

THE PSYCHOLOGY OF POVERTY: WHERE DO WE STAND?

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Abstract: In recent years, the psychological causes and consequences of poverty have received renewed attention from scientists and policymakers. In this essay, we summarize new developments in this literature. First, we discuss advances in our understanding of the relationship between income and psychological well-being. There is a robust positive relationship between the two, both within and across countries, and in correlational and causal analyses. Second, we summarize recent work on the impact of “scarcity” and stress on economic preferences and decision-making. Our view of this literature is that the evidence is relatively weak. Third, we summarize evidence on the impact of psychological interventions on economic outcomes. Light-touch psychological interventions, such as videos that aim to raise aspirations, have shown some promise in encouraging investment and improving economic well-being. Similarly, psychotherapy and pharmacological mental health treatments have positive effects on economic outcomes. Relative to the effects of cash transfers, these impacts are small in absolute terms and large in per-dollar terms. We conclude by discussing whether a psychological poverty trap is plausible.

KEY WORDS: poverty, income, subjective well-being, mental health

I. INTRODUCTION

Over the past decade, economists, psychologists, and other social scientists have rediscovered their interest in the psychological causes and consequences of poverty: Could it be that poverty has particular psychological effects and that these, in turn, affect economic outcomes in a way that perpetuates poverty? The purpose of this essay is to summarize and analyze the current status of this literature.

Asking such questions does not imply blaming the poor for their poverty. Rather, the core of the hypothesis is that the power of the situation rather than intrinsic deficiencies of the individual has potentially disadvantageous

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consequences. The basic argument for the feedback loop in which poverty perpetuates itself through psychological mechanisms has two components. First, poverty has effects on psychological variables, such as happiness, life satisfaction, and stress. Second, these variables, in turn, affect economic outcomes in a way that perpetuates poverty. We will discuss the most recent evidence for each of these mechanisms. In the final sections of the essay, we turn to the effect of psychological interventions on economic outcomes. We conclude with a discussion about the plausibility of a psychological poverty trap.

II. EFFECTS OF INCOME ON PSYCHOLOGICAL OUTCOMES

There is a rich and long history of research in psychology and economics on the question of whether income is associated with and/or causes subjective well-being. In this literature, subjective well-being is typically measured through questions in which respondents indicate on a numerical scale how happy or satisfied with their lives they are, whether they experience positive or negative emotions, and so on. For several decades, a dominant account of the relationship between income and such variables was the Easterlin paradox, named for Richard Easterlin, who first described the paradox in a series of articles in the early 1970s. In cross-sectional and time-series data, he observed a positive relationship between subjective well-being within countries, that is, rich people in a given country were happier than poor people in the same country. However, he found no such relationship across countries; people in rich countries, on average, did not appear to be happier than those in poor countries. In addition, as countries grew richer over time, subjective well-being did not seem to grow in step with increasing incomes.¹

This view was convincingly overturned in a series of articles in the early 2000s by Betsey Stevenson and Justin Wolfers (sometimes in collaboration with Daniel Sacks).² Using additional and larger datasets, they showed that there was, in fact, a strong correlation between income and subjective well-being not just within, but also across countries. This positive across-country correlation was present even in the early datasets used by Easterlin, but the number of countries was too small to make the relationships statistically significant. In addition, they found a strong positive relationship between

¹ Richard A. Easterlin, "Does Money Buy Happiness?" *The Public Interest* 30, no. 3 (1973): 3–10; Richard A. Easterlin, "Does Economic Growth Improve the Human Lot? Some Empirical Evidence," in *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*, ed. Paul A. David and Melvin W. Reder (New York: Academic Press, 1974), 89–126.

² Betsey Stevenson and Justin Wolfers, "Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox," *Brookings Papers on Economic Activity* 39, no. 1 (2008): 1–87; Daniel W. Sacks, Betsey Stevenson, and Justin Wolfers, "Subjective Well-Being, Income, Economic Development and Growth," *Brookings*, October 1, 2010, <https://www.brookings.edu/articles/subjective-well-being-income-economic-development-and-growth/>; Daniel W. Sacks, Betsey Stevenson, and Justin Wolfers, "The New Stylized Facts about Income and Subjective Well-Being," *Emotion* 12, no. 6 (2012): 1181–87; Betsey Stevenson and Justin Wolfers, "Subjective Well-Being and Income: Is There Any Evidence of Satiation?" *American Economic Review* 103, no. 3 (2013): 598–604.

gross domestic product (GDP) growth and changes in subjective well-being. For example, the change in the country-level average responses to the well-being questions across consecutive (and even distant) waves of the World Values Survey are strongly positively correlated with changes in GDP across the same time period. Thus, the correlational evidence is now unambiguous. Both income and growth are correlated with subjective well-being; this is true both within and across countries and across time.

