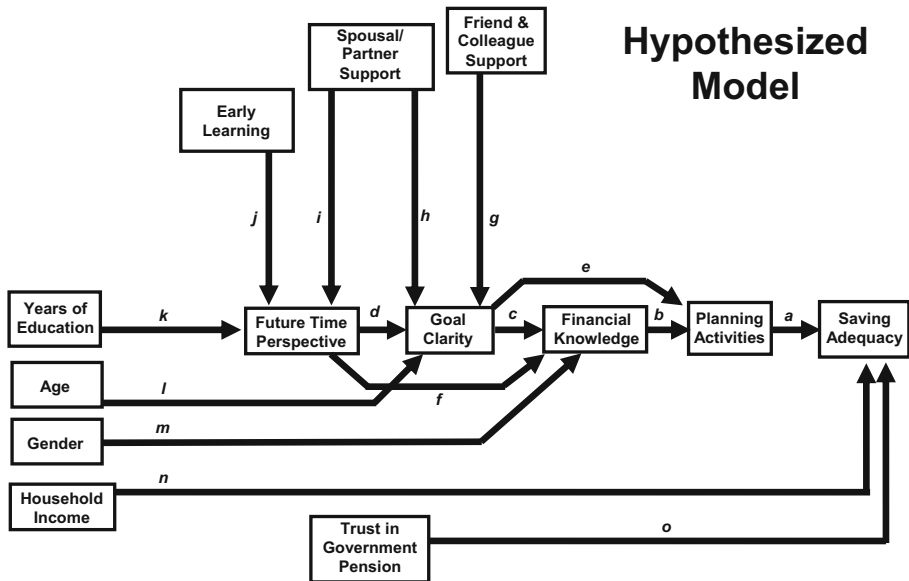
Fig. 1 Hypothesized model of the psychological, social, and economic constructs believed to underlie financial planning activities and perceived saving adequacy among Brazilians. Exogenous variables were allowed to correlate (double-headed arrows not shown)

knowledge, retirement goal clarity, and future time perspective, to name just a few. The authors explained these findings by pointing to the fact that in the U.S., retirement planning is more of an individual-level activity in which the responsibility for planning and saving falls squarely on the shoulders of the worker. In the Netherlands, in contrast, the responsibility for retirement planning and saving are largely handled by either one's employer pension fund manager or the state, which releases the worker from the computational aspects of saving and much of the psychological stress typically associated with the planning process.

Relative to pension financing schemes in The Netherlands and the United States, institutional support for pension financing in Brazil is not only less lucrative, but it extends to a smaller proportion of citizens. Based on high levels of taxation in The Netherlands, Dutch retirees can expect to receive a (first pillar) state-based pension benefit that will ensure a relatively comfortable lifestyle—certainly for most, one that would cover all basic living expenses. Social security support in the United States, relatively speaking, could be considered modest at best. The American system of state-based financing is conceived as a "safety net" for pensioners, designed to meet only the most essential day-to-day financial needs. As pointed out above, first pillar support in Brazil can extend to upwards of $1800, however these high levels of governmental support are the exception rather than the rule. Most Brazilians, based on relatively modest incomes over their working lives, can expect to receive minimal government payouts relative to retirees in The Netherlands and the United States.

Third pillar employer pensions are widespread in the Netherlands, covering about 95% of workers. Moreover, it is a primary means of support among many Dutch retirees (Börsch-Supan and Reil-Held 1997; Turner and Rhee 2013). This stands in sharp contrast to employer pensions that currently only cover about half of all Americans (Butrica et al. 2009). As pointed out above, third pillar support is substantially lower still in Brazil, where only 2.3% of workers are covered by a private employer-based pension program.

Furthermore, in all three countries, despite the existence of often times significant housing wealth, using housing equity as a source of support and private intergenerational transfers have been shown play a limited role when it comes to bolstering pensioner incomes (Doling and Elsinga 2013; Toussaint et al. 2012; Turra and Queiroz 2005) other than in cases of a serious precipitating shock to the retiree such as death of a spouse or entry of a family member into a nursing home (Venti and Wise 2001).

One apparent strength in Brazil when it comes to money management is the quality of communication between parents and children (Visa 2012). A recent industry report suggests that not only do parents communicate frequently with their children about savings practices, but they also support financial education by the state. This state of affairs is unlike that seen in the United States where limited financial communication exists between parents and children, but quite similar to that of the Netherlands, where the impact of early parental financial learning experiences is an influential factor in the development of children.

Present Investigation

In this investigation, we empirically tested, using data drawn from Brazilian working adults, fifteen of the hypotheses contained in the Interdisciplinary Financial Planning Model. The model, which is shown in Fig. 1, was tested using structural equation modeling software (AMOS v. 20.0). All items for variables shown in the model were worded in such a way that the resulting beta weights would be expressed in the form of a positive valence. The path diagram takes the form of a partial mediation model, in which both indirect and direct effects were posited to exist between the thirteen constructs in the theoretical framework.

As suggested in the preceding section, the two chief dependent variables in the model were financial planning activity level and perceived retirement saving adequacy. The figure reveals that the former is specified to be a predictor of the latter (hypothesis "a"), which is a prediction consistent with the findings of Hershey et al. (2007). The core psychological indicators in the model included three variables: financial knowledge, retirement goal clarity, and future time perspective. Together, these three indicators supported five separate hypotheses (i.e., hypotheses "b" through "f"). Specifically, financial knowledge has been shown to underlie planning activities (hypothesis "b"), which is consistent with the findings of Chan and Stevens (2003) and Ekerdt and Hackney (2002). Moreover, one's degree of retirement goal clarity has also been demonstrated to be substantially related to involvement in planning activities (hypothesis "e"; Stawski et al. 2007), and goal clarity and future time perspective have both been shown to be related to financial knowledge (hypotheses "c" and "f"; Hershey et al. 2007). Finally, future time perspective has been shown to underlie retirement goal clarity (hypothesis d; Koposko and Hershey 2014). All five hypotheses involving the psychological indicator had previously been empirically demonstrated in either Hershey et al. (2007), Hershey et al. (2010), or Koposko and Hershey (2014).

The top portion of the model shown in Fig. 1 represents social support mechanisms believed to have an impact on planning and saving. Developmental life-course theorists (e.g., Elder 1998; Settersten Jr. 1998) stress the importance of viewing individuals as dynamic entities in relation to their social environment. Accordingly, in the present investigation three social force dimensions were represented in the model that were believed to have an impact on planning and saving mediated through the psychological core of the constructs. Specifically, support from friends and colleagues that would enhance saving were predicted to have their

effect via the retirement goal clarity indicator (hypothesis "g"). Comparable support from one's spouse or partner was specified to impact both goal clarity and future time perspective (hypotheses "h" and "i"), and parental influences on the financial planning process (a variable dubbed "early learning" in the model), was believed to have its influence on future time perspective (hypothesis "j"). Support for all four of these social support hypotheses can be found in the empirical models contained in Hershey et al. (2010).

