

## Implications of Financial Scarcity on Long-term Adoption of Knowledge Delivered in Financial Intervention

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### Abstract

Based on administrative data (N=3,506 participants) and surveys (N=933) this study recognized the impact of financial distress on long-term adoption of financial knowledge acquired in an intervention program. While participants performed fairly well behaviors that are related to consumption, only those in a proper financial situation were able to preserve a high level of management habits. Based on the theory of scarcity offered by Mullainathan, & Shafir (2012), the paper proposes that the differences between the two behaviors derived from their nature – wise consumption provide immediate profit, while management is a cognitively demanding task that offers a delayed gratification.

**Keywords:** financial intervention, scarcity, financial capability

### Introduction

Financial education and interventions have a positive impact in some domains, but not in others (Miller, Reichelstein, Salas, & Zia, 2015). For example, intervention programs were less effective for loan default behavior as compared to keeping records and saving habits. Those findings imply the next challenge for financial education research – to help develop more accurate and tailor made programs by understanding the abilities and tools needed for different financial practices.

Recent works that focus on the impact of scarcity (Mani, Mullainathan, Shafir, & Zhao, 2013; Mullainathan & Shafir, 2013; Shah, Mullainathan, & Shafir, 2012), may point out for some source of difficulties in preserving interventions achievements. The theory suggests that under economic deprivation, people present short-sightedness and myopia due to lack of cognitive resources. Under economic deprivation, people tend to focus on urgent tasks that provide immediate profit but are less likely to perform other important tasks that provide delay revenue (e.g. a periodic oral evaluation). The name tunneling was coined to describe this behavior.

The current study analyzed the impact of financial distress on performance in an intervention program. The program is delivered by a non-profit organization that helps families in financial difficulties to attain financial recovery and to implements healthy financial habits. Although the vast majority of participants in the program are not poor, they do face financial distress and lack of resources that falls under Mani et al., (2013) definition of poverty as the “gap between one’s needs and the resources available to fulfill them.” Based on the assumption that financial distress plays a significant role in the ability to conduct certain financial behaviors, this study compares between two types of financial practices highlighted in the program – consumption and managerial behaviors.

The two categories differed in their objectives. Consumption is the ability to consume wisely and to choose relevantly, and affordable products; Management is the capacity to keep track of finances and to take financial precautions for the future. While consumption provides an immediate return that could be easily observed (having more money left in my pocket), management offer delayed gratification – its contribution is harder to recognize, and its influences could only be observed in the long-term. Hence, scarcity is expected to lead highly distressed individuals to pay more attention to consumption over management.

Program evaluation is not within the scope of this paper; hence this article only provides a brief description of the program’s general impact. A detailed report on the effectiveness of the program is currently in preparation (Carmel, Leiser, and Spivak, in preparation).

### Methods

The study used data attained from the organization which contains information about the participants' demographic characteristics, about their debts, and about their income and expenses at the beginning and the end of the program. In addition, 432 participants took financial capabilities surveys before (N=251) or after (N=181) the program. 98 former graduates were also sampled to test the long-term impact of the program and were asked to fill in a financial capability survey and to answer questions

regarding their current financial situation. Participants were sampled based on their area of living and income, and rewarded with a 15 Dollar worth coupon to reduce problems of selections.

*Independent variables:*

*Proportional Gap* - a net monthly balance for each household, divided by household's monthly income, and multiplied it by 100  $[\frac{income_i - expenditures_i}{income_i} * 100]$ , represents the proportional share of money saved/spent per month from household's income while eliminates income differences between participants. The letter *i* stands for the time of the measure (i.e. at the beginning, at the end, or at the survey delivered a couple of years after the program). The new variables were named PGB [Beginning], PGE [Proportional Gap End] and PGS [Proportional Gap Survey]. A median split deviation was then used to created two categories of financial distress (high/low distress) for each of the three PG variables. Only participants with both the PG data and the survey responses were included in the analysis (Pre-program: N=103; Past-program: N=131; 2-3 years after the program: N=98)

The survey, which was developed by the organization, contains 13 questions on daily financial habits (e.g. "we organize and file documents related to our earnings, expenditures, debt, savings and insurance"). Factor analysis confirms three separate categories of financial behavior: management, consumption, and sense of confidence in one's ability to control his/her financial affairs.