A. Causal impacts of income changes on well-being and stress

In recent years, this literature has expanded in several interesting directions. The first is the publication of a large number of studies that permit causal claims about the impact of income changes on subjective well-being. One thread of this new literature uses sophisticated time-series techniques to achieve this goal. For example, Mo Alloush employs a time-series instrumental-variables approach to establish an effect of income on depression (and vice versa) in panel data from South Africa.³ Perhaps the most significant development, though, has been the arrival of a large number of studies that use randomized controlled trials (RCTs) to study the impact of unconditional cash transfers and other economic interventions. These studies are now numerous enough that systematic reviews and meta-analyses are possible. Joel McGuire, Caspar Kaiser, and Anders Bach-Mortensen identified thirty-seven studies of unconditional cash transfers in low- and middle-income countries, covering over 112,000 respondents.⁴ In their meta-analysis, they find an average effect size of 0.10 standard deviations (SD) on subjective well-being, measured on average two years after cash transfers between USD 664 PPP and USD 995 PPP. Larger transfer amounts have larger impacts on subjective well-being and the effects decrease over time, suggesting either adaptation or a reduction in the economic impacts of the cash transfers that are likely to underlie the effects on subjective well-being. Thus, cash transfers have robust and moderately sized positive effects on subjective well-being. In a fascinating study extending these findings to an objective outcome variable, Cornelius Christian, Lukas Hensel, and Christopher Roth show that USD 22 cash transfers in Indonesia decrease the yearly suicide rate by 0.36 per 100,000 people, corresponding to an 18 percent decrease.⁵ A small number of other studies have used levels of the stress hormone cortisol as an objective outcome variable and found reductions of cortisol levels following cash transfers or health insurance in

³ Mo Alloush, "Income, Psychological Well-Being, and the Dynamics of Poverty," *Economic Development and Cultural Change* (forthcoming).

⁴ Joel McGuire, Caspar Kaiser, and Anders Bach-Mortensen, "A Systematic Review and Meta-Analysis of the Impact of Cash Transfers on Subjective Well-Being and Mental Health in Low- and Middle-Income Countries," *Nature Human Behaviour* 6, no. 3 (2022): 1–12.

⁵ Cornelius Christian, Lukas Hensel, and Christopher Roth, "Income Shocks and Suicides: Causal Evidence from Indonesia," *The Review of Economics and Statistics* 101, no. 5 (2019): 905–20.

both adults and children.⁶ In contrast, the evidence on *self-reported* stress after cash transfers is mixed.⁷

In an extension of this work, Jimena Romero and coauthors conducted a further systematic review and meta-analysis that includes not only unconditional cash transfers, but also other economic interventions, including conditional cash transfers (in which the provision of the transfer is contingent on, for example, children being vaccinated and attending school); asset transfers, for example, of livestock; poverty graduation programs, in which households typically receive a large asset, some training on how to use it, some cash, and ongoing supervision; housing vouchers, which allow families to move to wealthier neighborhoods; lottery wins; and free health insurance.⁸ The monetary value of the median interventions was USD 454 PPP. Two years later, the average treatment effect on subjective well-being is 0.09 SD, with the largest effects being observed for unconditional cash transfers (0.15 SD). Across intervention types, happiness, life satisfaction, and depression were most strongly affected (0.09–0.13 SD), while the effects on stress and anxiety were smaller (0.05 SD).⁹

Together, these results suggest moderately sized positive effects of income and wealth increases on subjective well-being that are robust across different types of interventions and persist for at least two years after transfers are made.¹⁰ Importantly, and in contrast to the previous literature about the Easterlin paradox described above, these studies permit causal claims about the effect of income on well-being because they use randomized controlled trials or other approaches that allow the credible identification of causal effects (such as regression discontinuity or instrumental variable analyses).

⁶ Johannes Haushofer et al., “Economic and Psychological Effects of Health Insurance and Cash Transfers: Evidence from a Randomized Experiment in Kenya,” *Journal of Development Economics* 144 (2020); Johannes Haushofer and Jeremy Shapiro, “The Short-Term Impact of Unconditional Cash Transfers to the Poor: Experimental Evidence from Kenya,” *Quarterly Journal of Economics* 131, no. 4 (2016): 1973–2042; Lia Fernald and Megan R Gunnar, “Poverty-Alleviation Program Participation and Salivary Cortisol in Very Low-Income Children,” *Social Science & Medicine* 68, no. 12 (2009): 2180–89.

⁷ Lisa Hjelm et al., “Poverty and Perceived Stress: Evidence from Two Unconditional Cash Transfer Programs in Zambia,” *Social Science & Medicine* 177 (2017): 110–17; Adria Molotsky and Sudhanshu Handa, “The Psychology of Poverty: Evidence from the Field,” *Journal of African Economies* 30, no. 3 (2021): 207–24.

⁸ Jimena Romero et al., “The Effect of Economic Transfers on Psychological Well-Being and Mental Health” (unpublished manuscript, 2021), https://johanneshaushofer.com/publications/Romero_et_al_Metaanalysis_2021.pdf.