Five hypotheses remain—one economically-based prediction and four predictions that involved control variables. Regarding the economic indicator, it was suggested that one's first pillar pension adequacy (i.e., the "social security" pension received from the government) would be related to perceived saving adequacy (hypothesis "o"). Furthermore, based on findings from the four groups tested as part of the Hershey et al. (2010) investigation, years of formal education, chronological age, gender, and household income were specified to predict future time perspective, goal clarity, financial knowledge, and perceived saving adequacy, respectively (i.e., hypotheses "k," "l," "m," and "n"). A complete list of all 15 a priori hypotheses and their respective source(s) is shown in Table 1.

As mentioned above, questionnaire items were worded in such a way as to lead to positive valences for beta weights between constructs. On that basis, we predicted that the valences for the Brazilian model would also have positive beta weights. But whether the magnitude of Brazilian valences would reflect those found in the American model (i.e., in the moderate to high range) or like those found in the Dutch model (in the small to moderate range) remained to be seen. In light of the strong societal emphasis on retirement planning in the United States relative to the de-emphasis on planning and saving in Brazil, we expected beta weights for psychological factors in the Brazilian path model to be smaller—perhaps similar to those found among the Dutch. The strength of beta weights reflecting government pensions should also be smaller in the Brazilian model relative to those of the Dutch, given the strong state-based support system that exists in the Netherlands. However, the strong emphasis on parentally-based childhood financial learning experiences in Brazil appears to parallel that of the Netherlands (which is unlike that seen in the United States), therefore, we expected to find

Table 1 List of the 15 a Priori Hypotheses Included in the Conceptual Model Shown in Fig. 1

Hypothesis	Description	Source
a	Retirement planning activities ➜ Saving adequacy	Hershey et al. (2007)
b	Self-rated financial knowledge ➜ Retirement planning activities	Chan and Stevens (2003); Ekerdt and Hackney (2002)
c	Retirement goal clarity ➜ Self-rated financial knowledge	Hershey et al. (2007)
d	Future time perspective ➜ Retirement goal clarity	Koposko and Hershey (2014)
e	Retirement goal clarity ➜ Retirement planning activities	Stawski et al. (2007)
f	Future time perspective ➜ Self-rated financial knowledge	Hershey et al. (2007)
g	Support of friends/colleagues ➜ Retirement goal clarity	Hershey et al. (2010)
h	Support of spouse or partner ➜ Retirement goal clarity	Hershey et al. (2010)
i	Support of spouse or partner ➜ Future time perspective	Hershey et al. (2010)
j	Early learning experiences ➜ Future time perspective	Hershey et al. (2010)
k	Years of education ➜ Future time perspective	Hershey et al. (2010)
l	Age ➜ Retirement goal clarity	Hershey et al. (2010)
m	Gender ➜ Self-rated financial knowledge	Hershey et al. (2010)
n	Household income ➜ Saving adequacy	Hershey et al. (2010)
o	Trust in government pension ➜ Saving adequacy	Hershey et al. (2010)

the impact of early learning experiences on future time perspective in the model to be more like that of the Dutch than the Americans.

In addition to evaluating the path model shown in Fig. 1, we examined the mean scores of Brazilian respondents for each of the indicators in the model (with the exception of control variables) to ascertain whether their values were, in general, higher or lower than those seen among Americans and Dutch respondents. Because retirement planning in Brazil is *not* adequately supported by the state for all individuals (as is the case in The Netherlands, and to a lesser extent in the United States), one might anticipate that the mean score for trust in the state to provide an adequate pension would be lower than that of American respondents, and appreciably lower than the mean for the Dutch. Moreover, given the strong emphasis on individual planning responsibility in the United States, we expected mean scores for Brazilians would be lower than those of Americans, but superior to those of the Dutch for the three psychological variables: future time perspective, goal clarity, and financial knowledge. Finally, the Brazilian emphasis on parental financial influences on children suggests that the mean for this indicator would be superior to that of Americans. A lack of previous findings makes it difficult to hypothesize how Brazilian means will compare to the other two countries for the other two social support indicators (spouses; friends/colleagues) and the indicator of perceived saving adequacy, therefore, a priori predictions were not made for these three variables. When interpreting the cross-national findings reported in the results, readers are encouraged to be mindful of the fact that the three samples (Brazilian, American, Dutch) were not strictly matched along all socio-demographic dimensions, and the data were collected at different times.

Method

Participants

A total of 167 Brazilians (113 men; 54 women) between the ages of 21–69 participated in the study (see Table 2). Respondents were sampled from public places (e.g., libraries, business organizations, community group meetings) in the Niteroi and Rio de Janeiro area using both convenience sampling and snowball sampling procedures. Respondents had completed 11.57 years of education on average, and they had an average annual household income of $43,200 reals (the equivalent of $21,600 USD). To maintain comparability with the Dutch and American samples in the Hershey et al. (2010) investigation, and to ensure the impact of one's partner/spouse on planning and saving could be ascertained, all respondents were screened prior to administration of the questionnaire to ensure that they were either married or cohabitating.

The majority of respondents owned their own home and participants had three dependents, on average. Most participants actively contributed to the mandatory State Welfare Fund (86%); and almost half reported having managed their own investments (primarily through savings accounts or real estate holdings). Somewhat more than half of respondents had made contributions to their company's voluntary (closed) pension fund; fewer than half had made contributions to an open bank pension fund.

In order to ensure sufficient statistical power to detect significant effects in the path model, the modeling heuristic was used that suggests there should be a minimum of five participants for each parameter to be estimated in the model (Bentler and Chou 1987). As seen in the

Table 2 Mean Scores and Standard Deviations (in Parentheses) for Key Demographic Variables

Gender Composition (% male)	67.7	
Mean Age (SD)	51.39	(6.09)
Mean Years of Education (SD)	11.57	(2.96)
Annual Household Income (*SD*)		
Brazilian Reals	R$43,200	(3447)
U.S. Dollars	US$21,600	(1992)
Marital Status (%)		
Married or cohabitating	100.0	

diagram shown in Fig. 1, there were 15 regression pathways to be estimated plus five error terms (one for each endogenous variable). Thus, the N_{min} for the study was determined to be 100 individuals. To further ensure adequacy of power in the event of the emergence of non-hypothesized paths, an oversampling margin of 50% was adopted, or a sample size of 150 individuals total. The final sample size ($N = 167$) was just over this figure.

Prior to data collection, the research protocol was reviewed and approved by the Ethics Review Board of the primary sponsoring institution, Salgado de Oliveira University (UNIVERSO).

Description of Measures

A series of thirteen psychological, social, economic, financial planning, and socio-demographic measures were included in this investigation (see Appendix). A brief description of each single-item indicator or scale and its response format or coding scheme can be found below. Also identified is the source of any previously published scales, or scales from which individual items were drawn. Internal consistency values are also reported for multiple-item scales. To ensure that the meaning of English language items was readily interpretable by native Portuguese speakers, all items and scales were subject to back-translation processes until a suitable alternative-language (English to Portuguese) version of the measures were achieved (Poortinga 1989; Van de Vijver and Leung 1997).