**Results**

Results indicate a dramatic change in participants' ability to balance between income and expenses due to the intervention. The analysis shows a significant difference between participants' PG at the beginning (PGB; M=-8.78, SD=29.01) and the end of the program (PGE; M=1.42, SD=29.09) [t(3506)=16.44, p<.0001; Cohen's d =-.35]. However, a couple of years after the intervention, participants were not able to keep the same level of thriftiness and reported a negative proportional difference between income and expenses (PGS: M=-2.4; SD=20.38). Income plays a significant role - only participants with high income (the top quartiles) were able to maintain a positive gap in the long-term. Assessment of the program impact on financial capabilities shows a slow decay in participants' ability to keep to the program principles at the management and confidence categories, although scores were still high compared to initial state (See Table 1).

**Table 1.** Financial Capabilities

	Begin (n=251)	End (n=181)	2-3 years from completion (n=95)	F-value	Partial eta- squared
Management	2.45 (.80)	3.41 (1.01)	3.23 (.83)	68.6*	.21
Confidence	2.36 (.89)	3.18 (.96)	2.92 (.92)	44.7*	.14
Choosing products	3.29 (.88)	3.78 (.85)	3.87 (.66)	26.2*	.09

Table 1. financial capability scores at the beginning and at the end of the program. Between-group design. \* P<.001

**Financial scarcity**

A Multivariate GLM analysis that holds debts constant, indicate that participants with different financial distress show dissimilar financial behavior before the program [F (2, 99) = 4.332, p < .05, partial eta squared = .08, Wilks' λ = .919, Power to detect the effect was .740]. A significant univariate main effect for financial distress was obtained for consumption, F (2, 99) = 6.148, p < .015, partial eta square = .058, power = .689; but not for management, F (2,99) =0.59 , p > .05 , partial eta square = .005, power = .11.

Results indicate that highly distressed individuals presented tunneling before the program – they got higher scores in consumption practices than low distress individuals, yet no differences were detected at the management category. The same procedure was done at the end of the intervention, indicating no differences between the groups [F (2, 127) = 1.348, p > .05, ηp<sup>2</sup>= .02, Wilks' λ = .97]. The left graph in

figure 1 shows the differences between the groups in all three categories before the program, while the right graph shows the scores at the end of the program.

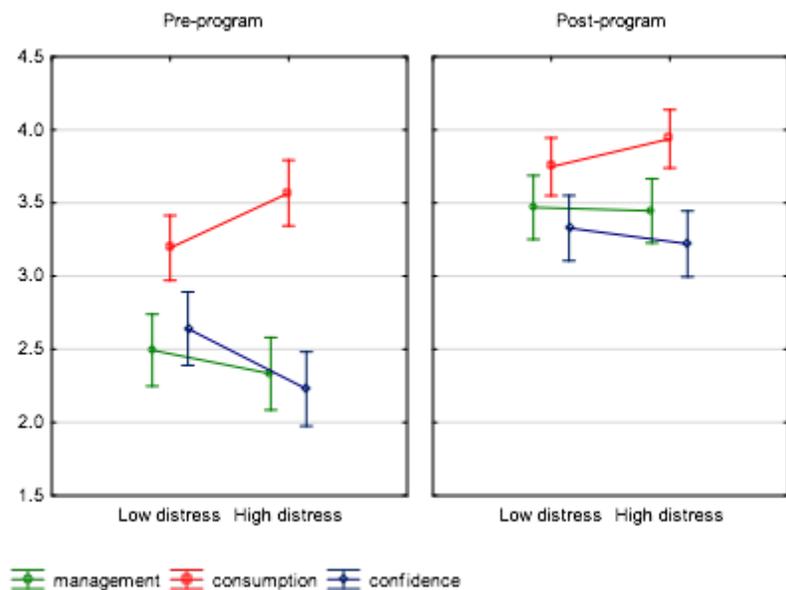


Figure 1. Financial capability scores at the beginning (left graph) and at the end (right graph) of the program. Covariate means Debts: 79220.8. Between-group design.