⁹ The interventions studied here were windfalls, which is attractive from a causal identification perspective. Interestingly, recent evidence suggests that the effects might be even larger if recipients had to perform some work to obtain the benefits; Reshmaan Hussam et al., “The Psychosocial Value of Employment: Evidence from a Refugee Camp,” *American Economic Review* 112, no. 11 (2022): 3694–724; Syon P. Bhanot, Jiyoung Han, and Channing Jang, “Workfare, Well-Being, and Consumption: Evidence from a Field Experiment with Kenya’s Urban Poor,” *Journal of Economic Behavior and Organization* 149 (2018): 372–88.

¹⁰ Quasi-experimental research suggests that economic changes in childhood can affect mental health well into adulthood; see, e.g., Achyuta Adhvaryu, James Fenske, and Anant Nyshadham, “Early Life Circumstance and Adult Mental Health,” *Journal of Political Economy* 127, no. 4 (2019): 1516–49.

B. Satiation and dimensions of well-being

A further new direction in the literature on income and psychological well-being concerns satiation. Several new findings shed light on the question of whether subjective well-being saturates beyond specific levels of income. The idea behind this hypothesis is that once basic needs are met, additional income changes no longer affect well-being. Daniel Kahneman and Angus Deaton present an additional twist on this hypothesis.¹¹ In U.S. data, they found that beyond incomes of USD 75,000 per year, income was no longer associated with hedonic well-being ("happiness"), but it continued to be associated with evaluative well-being ("life satisfaction"). Hedonic well-being refers to respondents' daily experience of positive and negative emotions; evaluative well-being, in contrast, refers to a more detached, cognitive, bird's-eye view of one's life.

However, more recent work has cast doubt on this finding. Matthew A. Killingsworth, using slightly different data from the U.S., found no evidence of satiation for happiness.¹² To resolve the conflict, Kahneman and Killingsworth engaged in an adversarial collaboration, which confirmed that happiness does *not* satiate in income.¹³ The satiation result in Kahneman and Deaton's study was due to a ceiling effect. Thus, it appears that in U.S. data, both life satisfaction and happiness continue to grow as incomes rise.

In an extension to this work, Andrew Jebb and coauthors studied saturation points in 164 countries.¹⁴ In contrast to both Killingsworth and Kahneman and Deaton, they found satiation in both happiness and life satisfaction in most countries. However, life satisfaction showed satiation at higher incomes than happiness, varying across countries. Thus, while this result contradicts the strong version of Kahneman and Deaton's claim that life satisfaction shows no evidence of satiation at all, it is in line with a weaker interpretation that holds that life satisfaction satiates at higher incomes.

One wrinkle in this story is the work of Betsey Stevenson and Justin Wolfers, who show that both life satisfaction and happiness increase nearly linearly in the logarithm of income both within and across countries at all income levels.¹⁵ At least for happiness, one possible explanation is differences in question wording. Both Jebb and coauthors and Kahneman and Deaton measure happiness through questions about the presence or

¹¹ Daniel Kahneman and Angus Deaton, "High Income Improves Evaluation of Life but Not Emotional Well-Being," *Proceedings of the National Academy of Sciences* 107, no. 38 (2010): 16489–93.

¹² Matthew Killingsworth, "Experienced Well-Being Rises with Income, Even Above \$75,000 per Year," *Proceedings of the National Academy of Sciences* 118, no. 4 (2021).

¹³ Matthew Killingsworth, "Income and Emotional Well-Being: A Conflict Resolved," *Proceedings of the National Academy of Sciences* 120, no. 10 (2023).

¹⁴ Andrew T. Jebb et al., "Happiness, Income Satiation, and Turning Points around the World," *Nature Human Behaviour* 2, no. 1 (2018): 33–38.

¹⁵ Stevenson and Wolfers, "Economic Growth and Subjective Well-Being"; Stevenson and Wolfers, "Subjective Well-Being and Income."

absence of various positive and negative emotions on the preceding day, such as joy, happiness, sadness, and anger. In contrast, Stevenson and Wolfers use data from the World Values Survey, which asks about happiness in the following way: "Taken all together, how would you say things are these days: would you say that you are very happy, pretty happy, [or] not too happy?" This is quite similar to the life satisfaction question in the World Values Survey: "All things considered, how satisfied are you with your life as a whole these days?" It is likely that the focus on "taken all together" and "all things considered" makes the answers to these two questions sufficiently similar that the distinction between "happy" and "satisfied" appears minor to respondents.