The two financial planning indicators in the investigation included perceived saving adequacy and financial planning activity level, both of which were multiple item scales. The 3-item perceived saving adequacy scale used a Likert-scale response format (1 = *strongly disagree*; 5 = *strongly agree*) and the mean score on this dimension was calculated using a unit-weighting scheme (see Appendix). The financial planning activity scale (Hershey et al. 2010; Hershey et al. 2007) used the same 5-point Likert-type scale format, and its mean score also used unit weighting for the four individual items. With a coefficient alpha level of .51, the measure of internal consistency for the saving adequacy measure was admittedly low (Nunally and Bernstein 1994). But the comparable internal consistency measure for the financial planning activity scale ($\alpha = .84$) was well above threshold.

The three psychological indicators in the model (perceived financial knowledge; retirement goal clarity; future time perspective) were drawn from previous investigations, and all three were used in the Hershey et al. (2007, 2010) studies. Moreover, all three used the 5-point Likert-type (*SD/SA*) response format described above. Perceived financial knowledge was a 3-item scale that had an alpha level of .69. Retirement goal clarity was also a 3-item measure; it was found to have an alpha level of .56, which is somewhat low. And finally, future time

perspective was tapped using a single item drawn from the Hershey et al. (2010) time perspective measure: "*I enjoy thinking about life years from now in the future.*" Three other items contained in the original time perspective scale were not used as they had an unfavorable effect on the internal consistency of the measure. A unit weighting approach was used to compute mean scores for both of the multiple-item psychological indicators in the model.

Three other indicators made up the social force dimension in the model: financial lessons learned as a child (i.e., early learning), saving support from a spouse or partner, and saving support from friends and colleagues (see appendix). All three of these social force indicators were used in the Hershey et al. (2010) investigation. As in the 2010 study, the early learning variable was measured as a single-item indicator ("*Saving money for the future was an important lesson I learned as a child*"), as was the indicator of support for retirement saving from a spouse or partner ("*My spouse or partner believes it's important to save for retirement*"). The measure of support from friends and colleagues was based on a 2-item scale, which had a respectable alpha level of .79. The mean score for this latter variable was based on an unweighted average of the two items.

The one economic indicator in this investigation was a single-item measure of trust in the federal government to provide a satisfactory pension. This item was identical to the item used in the Hershey et al. (2010) study.

Four socio-demographic (background) variables were measured in the conventional fashion, and each was used as a control variable in the model shown in Fig. 1. These indicators tapped each respondent's: (a) chronological age, (b) annual household income, (c) gender (1 = male; 2 = female), and (d) number of years of formal education completed.

Results

In the first data analytic step, means and standard deviations were computed (see Table 3, data column 1), as well as zero-order Pearson correlations (see Table 4) for each of the psychological, social, and economic constructs in the model. An inspection of the magnitude of the nine Brazilian means compared to those of Dutch and American respondents from the 2010 investigation (based on the second author's unpublished data) revealed that of the three countries, Brazilians had significantly larger scores than Dutch and American respondents for future time perspective and retirement goal clarity (see Table 3). Both findings ran counter to expectations—it was predicted that means for Brazilians on both of these psychological dimensions would be lower than those of American respondents. In contrast, none of the Brazilian scores were significantly lower than both the Dutch and Americans; however, Brazilian early learning scores were significantly lower than those of the Dutch and higher than Americans, and their mean scores for support from friends/colleagues and support from spouses were lower than those of Americans. The former finding, that Brazilian early learning scores were lower than those of the Americans, also ran counter to what had been predicted. No mean differences were observed across countries for financial knowledge and retirement savings adequacy, which is intriguing inasmuch as the three countries stress differing levels of financial responsibility for retirement planning and vastly different levels of institutional financial support.

The next analytic step involved testing the path model shown in Fig. 1 based on data reported by Brazilian participants. The goal of this analysis was to examine the viability of the set of fifteen hypotheses described in the introduction, and in a broader sense, how the thirteen

Table 3 Mean Scores and Standard Deviations (in Parentheses) for Brazilians, Americans, and Dutch for each of the Nine Major Variables in this Investigation

	Brazil ($n = 167$)	United States ($n = 419$)	The Netherlands ($n = 556$)
Trust in Government Pension	3.18[a]	2.60[b]	3.06[a,c]
	(1.24)	(1.13)	(1.04)
Early Learning Experiences	3.32[a]	2.92[b]	3.64[c]
	(1.15)	(1.34)	(1.12)
Support Spouse/Partner	3.43[a]	3.78[b]	3.34[a,c]
	(1.04)	(1.23)	(1.05)
Support Friends/Colleagues	3.33[a]	3.49[b]	3.01[c]
	(0.92)	(0.96)	(0.83)
Future Time Perspective	3.71[a]	3.33[b]	3.07[c]
	(1.03)	(1.18)	(1.04)
Retirement Goal Clarity	3.61[a]	3.38[b]	2.27[c]
	(0.72)	(0.91)	(0.89)
Financial Knowledge	3.01[a]	2.97[a]	2.93[a]
	(0.82)	(1.03)	(0.86)
Retirement Planning Activity Level	2.90[a]	2.86[a]	2.66[b]
	(0.84)	(1.09)	(1.04)
Perceived Saving Adequacy	3.20[a]	3.28[a]	3.22[a]
	(0.84)	(0.94)	(0.85)

Comparisons between means based on Fisher's LSD tests. Means across rows that share the same superscript are *not* significantly different from one another. Source for mean scores shown in columns two and three: second author's unpublished data

different variables were related to one another. All constructs in the theoretical model were cast as manifest indicators in the path model. The model presented in Fig. 1 was analyzed using the AMOS v. 20.0 statistical modeling program (IBM 2011). Fit indices recommended by Brown (2006) were adopted to evaluate the quality of the model—that is, an adequate fit being *TLI* and *CFI* values greater than .90 (> .95 for an excellent fit) and a *RMSEA* value of less than .08 (< .06 for an excellent fit). Should the fit of the model be found to be suboptimal, path additions or deletions would be considered only in cases in which the change is both theoretically plausible and the modification indices suggest a better fit could be achieved.

As is often the case when using structural equation modeling software, the originally hypothesized model was not a particularly good fit to the data ($\chi^2[35] = 78.29$, $p < .01$, χ^2/DF ratio = 2.24; *TLI* = .792, *CFI* = .907, *RMSEA* = .086; 90% C.I. [.06; .11]). However, the model was one that could likely be improved upon through minor modifications. Modification indices suggested that it would be beneficial to add two additional paths, both of which were tenable from a theoretical perspective. The first proposed change would be to add a directed path from early learning to financial knowledge, and the second change involved adding a directed relation from future time perspective to saving adequacy.[2]

A revised draft of the model was tested that contained 17 paths, including the two additional regression links described immediately above. The revised model was found to be an excellent

---

[2] The first of the two suggested paths—between early learning and financial knowledge (during adulthood) is not implausible. Financial lessons learned during childhood could serve to increase awareness of the importance of finances (not assessed), and that awareness, in turn, could shape the desire to obtain financial knowledge later in life. The other suggested path—between future time perspective and saving adequacy—is also plausible. Those with a longer time perspective might be more likely to think about the future, and in doing so, try to ensure financial security for themselves and members of their family.