Analysis of the long-term impact of the program shows a different pattern. A Multivariate GLM analysis that holds debts constant, with one factorial independent variable, and with two dependent variables analysis, shows a difference between management and consumption behaviors among the two groups. While people with high distress show worse management than people in the low distress group, no such difference was found in the consumption category.  $F(4, 182) = 5.008, p < .0001, \eta_p^2 = .10$ , Wilks'  $\lambda = .811$ , Power to detect the effect was .959. A significant univariate main effect for financial distress was obtained for management [ $F(2, 92) = 10.674, p < .0001, \eta_p^2 = .188$ , power = .986], but not for consumption [ $F(2, 95) = 1.05, p > .05, \eta_p^2 = .021$ , power = .230].

The findings confirm the prediction that people with low distress would be better off at their ability to perform managerial behaviors. Interestingly, results show inverse pattern comparing to the pre-program behavior - high distress individual did not outperform the low-distress group in consumption, despite the tunneling effect. This pattern suggests that low-distress participants have adopted the consumption practices delivered in the program. Figure 2 demonstrate the transformation of financial capabilities over time among the two groups. An interaction between level of distress and time of measurement was found in all three categories  $F(6, 542) = 3.300, p < .01, \eta_p^2 = .10$ , Wilks'  $\lambda = .930$ , Power to detect the effect was .934. Results indicate that highly distress individuals have returned to their old habits, neglect management and focus exclusively on consumption, while scores at the low-distress group are just as good as they were at the end of the intervention (posthoc comparisons,  $p > .05$ ).

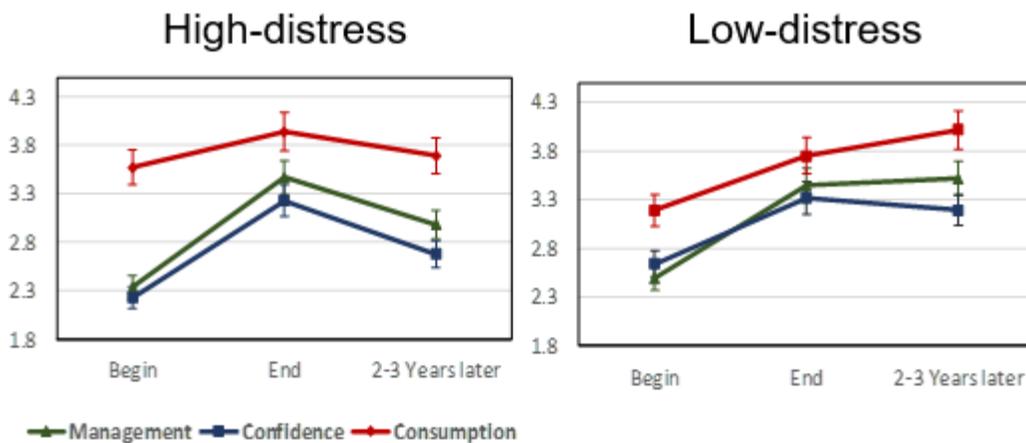


Figure 2. Financial capability scores over time.

### Conclusions

Results demonstrate that financial education does have a long-term impact for some participants, but not for all of them. Situational and personal conditions may interrupt with the effort to adopt ideas and the techniques delivered during the intervention. To begin with, difficult financial situation is a clear barrier to adequate financial behavior.

Before the program, high distress participants presented tunneling that made them focus on consumption to a larger extent than people in the low-distress group. However, a couple of years after the program, high-distress individuals are inferior to low-distress participants in all types of behaviors. While low-distress participants can maintain the managerial habits they acquired in the program, the high-distress participants keep their consumption habits but show a decrease in management. This pattern highlights the way scarcity interacts with knowledge – in the long-term, being in a difficult financial situation demands cognitive and emotional resources, which are limited by nature (Vohs, 2013). Since management is a highly demanding task that does not provide an immediate return, being in a complex financial situation decreases the likelihood of performing such task. Those findings are a data-based support to the predictions of the theory of scarcity, and a demonstration of the way understanding psychological mechanisms help us interpret human behavior. By stressing the barriers and obstacles to perform an adequate financial behavior, we are one step closer to develop effective interventions and educational programs.

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