In sum, it is safe to say that both happiness and life satisfaction rise more slowly at higher incomes. In the U.S., there is now little evidence for complete satiation in either variable. Internationally, happiness may satiate if it is measured through experienced emotions, albeit at relatively high income levels. The evidence about life satisfaction is contradictory and needs resolving. Addressing possible ceiling effects in measurement is one promising avenue.¹⁶

As above, these results are purely correlational, so they raise the question of whether such satiation effects are also found in settings that permit causal claims. A recent study of lottery winners from Sweden suggests that this is the case. Erik Lindqvist, Robert Östling, and David Cesarini conducted surveys with a large sample of lottery winners in Sweden, comparing those who won larger prizes to others who won smaller prizes, thereby holding constant whether someone plays the lottery in the first place.¹⁷ They find that those who had won larger prizes had higher levels of life satisfaction compared to those who won smaller prizes; this effect persisted for at least ten years after the win and showed no sign of getting smaller over time. In contrast, the effect on happiness (and measures of mental health) was much smaller. Given that Sweden is a relatively high-income setting in comparison to the worldwide data studied in the correlational studies discussed above, this result is also broadly in line with the findings by Jebb and coauthors that happiness satiates at lower levels of income.

C. Relative income, spillovers, and general equilibrium effects

The fact that, in Jebb and coauthors' work, the satiation points for happiness and life satisfaction are similar in relative terms across countries, but very different in absolute terms, suggests that what may matter for subjective well-being is not *absolute* income, but *relative* or *perceived* income. In

¹⁶ Another important conversation in this literature revolves around the cardinalization of mental states to be distributed normally; for important recent contributions, see Timothy N. Bond and Kevin Lang, "The Sad Truth about Happiness Scales," *Journal of Political Economy* 127, no. 4 (2019): 1629–40; and Caspar Kaiser and Andrew J. Oswald, "Inequality, Well-Being, and the Problem of the Unknown Reporting Function," *Proceedings of the National Academy of Sciences* 119, no. 50 (2022).

¹⁷ Erik Lindqvist, Robert Östling, and David Cesarini, "Long-Run Effects of Lottery Wealth on Psychological Well-Being," *The Review of Economic Studies* 87, no. 6 (2020): 2703–26.

support of this view, the correlational and quasi-experimental evidence on this question suggests that relative income affects well-being. A number of studies approach this question by computing average incomes of people of similar age, sex, and education in the same region, and then including this measure in a regression of happiness or life satisfaction alongside one's own income. It thus becomes a measure of relative income. Several studies find that a lower relative income—that is, a higher income of similar others in the same region—is associated with lower happiness and life satisfaction.¹⁸

Some experimental studies have confirmed this result. For example, David Card and coauthors find that informing workers in California about a website where they can compare their salary with that of coworkers lowers job satisfaction for those below the median.¹⁹ Emily Breza, Supreet Kaur, and Yogita Shamdasani show that pay inequality has a negative impact on work morale, at least as long as relative performance is imperfectly observable.²⁰

However, studies of unconditional cash transfers show little evidence of negative psychological spillovers on others in the family or on others in the community. In their recent systematic review and meta-analysis, McGuire, Kaiser, and Bach-Mortensen collect all studies of cash transfers that assess spillover effects and identify four RCTs, of which two have multiple rounds of follow-up.²¹ The overall effect across these studies is a relatively precisely identified zero impact of cash transfers on others. Three studies do report negative spillovers: one finds lower psychological well-being among girls in villages in Malawi where other girls, but not they, received unconditional cash transfers.²² Another, long-term follow-up of an RCT in Kenya finds negative spillovers of USD 700 PPP cash transfers on others in

¹⁸ Andrew E. Clark and Andrew J. Oswald, "Satisfaction and Comparison Income," *Journal of Public Economics* 61, no. 3 (1996): 359–81; Louis Lévy-Garboua and Claude Montmarquette, "Reported Job Satisfaction: What Does It Mean?" *The Journal of Socio-Economics* 33, no. 2 (2004): 135–51; Peter J. Sloane and Hector Williams, "Job Satisfaction, Comparison Earnings, and Gender," *Labour* 14, no. 3 (2000): 473–502; Peter Cappelli and Peter D. Sherer, "Satisfaction, Market Wages, & Labor Relations: An Airline Study," *Industrial Relations: A Journal of Economy and Society* 27, no. 1 (1988): 56–73; Ada Ferrer-i-Carbonell, "Income and Well-Being: An Empirical Analysis of the Comparison Income Effect," *Journal of Public Economics* 89, nos. 5–6 (2005): 997–1019; David G. Blanchflower and Andrew J. Oswald, "Well-Being over Time in Britain and the USA," *Journal of Public Economics* 88, nos. 7–8 (2004): 1359–86; Carol Graham and Andrew Felton, "Inequality and Happiness: Insights from Latin America," *The Journal of Economic Inequality* 4, no. 1 (2006): 107–22; John Knight, Lina Song, and Ramani Gunatilaka, "Subjective Well-Being and Its Determinants in Rural China," *China Economic Review* 20, no. 4 (2009): 635–49; Erzo F. P. Luttmer, "Neighbors as Negatives: Relative Earnings and Well-Being," *The Quarterly Journal of Economics* 120, no. 3 (2005): 963–1002.