Table 4 Pearson Correlation Matrix for Constructs Included in the Study

	1	2	3	4	5	6	7	8	9
1. Trust in Government Pension	–								
2. Early Learning Experiences	.18*	–							
3. Support Spouse/Partner	.08	.28*	–						
4. Support Friends/Colleagues	.01	.35*	.21*	–					
5. Future Time Perspective	.08	.07	.07	.01	–				
6. Retirement Goal Clarity	.12	.33*	.32*	.24*	−.08	–			
7. Financial Knowledge	.23*	.42*	.26*	.25*	−.01	.38*	–		
8. Retirement Planning Activity Level	.21*	.38*	.24*	.14	−.05	.42*	.75*	–	
9. Perceived Saving Adequacy	.28*	.34*	.28*	.24*	.07	.38*	.39*	.46*	–

Values marked with an asterisk (*) are significant at the .05 level

fit to the data, $\chi^2[33] = 48.60$, $p = .04$, χ^2/DF ratio $= 1.47$; $TLI = .920$, $CFI = .966$, $RMSEA = .053$; 90% C.I. (.01; .08), which was found to be a significantly better fit than the original model on the basis of a chi-square difference test with two degrees of freedom, $\chi^2(2) = 29.69$, $p < .01$. The revised model is shown in Fig. 2. Values for individual paths in the figure are standardized beta weights; those contained in brackets are weights that were non-significant based on a 1 degree of freedom z-score test. Also shown in the models are R^2 values for each of the five endogenous variables.

An appreciable amount of variance was accounted for in financial planning activity level (57%) and to a lesser extent, perceived retirement saving adequacy (29%). Furthermore, it is worth noting that significant paths were observed emanating from all hypothesized psychological, social, and economic indicators—the only non-significant paths were the four hypothesized links from the control variables (i.e., education, age, gender, and income) to indicators in the core of the model. Taken together, the revised configuration provides strong support for eleven of the fifteen hypothesized paths. In sum, the Brazilian model serves to replicate theoretical model derived from working adults in The Netherlands and the United States.

Effects for the model were decomposed in an effort to delve more deeply into the path analysis findings. Three tables (Tables 5, 6, and 7) show standardized indirect effects, standardized direct effects, and standardized total effects, respectively, for each of the five endogenous constructs in the model.[3] A mediation analysis was computed using the AMOS v. 20 direct and indirect effects command (IBM 2011), to focus on indirect effects that may have accounted for variability in retirement planning activities and saving adequacy. Few appreciable indirect effects were operating in the model, as can be seen by a visual inspection of Table 5. Early learning experiences was found to contribute 6.9% of the variability in planning activities and 2.2% of the variability in saving adequacy. Furthermore, the indirect path from future time perspective to planning activities accounted for 4.8% of the variability in the dependent measure. The only other indirect effect of consequence was from self-rated financial knowledge to saving adequacy; this path was responsible for 5.6% of the variability in perceived saving adequacy.

---

[3] The four demographic indicators were omitted from the Tables 5, 6, and 7 as all revealed near-zero indirect and direct effects.
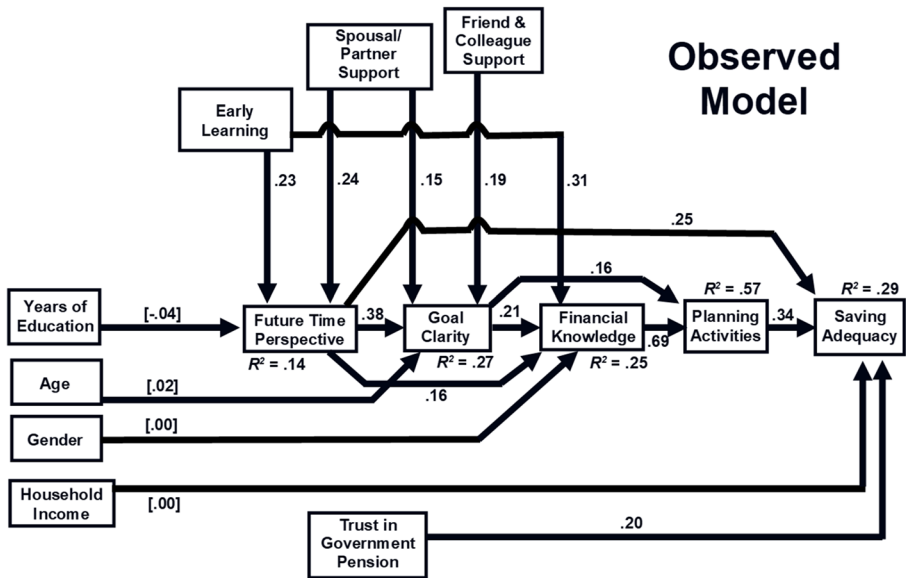
Fig. 2 Path analysis model for Brazilian respondents. All path coefficients shown are standardized beta weights. Weights in brackets are those that failed to exceed the .05 level of statistical significance

Discussion

The results of this study replicate and extend an established psycho-social-economic model of financial planning, using data drawn from individuals living in an economically developing nation. Key elements of the model were found to be structurally robust in comparison to prior data collection efforts that have taken place in The Netherlands and the United States. That is, many of the same forces that motivate financial planning and saving behavior in these two economically well-developed nations motivate comparable behaviors in Brazil. There were, however, some unique findings from the present investigation that distinguish Brazilian workers from those in the Netherlands and the United States. In the following discussion,

Table 5 Standardized Indirect Effects for Endogenous Constructs in the Model

	1. TGP	2. EL	3. SPS	4. SFC	5. FTP	6. RGC	7. FK	8. RPA	9. SA
1. Trust in Govt. Pension	–								
2. Early Learning	–	–							
3. Spousal/Partner Support	–	–	–						
4. Support Friends/Colleagues	–	–	–	–					
5. Future Time Perspective	.000	.000	.000	.000	–				
6. Retirement Goal Clarity	.000	.087	.090	.000	.000	–			
7. Financial Knowledge	.000	.054	.088	.039	.078	.000	–		
8. Ret. Planning Activities	.000	.262	.098	.055	.218	.143	.000	–	
9. Saving Adequacy	.000	.148	.093	.019	.075	.103	.236	.000	–

Effects for the four demographic indicators in the model are not shown, as all approximated zero. TGP = trust in govt. pension, EL = early learning, SPS = spouse/partner support, SFC = support friends/colleagues, FTP = future time perspective, RGC = retirement goal clarity, FK = financial knowledge, RPA = retirement planning activities, and SA = saving adequacy

Table 6 Standardized Direct Effects for Endogenous Constructs in the Model

	1. TGP	2. EL	3. SPS	4. SFC	5. FTP	6. RGC	7. FK	8. RPA	9. SA
1. Trust in Govt. Pension	–								
2. Early Learning	–	–							
3. Spousal/Partner Support	–	–	–						
4. Support Friends/Colleagues	–	–	–	–					
5. Future Time Perspective	.000	.232	.240	.000	–				
6. Retirement Goal Clarity	.000	.000	.154	.186	.375	–			
7. Financial Knowledge	.000	.307	.000	.000	.155	.208	–		
8. Ret. Planning Activities	.000	.000	.000	.000	.000	.155	.687	–	
9. Saving Adequacy	.201	.000	.000	.000	.249	.000	.000	.344	–

Effects for the four demographic indicators in the model are not shown, as all approximated zero. TGP = trust in govt. pension, EL = early learning, SPS = spouse/partner support, SFC = support friends/colleagues, FTP = future time perspective, RGC = retirement goal clarity, FK = financial knowledge, RPA = retirement planning activities, and SA = saving adequacy

we examine similarities and differences between what was learned in this study and the Hershey et al. (2010) investigation.

Structurally, the Brazilian path analysis model shown in Fig. 2 is comparable to the four different models depicted in Hershey et al. (2010), which reveal the motivational basis of planning practices for younger and older Dutch and American working adults. In terms of the magnitude of variance accounted for, saving adequacy among Brazilians was more similar to Dutch respondents than Americans (the Brazilian and two Dutch models all produced R^2 values in the .25–.35 range). However, in contrast, Brazilian explained variance for financial planning activities was more similar to what was found among Americans than Dutch, with the American and the Brazilian models accounting for 57–65% of the variability in the criterion. In all five of the models, the psychological core of predictors (time perspective, goal clarity, and financial knowledge) were found to produce the strongest effects and, therefore, contributed the most to the explanation of the planning and saving adequacy components. That said, however, consistent with predictions, the overall impact of psychological variables on one another and on planning and saving adequacy were weaker in the Brazilian model than the American model; the Brazilian and Dutch models were more similar in this regard. As suggested in the introduction, this cross-national difference is likely due to the strong emphasis

Table 7 Standardized Total Effects for Endogenous Constructs in the Model

	1. TGP	2. EL	3. SPS	4. SFC	5. FTP	6. RGC	7. FK	8. RPA	9. SA
1. Trust in Govt. Pension	–								
2. Early Learning	–	–							
3. Spousal/Partner Support	–	–	–						
4. Support Friends/Colleagues	–	–	–	–					
5. Future Time Perspective	.000	.232	.240	.000	–				
6. Retirement Goal Clarity	.000	.087	.244	.186	.375	–			
7. Financial Knowledge	.000	.361	.088	.039	.233	.208	–		
8. Ret. Planning Activities	.000	.262	.098	.055	.218	.298	.687	–	
9. Saving Adequacy	.201	.148	.093	.019	.324	.103	.236	.344	–

Effects for the four demographic indicators in the model are not shown, as all approximated zero. TGP = trust in govt. pension, EL = early learning, SPS = spouse/partner support, SFC = support friends/colleagues, FTP = future time perspective, RGC = retirement goal clarity, FK = financial knowledge, RPA = retirement planning activities, and SA = saving adequacy

on individual responsibility for retirement planning in the United States and the well-developed pension institutions in the Netherlands.

The social force dimensions (early learning; spousal support; friend/colleague support) produced mostly modest effects (with standardized beta values of .20 to .40) across all five models from the three countries. Interestingly however, the Brazilian model revealed two non-hypothesized pathways that were not found among Dutch or American respondents. In the Brazilian model, a direct link was found between early learning experiences and financial knowledge. In the Dutch and American models, the early learning effect was mediated through future time perspective (and subsequently, goal clarity). This suggests that in Brazil, financial lessons learned early in life from one's parents have a non-trivial and direct impact on one's financial knowledge, even years after those lessons had been communicated. The other unique pathway seen in the Brazilian model that was not found in the other four Dutch and American models involved a direct link between future time perspective and perceived saving adequacy ($\beta = .25$). This reveals that Brazilians with a strong future orientation are more likely to view their retirement finances as more sufficient than those who are oriented toward the present. This is not a non-trivial finding inasmuch as time perspective training is one form of intervention that could be developed as a way to improve retirement planning practices.

One novel finding to emerge from this study was the small but statistically reliable relationship between trust in the government to provide an adequate pension and retirement saving adequacy ($\beta = .20$). Beta weights for comparable pathways in the four Dutch and American models were either notably smaller or non-significant. This effect for Brazilians (and the non-effect for the other two countries) can perhaps best be explained by a combination of factors. Currently in Brazil, support from third-pillar employer pensions is practically non-existent (ABRAPP 2013; Previc 2013). That being the case, social security provisions can be expected to make up a larger proportion of pensioners' income than in the Netherlands or the United States, thereby giving the latter increased importance as an old-age income component. In the Netherlands, just the opposite is the case. Even though state-based benefits there are relatively generous, for most individuals it represents only a portion of one's retirement income, which is largely built around occupational pension plans (Börsch-Supan and Reil-Held 1997; Turner and Rhee 2013). Pension dynamics involving social security are different as well in the United States, where many individuals (particularly younger workers) have concerns about the long-term sustainability of the social security system (Bergstrom and Hartman 2005); similar skepticism has been found among about half of workers in the Netherlands (Van Dalen and Henkens 2005). Taken together, this combination of factors helps to illustrate how a relatively weak Brazilian public pension system can take on substantial perceived value in a country where the personal saving rate is minimal and employer pensions are (at best) in the building stages.

Strikingly, none of the four control variables in the Brazilian model (education, age, gender, or household income) were found to be significantly related to any of the psychological or retirement planning variables, which was not the case in the American and Dutch models. In fact, all four of the beta weights for these control variables in the Brazilian model were almost exactly zero, which suggests that in the retirement planning context psychological, social and economic forces dominate the influence of socio-demographic individual difference variables. When it comes to retirement planning in Brazil, these data suggest that men are not appreciably different from women, the young are not appreciably different from the old, and years of education and household income have a minimal impact on planning and saving. We hasten to

note that this does not mean that individual difference dimensions such as household income suggest high and low earners have planned equivalently and cultivated comparable nest eggs—they most likely have not. But what is clear is that the role those individual difference dimensions play in impacting the psychological variables in the model is negligible in Brazil, but they are important (i.e., statistically significant) in The Netherlands and the United States.