¹⁹ David Card et al., "Inequality at Work: The Effect of Peer Salaries on Job Satisfaction," *American Economic Review* 102, no. 6 (2012): 2981–3003.

²⁰ Emily Breza, Supreet Kaur, and Yogita Shamdasani, "The Morale Effects of Pay Inequality," *The Quarterly Journal of Economics* 133, no. 2 (2018): 611–63.

²¹ McGuire, Kaiser, and Bach-Mortensen, "A Systematic Review and Meta-Analysis of the Impact of Cash Transfers."

²² Sarah Baird, Jacobus de Hoop, and Berk Özler, "Income Shocks and Adolescent Mental Health," *Journal of Human Resources* 48, no. 2 (2013): 370–403.

the village.²³ However, the results in this latter study are somewhat suspect because of differential attrition. The short-term results of the same study, which did not suffer from this problem, shows no evidence of negative spillovers on average, although the effect on life satisfaction was negative.²⁴ Finally, an additional long-term follow-up on a separate RCT of unconditional cash transfers in Kenya also finds some evidence of negative spillovers on psychological well-being of both adults and children.²⁵ On the flipside, another study finds positive spillover effects after USD 1,900 PPP cash transfers in Kenya.²⁶

There are two candidate explanations of these discrepant findings. One is that the differences across studies reflect noise and the true spillover effect is zero. Another is that the psychological spillovers depend on the sign and magnitude of any possible economic spillovers. In line with this latter explanation, the only study that found positive psychological spillovers also found sizable positive economic spillovers: consumption increased by 13 percent in nontreated households living close to the treated households.²⁷ The fact that this study found positive economic spillovers while others did not is likely due to the fact that it studied much larger transfers (USD 1,871) than did other studies to a larger share of the village. The transfers made in the study correspond to a 15 percent increase in local GDP, which is large even compared to stimulus programs during economic crises in other countries.

These economic spillovers may also explain the apparent discrepancy between the correlational and quasi-experimental findings, on the one hand, and the RCT findings, on the other hand. The correlational and quasi-experimental findings suggest that relative income affects subjective well-being negatively, while the evidence from cash transfers includes the possibility that it does not or that it has positive effects on well-being. The reason for this apparent discrepancy may be that the cash transfers do not hold constant the income of nonrecipients. The main goal of the study by Egger and coauthors was to identify general equilibrium effects of cash transfers; these were found to be sizable and positive. The positive psychological well-being spillovers are therefore best understood in the light of these positive economic spillovers. If one were to hold constant the income of the nonrecipients, it is possible that the negative spillovers identified in the correlational and quasi-experimental literature would hold.

²³ Johannes Haushofer and Jeremy Shapiro, "The Long-Term Impact of Unconditional Cash Transfers to the Poor: Experimental Evidence from Kenya" (unpublished manuscript, January 2018), https://johanneshaushofer.com/publications/Haushofer_Shapiro_UCT2_2018.pdf.

²⁴ Johannes Haushofer and Jeremy Shapiro, "The Short-Term Impact of Unconditional Cash Transfers to the Poor: Experimental Evidence from Kenya," *Quarterly Journal of Economics* 131, no. 4 (2016): 1973–2042.

²⁵ Johannes Haushofer et al., "Cash Transfers and Social Preferences of Children" (NBER Working Paper, National Bureau of Economic Research, 2023).

²⁶ Dennis Egger et al., "General Equilibrium Effects of Unconditional Cash Transfers: Experimental Evidence from Kenya," *Econometrica* 90, no. 6 (2022): 2603–43.

²⁷ Egger et al., "General Equilibrium Effects of Unconditional Cash Transfers."

III. EFFECTS OF “SCARCITY” AND STRESS ON ECONOMIC PREFERENCES AND DECISION-MAKING

The second hypothesis in the feedback loop described in Section I is that the psychological consequences of poverty affect economic preferences and decision-making in a way that perpetuates poverty. A prominent construct in this literature is “scarcity,” introduced in an influential eponymous book by Sendhil Mullainathan and Eldar Shafir.²⁸ The authors posit that poverty consumes cognitive resources, including attention, executive control, and working memory, thereby impairing decision-making. Specifically, they suggest that scarcity both reduces overall mental bandwidth and redirects attention toward salient, income-relevant features of a decision problem at the expense of less salient but potentially important other aspects. Two landmark studies accompanied publication of the book. Anuj Shah, Mullainathan, and Shafir showed in a series of lab experiments that participants experiencing scarcity in terms of their experimental “budgets” (of points or time) tended to “over-borrow” from their experimental budgets.²⁹ Anandi Mani and coauthors primed low- and high-income participants in a mall in New Jersey with financial scenarios and reported reduced executive control and fluid intelligence when low-income participants thought about difficult financial problems.³⁰ They also report lower performance on similar tasks among sugarcane farmers in India before the harvest (when resources are scarce) relative to after the harvest.