Moving beyond the path model, three separate sets of mean scores were reported in Table 3—for Brazilian, American, and Dutch respondents.[4] The means for Brazilians revealed some outcomes that were consistent with predictions, but others that were not. Consistent with expectations, mean future time perspective and goal clarity scores for Brazilians were larger than those of the Dutch. However, they were not smaller than those of Americans, which had also been predicted. This suggests that despite the lack of an overarching societal emphasis on retirement planning in Brazil, individuals in that country still have a strong future orientation and a clear vision of life in retirement. The former finding—that Brazilians have a strong future orientation—runs counter to the strong existing stereotype of the live-for-today hedonistic attitude held by those in Brazil (Levine et al. 1980). From an intervention perspective, this effect is encouraging as it suggests that strengthening individuals' orientation to time should only be necessary for the subset of individuals who demonstrate an orientation toward the present. The latter finding—that Brazilian goal clarity scores were larger than those of Americans—may have to do with the availability of options for retirees in the two countries. In the United States, there are numerous pathways that lead into retirement including a variety of forms of bridge employment (Wang et al. 2008). More freedom of choice in this regard could make unclear the anticipated nature of one's future retirement experience for the American worker. In a country that offers a more homogeneous retirement experience, such as Brazil, expectations about the type and quality of life one can expect to lead are likely to be more predictable, which in all likelihood would covary with the clarity of their retirement goals.

Also consistent with expectations, the mean early learning score for Brazilians was larger than that of Americans. This effect is not inconsistent with findings from a recent industry survey of over 25,000 individuals from 30 countries, which found that Brazilian citizens are not only committed to teaching their children about saving, but also encouraging financial education in the schools (Visa 2012). Brazilians were also shown to have equivalent levels of self-rated financial knowledge compared to the Dutch (which was not unanticipated), but their financial knowledge was also equivalent to that of American respondents, which is an effect that ran counter to predictions. This perceived parity in the self-knowledge ratings of Brazilians and Americans may have to do with the complexity of the retirement systems in

---

[4] Data for American and Dutch respondents in this analysis were drawn from the Hershey et al. (2010) investigation. These data were gathered some 5 years before the Brazilian data were collected. Thus, any observed mean differences among the three samples could derive, in part, from history effects brought about by economic changes that took place during those intervening years. To arrive at the mean scores reported in Table 3, data from the young and old groups of Americans in the Hershey et al. study were merged into a single sample, 25–64 years of age. The two Dutch samples were also collapsed into a single group, 25–63 years of age. Differences between samples included the fact that Brazilians were about six years older, on average, than American and Dutch respondents, and Brazilians had received roughly four fewer years of formal education, on average. Furthermore, Brazilians had substantially smaller household incomes than individuals in the other two groups. Respondents in all three samples were married or cohabitating, and about half of Americans were male, whereas 60% of Dutch and 67% of Brazilians were men. In light of these socio-demographic differences, caution is in order when interpreting any nationally-based mean differences reported in the table.

the two countries. That is, in the United States pension and saving arrangements have become increasingly complex over the past two decades whereas they are still *relatively* straightforward in Brazil. Thus, it may be possible for individuals in the two countries to perceive they have adequate levels of domain-specific knowledge, but the actual knowledge itself may differ. This conclusion suggests the need to take objective as well as subjective indicators of financial knowledge in future investigations.

Finally, parity in perceived personal savings adequacy for retirement across the three countries may have less to do with the amount of savings individuals accumulate over the course of their working lives, and more to do with nation-specific pension income replacement rates. Gross replacement rates from public and private pension sources are relatively high in the Netherlands (90.7%), moderate in Brazil (57.5%), and relatively low in the United States (38.3%) (OECD 2013). That being the case, it is feasible that saving adequacy could be perceived to be roughly equivalent across nations if Dutch workers were to contribute little or no personal savings to their retirement income, Brazilians contributed only a modest amount of personal savings, and Americans made sizeable contributions. Perhaps the take-away message from this finding is that personal savings adequacy in different countries needs to be considered in light of the various sources of support that make up retirees' post-employment income.

Limitations and Conclusion

This study was not without shortcomings. One limitation involved the generalizability of findings based on the relatively small sample size, as well as the fact that the data were collected exclusively from working adults in the state of Rio de Janeiro. Brazil is a large and diverse nation with key individual difference dimensions and psychological dispositions that covary with different geographical regions. We see the value in conducting a replication of this study involving a wider range of individuals from different parts of the country. A second limitation was that only one of the three economic dimensions investigated in the Hershey et al. (2010) study (trust in the state to provide an adequate pension) was examined as part of this project. However, we see the value of exploring other economic factors that could play a role in perceived saving adequacy, such as the expected value of one's employer pension, the value of one's personal savings assets, housing wealth, and private intergenerational financial transfers. A third limitation included the fact that the internal consistency reliability was low for some of the measures from this investigation. This could have introduced a degree of random error to the models tested, thereby weakening observed findings. Finally, we acknowledge that the cross-national mean difference comparisons reported in Table 3 were based on samples that were not specifically drawn to be equivalent along all socio-demographic dimensions (see endnote 3). That being the case, we urge caution in interpreting the differences reported in that table.

One clear implication of this research has to do with the development and future delivery of retirement planning intervention programs that focus on financial literacy and solvency in late life. The 2012 Visa financial barometer survey found that Brazilian citizens demonstrated the highest levels of financial literacy among 30 countries studied (Visa 2012). On the one hand, this is cause for celebration among Brazilians, whose economy has been subject to criticism over the past three decades. On the other hand, their total score on the literacy survey was a 50.4% on a 0–100% scale, which suggests there still exists room for improvement when it

comes to financial education (World Bank 2013). According to survey findings, key strengths among Brazilians included having and adhering to a household budget, seeing the need to have the government teach children about basic money management issues, and the frequency with which parents talk to their children about finances. With regard to this last point—parents talking with their children—there appeared to be measureable effects of this intergenerational communication in the present research, with early learning experiences having a direct influence on both one's time perspective and financial knowledge.

Despite the glowing outcome of the Visa Financial Literacy Barometer report, in the coming decades Brazilians will need to remain committed to financial literacy education if they are to instill in children and young adults an appreciation for late life financial freedom and independence. Based on the results of the present investigation, we feel that a multi-pronged approach to financial literacy education will be key—that is, one that stresses equally the importance of psychological, social, and economic determinants of saving success.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Appendix

Scales, Items and Measures Included in the Investigation

Retirement Planning Activity Level (alpha = .84)
Calculations have been done to determine how much will need to be saved.
I have read books and brochures on retirement planning.
I have informed myself about future retirement benefits.
I have informed myself about retirement preparation.
Perceived Saving Adequacy (coefficient alpha = .51)
I am saving enough to retire comfortably.
Do you think you'll have enough to live comfortably in retirement?
I expect to have a good retirement.
Perceived Financial Knowledge (alpha = .69)
I know a great deal about financial planning for retirement.
I know more than most people about retirement planning.
When I need financial services, I know exactly where to obtain information on what to do.
Retirement Goal Clarity (alpha = .56)
I have thought a great deal about quality of life in retirement.
I have set specific goals for how much will need to be saved for retirement.
I have a clear vision of how life will be in retirement.
Future Time Perspective
I enjoy thinking about life years from now in the future.
Early Learning Experiences
Saving money for the future was an important lesson I learned as a child.