This initial work led to a large number of follow-up studies in recent years (see Ernst-Jan de Bruijn and Gerrit Antonides for an excellent review).³¹ The approaches used to study scarcity fall broadly into four categories (an overview is presented in Table 1). First, a large number of studies use priming to induce worries about finances by asking participants to consider financial scenarios. The classic example for this approach is the study by Mani and coauthors described above. An advantage of priming is that it is comparatively easy and cheap to administer. At the same time, the replication crisis in psychology has not been kind to priming; as we will describe below, the scarcity literature that uses priming is not as robust as one would hope. In addition, priming focuses on one specific aspect of poverty, namely, the financial worries that it induces, and may thus miss the effects of its other consequences.

Second, harvest strategies make use of the fact that for many subsistence farmers the harvest represents a large positive income shock; they are poor

²⁸ Sendhil Mullainathan and Eldar Shafir, *Scarcity: Why Having Too Little Means So Much* (New York: Henry Holt and Company, 2013).

²⁹ Anuj K. Shah, Sendhil Mullainathan, and Eldar Shafir, “Some Consequences of Having Too Little,” *Science* 338, no. 6107 (2012): 682–85.

³⁰ Anandi Mani et al., “Poverty Impedes Cognitive Function,” *Science* 341, no. 6149 (2013): 976–80.

³¹ Ernst-Jan de Bruijn and Gerrit Antonides, “Poverty and Economic Decision Making: A Review of Scarcity Theory,” *Theory and Decision* 92 (2021): 5–37.

Table 1. Literature Overview of Identification Strategies to Study Scarcity

Study	Scarcity identification strategies				
	Income strategies	Harvest strategies	Payday strategies	Priming strategies	Other strategies
Shah, Mullainathan, and Shafir (2012): Experiments 1-5	✓				
Mani, Mullainathan, Shafir, and Zhao (2013): Study 1				✓	
Mani, Mullainathan, Shafir, and Zhao (2013): Study 2		✓			
Prediger, Vollan, and Herrmann (2014) [§]					✓
Carvalho, Meier, and Wang (2016): Studies 1 and 2			✓		
Dang, Xiao, Zhang, Liu, Jiang, and Mao (2016)				✓	
Zhao and Tamm (2017): Experiments 1-5	✓				
Cassidy (2018)	✓	✓			
Aksoy and Palma (2019)		✓			
Haushofer and Fehr (2019)	✓				
Ong, Thesaira, and Ng (2019) [§]					✓
Shah, Mullainathan, and Shafir (2019): Experiments 1-5	✓				
Agneman, Falco, Selejio, and Joei (2020)		✓		✓	
Bogliacino and Montealegre (2020)	✓				
Boonmanunt and Meier (2020)		✓			
Boonmanunt, Kajackaite, and Meier (2020)		✓			
Datton, Nhung, and Rüschenpöhler (2020)				✓	
Dykstra (2020)			✓		
Lichand and Mani (2020) [¶]		✓	✓	✓	
West, Whillans, and DeVoe (2020): Study 2					✓
West, Whillans, and DeVoe (2020): Study 3	✓				

Table 1. continued

Study	Scarcity identification strategies				
	Income strategies	Harvest strategies	Payday strategies	Priming strategies	Other strategies
Akesaka, Eibich, Hanaoka, and Shigeoka (2021)			✓		
Bartoš (2021)		✓			
Bartoš, Bauer, Chytilová, and Lively (2021)				✓	✓
Kaur, Mullainathan, Oh, and Schilbach (2021)	✓				
Lichand, Bettinger, Cunha, and Madeira (2021) [¶]				✓	
Schmitt and Schlatterer (2021)			✓		
Schofield and Venkataramani (2021)				✓	
Fehr, Fink, and Jack (2022)		✓			

Notes: Overview of the main identification strategies that have been used to investigate the effects of scarcity. “Income strategies” experimentally induce income differences between participants (although we exclude studies of cash transfer programs). “Harvest strategies” compare individuals before and after a harvest. “Payday strategies” compare individuals before and after a payday. “Priming strategies” involve priming participants to think about situations in which they face scarcity. Other strategies used are the following: [|] Offered different drinks to vary the levels of calories consumed. [§] Examined the effects of a debt relief program. ^{\$} Investigated how an exogenous variation in biomass production affected individuals. [¶] Experiment was conducted over the phone.

before the harvest and relatively affluent immediately afterward. A number of studies, beginning with Mani and coauthors,³² compare outcomes before versus after the harvest to identify the effects of relative scarcity before the harvest. An advantage is that these shocks are large and salient. A concern is that the approach sometimes omits a control group, focusing only on the before-and-after comparison, thereby potentially introducing confounding time trends and learning effects. Relatedly, some of the effects of the harvest on behavior could reflect the resolution of uncertainty about the magnitude or the timing of the shock rather than the decrease in poverty.³³

An approach closely related to harvest strategies is payday strategies, which do what the name suggests: compare people’s behavior before versus after they receive their salary. To a greater degree than for harvest strategies,

³² Mani et al., “Poverty Impedes Cognitive Function.”

³³ Guilherme Lichand and Anandi Mani, “Cognitive Droughts” (ECON Working Papers 341, Department of Economics, University of Zurich, 2020).

these shocks are anticipated in both timing and magnitude. This is an advantage in ruling out the effects of uncertainty, but a disadvantage if this uncertainty is part of what is being studied.

Finally, some studies use income shocks in the lab or in the field. For example, in a study by Haushofer and Ernst Fehr, participants complete a real-effort task in the lab before experiencing a large reduction or increase of their experimental earnings.³⁴ An advantage of this approach is that it allows for the experimental study of negative shocks, which is not ethically possible in field experiments. For the same reason, however, these shocks are by necessity small in magnitude and thus may not adequately mimic “real-life” negative shocks. Note that we exclude studies of large unconditional cash transfer programs.

A. Effects of scarcity on cognitive function

Table 2 summarizes recent literature on the impact of scarcity manipulations on cognitive performance and executive function. Out of twenty experiments, nine report a significant decrease in cognitive function and two report a significant increase.

A recent “empirical audit” study affords a closer look at the impact of these manipulations on cognitive function. Michael O’Donnell and coauthors conducted replications of twenty (later corrected to nineteen³⁵) studies that tested the impact of lab scarcity manipulations on a broad range of outcome measures, including cognitive function.³⁶ Only four of the replications yield statistically significant results; none of these studies uses cognitive function as an outcome. The authors of the audit study conclude that “the replications of these studies indicate that within this set, scarcity primes have a minimal influence on cognitive function, product attitudes, or well-being.”³⁷

In a response to this empirical audit study, Shah and coauthors criticize it for including some studies that did not study scarcity in the sense of their original work, and they raise the possibility that some differences may be explained by the fact that the replications were conducted online rather than in person.³⁸ While it is conceivable that the effects reported in the original studies would have been replicated in a differently structured audit study,

³⁴ Johannes Haushofer and Ernst Fehr, “Negative Income Shocks Increase Discount Rates” (unpublished manuscript, June 10, 2019), https://johanneshaushofer.com/publications/Haushofer_Fehr_IncomeShocks_2019.pdf.

³⁵ Michael O’Donnell et al., “Correction for O’Donnell et al., Empirical Audit and Review and an Assessment of Evidentiary Value in Research on the Psychological Consequences of Scarcity,” *Proceedings of the National Academy of Sciences* 119, no. 48 (2022).

³⁶ Michael O’Donnell et al., “Empirical Audit and Review and an Assessment of Evidentiary Value in Research on the Psychological Consequences of Scarcity,” *Proceedings of the National Academy of Sciences* 118, no. 44 (2021).

³⁷ O’Donnell et al., “Empirical Audit and Review and an Assessment of Evidentiary Value.”

³⁸ Anuj Shah et al., “A Scarcity Literature Mischaracterized with an Empirical Audit,” *Proceedings of the National Academy of Sciences* 120, no. 26 (2023).

Table 2. Effects of Scarcity on Cognitive Function

Study	Type of study	Scarcity identification	Cognitive function					Result
			Flanker task	Raven task	Stroop task	Working memory task	Other tasks	
Shah, Mullainathan, and Shafir (2012): Experiment 1	Lab experiment	Income strategy					✓	↓
Mani, Mullainathan, Shafir, and Zhao (2013): Study 1	Lab experiment	Priming strategy		✓			✓	↓
Mani, Mullainathan, Shafir, and Zhao (2013): Study 2	Natural experiment	Harvest strategy		✓	✓			↓
Carvalho, Meier, and Wang (2016): Study 1	Online experiment	Payday strategy	✓			✓	✓	○
Carvalho, Meier, and Wang (2016): Study 2	Online experiment	Payday strategy			✓			○
Dang, Xiao, Zhang, Liu, Jiang, and Mao (2016)	Lab experiment	Priming strategy					✓	↑
Cassidy (2018)	Natural experiment	Harvest & income strategy			✓		✓	↕
Ong, Theseira, and Ng (2019) [§]	Natural experiment	Other strategy	✓					↓
Shah, Mullainathan, and Shafir (2019): Experiment 1	Online experiment	Income strategy					✓	↑
Bogliacino and Montealegre (2020)	Lab experiment	Income strategy		✓			✓	↓
Daiton, Nhung, and Rüschenpöhler (2020)	Lab-in-the-field experiment	Priming strategy		✓				○