Support of Spouse or Partner

My spouse or partner believes it is important to save for retirement.

Support of Friends and Colleagues (alpha = .79)

The people I work with believe it is important to save for retirement.

My friends believe it is important to save for retirement.

Trust in Government Pension

I trust the federal government to provide a satisfactory pension.

References

ABRAPP. (2013). Consolidado estatístico [*Statistics Report*]. Retrieved: http://www.abrapp.org.br/Documentos%20Pblicos/ConsolidadoEstatistico_06_2013.pdf.

Ackert, L. F., & Deaves, R. (2010). *Behavioral finance: Psychology, decision-making, and markets*. Mason: South-Western Cengage Learning.

Banks, J., & Oldfield, Z. (2007). Understanding pensions: Cognitive function, numerical ability and retirement saving. *Fiscal Studies, 28*(2), 143–170. https://doi.org/10.1111/j.1475-5890.2007.00052.x

Banks, J., Blundell, R., & Emmerson, C. (2005). The balance between defined benefit, defined contribution, and state provision. *Journal of the European Economic Association, 3*(2-3), 466–476. https://doi.org/10.1162/jeea.2005.3.2-3.466

Beach, L. R. (1998). *Image theory: Theoretical and empirical foundations*. Mahwah: Erlbaum.

Beach, L. R., & Mitchell, T. R. (1987). Image theory: Principles, goals, and plans in decision making. *Acta Psychologica, 66*(3), 201–220. https://doi.org/10.1016/0001-6918(87)90034-5

Bentler, P. M., & Chou, C. P. (1987). Practical issues in structural modeling. *Sociological Methods & Research, 16*(1), 78–117. https://doi.org/10.1177/0049124187016001004

Bergstrom, T. C., & Hartman, J. L. (2005). Demographics of the political sustainability of pay-as-you-go social security. Center for Economic Studies (CESifo) Working Paper No. 1378. Retrieved from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=648523.

Börsch-Supan, A., & Reil-Held. (1997). Retirement income: level, risk, and substitution among income components. *OECD Ageing Working Paper, no. AWP 3.7 (Revised)*. Paris: OECD. Retrieved from: http://www.oecd.org/els/public-pensions/2428934.pdf.

Brazil. (2003). *Estatuto do Idoso – Lei n°10.741* [Statute for the Elderly - Law n°10.741, Ch. 6, Press.Art. 28, No. II]. Retrieved: http://www.planalto.gov.br/ccivil_03/leis/2003/l10.741.htm.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York: Guilford.

Butrica, B. A., Iams, H. M., Smith, K. E., & Toder, E. J. (2009). The disappearing defined benefit pension and its potential impact on the retirement incomes of baby boomers. *Social Security Bulletin, 69*. Retrieved from: http://www.ssa.gov/policy/docs/ssb/v69n3/v69n3p1.html.

Camarano, A., & Kanso, S. (2007). Dinâmica da população brasileira e implicações para a previdência social [*Dynamics of Brazilian population and implications for the welfare state*]. In Tafner, P. and Giambiagi, F. (Eds.), Previdência no Brasil: debates, dilemas e escolhas. [The Brazilian Welfare State: debates, dilemmas and choices], pp. 95–138. Rio de Janeiro: Ipea.

Chan, S., & Stevens, A. H. (2003). What you don't know can't help you: Pension knowledge and retirement decision making. NBER Working Paper Series, #10185. Cambridge: National Bureau of Economic Research.

Davies, J. B. (2008). *Personal wealth from a global perspective*. New York: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199548880.001.0001

DeFerranti, D., Perry, G. E., Ferreira, F. H. G., & Walton, M. (2004). *Inequality in Latin America: Breaking with history?* Washington, D.C.: World Bank. https://doi.org/10.1596/0-8213-5665-8

Doling, J., & Elsinga, M. (2013). *Demographic change and housing wealth: Homeowners, pensions and asset-based welfare in Europe*. New York: Springer. https://doi.org/10.1007/978-94-007-4384-7

Ekerdt, D. J., & Hackney, J. K. (2002). Workers' ignorance of retirement benefits. *The Gerontologist, 42*(4), 543–551. https://doi.org/10.1093/geront/42.4.543

Elder, G. H. (1998). The life course and human development. In W. Damon and R. E. Lerner (Eds.), Handbook of child psychology: Volume 1: Theoretical models of human development, *5th Ed.* (pp. 939–991). Hoboken: Wiley.

Exame.com. (2012). *Os 100 maiores fundos de pensão do Brasil* [The top 100 largest pension funds in Brazil]. Available at: http://exame.abril.com.br/seu-dinheiro/aposentadoria/noticias/os-100-maiores-fundos-de-pensao-do-brasil.

Fraga, E., & Carneiro, M. (2013). Even with bank accounts, few Brazilians save. Folha de São Paulo, online. Retrieved: http://www1.folha.uol.com.br/internacional/en/business/2013/09/1342541-even-with-bank-accounts-few-brazilians-save.shtml.

França, L. H. F. (2004). Attitudes towards retirement: A cross-cultural study between New Zealand and Brazilian executives. Doctoral thesis in social psychology, Department of Psychology, The University of Auckland, New Zealand.

França, L. H. F. (2012). Envelhecimento dos trabalhadores nas organizações: Estamos preparados? [Ageing of workers in the organizations: are we prepared for it?]. In L. França and D. Stepansky (Eds.), Propostas multidisciplinares para o bem-estar na aposentadoria [Multidisciplinary proposals for the well-being in retirement years], pp. 25-52. Rio de Janeiro: Quarter: FAPERJ.

França, L. H. F., Nalin, C. P., Siqueira, A R., Canella-Filho, T. R., & Ekman, N. C. (2012). ⌈Relatório de Pesquisa, Research Report⌋ Atitudes dos gestores acerca do envelhecimento dos trabalhadores nas organizações brasileiras [Attitudes of managers towards ageing workers in Brazilian organizations]. FAPERJ - Carlos Chagas Filho Foundation, APQ1- E-26/111.668/2010.

Hershey, D. A., & Mowen, J. C. (2000). Psychological determinants of financial preparedness for retirement. The Gerontologist, 40(6), 687–697. https://doi.org/10.1093/geront/40.6.687

Hershey, D. A., Mowen, J. C., & Jacobs-Lawson, J. M. (2003). An experimental comparison of retirement intervention seminars. Educational Gerontology, 29: 339-359. doi:10.1080=03601270390180271.

Hershey, D. A., Jacobs-Lawson, J. M., McArdle, J. J., & Hamagami, A. (2007). Psychological foundations of financial planning for retirement. Journal of Adult Development, 14(1-2), 26–36. https://doi.org/10.1007/s10804-007-9028-1

Hershey, D. A., Henkens, K., & Van Dalen, H. (2010). Aging and financial planning for retirement: Interdisciplinary influences viewed through a cross-cultural lens. International Journal of Aging and Human Development, 70(1), 1–38. https://doi.org/10.2190/AG.70.1.a

Hershey, D. A., Jacobs-Lawson, J. M., & Austin, J. T. (2012). Effective financial planning for retirement. In M. Wang (Ed.), Oxford handbook of retirement (pp. 402–430). New York: Oxford University Press.

IBM Corporation (2011). Analysis of Moment Structures (AMOS) v. 20 Statistical Software. Armonk, New York.

Instituto Brasileiro de Geografia e Estatística [IBGE]. (2013). Brazilian population should reach the top in 2042. Retrieved: http://cod.ibge.gov.br/1HIJU.

Instituto de Pesquisa Econômica Aplicada [IPEA]. (2010). National Household Survey/ 2009 - first analyses: Demographic tendencies. Comunicado Report No. 64. Retrieved: http://www.ipea.gov.br/portal/images/stories/PDFs/comunicado/101013_comunicadoipea64.pdf.

Koposko, J. L., & Hershey, D. A. (2014). Parental and early influences on expectations of financial planning for retirement. Journal of Personal Finance, 13, 17–27.

Levine, R. V., West, L. J., & Reis, H. T. (1980). Perceptions of time and punctuality in the United States and Brazil. Journal of Personality and Social Psychology, 38(4), 541–550. https://doi.org/10.1037/0022-3514.38.4.541

Maurer, R., Mitchell, O. S., & Warshawsky, M. S. (2012). Reshaping retirement security: Lessons from the global financial crisis. New York: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199660698.001.0001

Mowen, J. C. (2000). The 3M model of motivation and personality: Theory and empirical applications to consumer behavior. Boston: Kluwer Academic Press. https://doi.org/10.1007/978-1-4757-6708-7

Munnell, A. H. (2006). Employer-sponsored plans: The shift from defined benefit to defined contribution. In G. L. Clark, A. H. Munnell, & J. Orszag (Eds.), Oxford handbook of pensions and retirement income (pp. 359–380). New York: Oxford University Press.

Nunally, J. C., & Bernstein, I. (1994). Psychometric theory (3rdEd.). McGraw-Hill, New York.

OECD. (2013). Pensions at a glance 2013: OECD and G20 indicators. OECD Publishing. Retrieved from: doi: https://doi.org/10.1787/pension_glance-2013-en.

Poortinga, Y. H. (1989). Equivalence of cross-cultural data: An overview of basic issues. International Journal of Psychology, 24(1), 737–756. https://doi.org/10.1080/00207598908246809

Previc. (2013). Superintendência Nacional de Previdência Complementar. Estatística trimestral - Informações de população e benefícios. Retrieved: http://www.previdencia.gov.br/wp-content/uploads/2013/05/Relatorio-Previc-3%C2%BA-Trim2013_FINAL.pdf.

Settersten Jr., R. A. (1998). Time, age and the transition to retirement: New evidence on lifecourse flexibility? International Journal of Aging and Human Development, 47(3), 177–203. https://doi.org/10.2190/QHDK-R21F-RDK6-PMAG

Stawski, R. S., Hershey, D. A., & Jacobs-Lawson, J. M. (2007). Goal clarity and financial planning activities as determinants of retirement savings contributions. International Journal of Aging and Human Development, 64(1), 13–32. https://doi.org/10.2190/13GK-5H72-H324-16P2

Toussaint, J., Szemzo, H., Elsinga, M., Hegedüs, J., & Teller, N. (2012). Owner-occupation, mortgages and intergenerational transfers: The extreme cases of Hungary and the Netherlands. *International Journal of Housing Policy, 12*(1), 69–90. https://doi.org/10.1080/14616718.2012.651327

Turner, J. A., & Rhee, N. (2013). *Lessons for Private Sector Retirement Security from Australia, Canada, and the Netherlands.* Washington, D. C.: National Institute on retirement security. Retrieved from: http://www.nirsonline.org/storage/nirs/documents/International %20Paper/final_international_august_2013.pdf.

Turra, C. M., & Queiroz, B. L. (2005). *Intergenerational transfers and socioeconomic inequality in Brazil: A first look.* Retrieved from: https://www.nescon.medicina.ufmg.br/biblioteca/imagem/0283.pdf.

Turra, C., Queiroz, B. L., & Rios-Neto, E. (2011). Idiosyncrasies of intergenerational transfers in Brazil. In R. Lee & A. Mason (Eds.), *Population aging and the generational economy – A global perspective* (pp. 390–407). Cheltenham: Edward Elgar. https://doi.org/10.4337/9780857930583.00032

Van Dalen, H. P., & Henkens, K. (2005). The double standard in attitudes toward retirement–the case of the Netherlands. *Geneva Papers on Risk and Insurance: Issues and Practice, 30*(4), 693–710. https://doi.org/10.1057/palgrave.gpp.2510045

Van de Vijver, F. J. R., & Leung, K. (1997). Methods and data analysis of comparative research. In J. W. Berry, Y. H. Poortinga, & J. S. Pandey (Eds.), *Handbook of cross-cultural psychology*, *Theory and method* (Vol. 1, pp. 33–51). Boston: Allyn & Bacon.

Van Tol, J. I. M. (2009). *Analysis of the Brazilian pension system: Should Brazil reform its pension system according to the Chilean pension model?* Thesis #2009–08-14, Erasmus University, Rotterdam.

Venti, S. F., & Wise, D. A. (2001). Aging and housing equity: Another look. NBER Working Paper No. 8608. Washington, D.C.: National Bureau of Economic Research. Retrieved from: http://www.nber.org/papers/w8608.pdf.

Visa. (2012). *Visa's international financial literacy and practical money survey.* Retrieved: https://www.google.com/search?sourceid=navclient&aq=&oq=visa+financial+barometer+survey&ie=UTF-8&rlz=1T4NDKB_enUS540US541&q=visa+financial+barometer+survey &gs_l=hp...0i22i30.0.0.0.6864...........0.17z9-iO4Q1g.

Wang, M., Zhan, Y., Liu, S., & Shultz, K. S. (2008). Antecedents of bridge employment: A longitudinal investigation. *Journal of Applied Psychology, 93*(4), 818–830. https://doi.org/10.1037/0021-9010.93.4.818

Whitehouse, E., D'Addio, A., Chomik, R., & Reilly, A. (2009). Two decades of pension reform: What has been achieved and what remains to be done? *Geneva Papers on Risk and Insurance: Issues and Practice, 34*(4), 515–535. https://doi.org/10.1057/gpp.2009.30

World Bank. (2012). Brazil—Financial education for school children and parents. Retrieved online: http://www.finlitedu.org/evaluation/wb/pilots/brazil/school-children/.

World Bank. (2013). Impact evaluation of Brazil's school-based financial education program. Retrieved online: http://www.finlitedu.org/team-downloads/evaluation/brazil-schools.pdf.