Table 2. continued

Study	Type of study	Scarcity identification	Cognitive function					Result
			Flanker task	Raven task	Stroop task	Working memory task	Other tasks	
Lichand and Mani (2020): Study 1 [¶]	Online experiment	Harvest strategy			✓	✓	✓	↓
Lichand and Mani (2020): Study 2 [¶]	Online experiment	Priming strategy			✓	✓	✓	↓
Lichand and Mani (2020): Study 3 [¶]	Online experiment	Payday strategy			✓	✓	✓	○
Akesaka, Eibich, Hanaoka, and Shigeoka (2021)	Natural experiment	Payday strategy					✓	○
Bartoš, Bauer, Chytilová, and Lively (2021)	Lab-in-the-field experiment	Priming strategy		✓				○
Kaur, Mullainathan, Oh, and Schilbach (2021)	Lab-in-the-field experiment	Income strategy					✓	↓
Lichand, Bettinger, Cunha, and Madeira (2021) [¶]	Lab-in-the-field experiment	Priming strategy			✓	✓		↑
Schofield and Venkataramani (2021)	Lab experiment	Priming strategy		✓			✓	↓
Fehr, Fink, and Jack (2022)	Natural experiment	Harvest strategy		✓	✓			○

Notes: Overview of the effects of scarcity on cognitive function. ↑ Significant increase in cognitive function. ↓ Significant decrease in cognitive function. ‡ Mixed effects. ○ No significant results. | Offered different drinks to vary the levels of calories consumed. § Examined the effects of a debt relief program. ¶ Experiment was conducted over the phone.

an alternative possibility is that lab or online manipulations of scarcity do not generate robust impacts on cognitive function. A reason for this may be that the manipulations do not entail (or conjure up) large enough changes in economic circumstances or that people are already so worried about their financial situation that priming has little additional effect. In sum, it appears that the impact of scarcity manipulations in the lab on cognitive function is limited.

Harvest and payday identification strategies study much larger economic changes, so one might expect that they would be in a better position to generate effects, but this is largely not the case. A possible explanation for this is that these changes are usually anticipated. In line with this view, large changes in economic circumstances that are unanticipated have produced significant effects on cognitive performance.³⁹ Guilherme Lichand and Anandi Mani demonstrate this difference directly by showing impairment in cognitive function after unanticipated, but not anticipated, income shocks.⁴⁰

Thus, on the whole, recent studies on the impact of scarcity manipulations on cognitive function have not produced compelling evidence in favor of such an effect. However, it is worth mentioning several fascinating recent extensions to this literature. First, Kaur and coauthors experimentally manipulated the amount of “cash-on-hand” available to manufacturing workers in India.⁴¹ They find that on “cash-rich” days, workers make fewer mistakes, consistent with an improvement in executive function. Importantly, this effect translates into output: financial worries have a robust productivity cost. This result is important because it illustrates the economic cost of scarcity and, more broadly, because it suggests that field studies with economically meaningful manipulations, real-world outcome measures, and large samples may be a promising path to solidifying the evidence base.

Second, Dietmar Fehr, Günter Fink, and B. Kelsey Jack show that scarcity increases the number of trading decisions and reduces exchange asymmetries in a sample of Zambian farmers, suggesting that scarcity leads to more rational decisions in some circumstances.⁴² This finding echoes earlier claims in the scarcity literature and illustrates that scarcity may have both deleterious and beneficial effects.

Finally, researchers have recently begun to study the impacts of poverty on consumption utility. Using a standard priming paradigm that made participants’ financial worries salient, Heather Schofield and Atheendar Venkataramani find that poverty primes reduced participants’ self-

³⁹ Qiyang Ong, Walter Theseira, and Irene Y. H. Ng, “Reducing Debt Improves Psychological Functioning and Changes Decision-Making in the Poor,” *Proceedings of the National Academy of Sciences* 116, no. 15 (2019): 7244–49.

⁴⁰ Lichand and Mani, “Cognitive Droughts.”

⁴¹ Supreet Kaur et al., “Do Financial Concerns Make Workers Less Productive?” (NBER Working Papers 28338, National Bureau of Economic Research, 2021).

⁴² Dietmar Fehr, Günther Fink, and B. Kelsey Jack, “Poor and Rational: Decision-Making under Scarcity,” *Journal of Political Economy* 130, no. 11 (2022): 2862–97.

reported enjoyment of consumption.⁴³ This result is an important extension to the work discussed previously in showing direct impacts of poverty on utility.

B. Effects of scarcity on time preferences

One premise of the scarcity hypothesis is that it focuses attention on the present, so one might expect increases in time-discounting under conditions of scarcity—that is, an increased preference for smaller, sooner relative to larger, later payoffs. Table 3 shows a summary of recent empirical findings regarding the effect of scarcity manipulations on time-discounting. At first glance, the results appear much clearer than do those for cognitive function: scarcity manipulations seem to increase discounting relatively consistently. However, in many of these studies, scarcity was studied in the form of increased or decreased liquidity constraints, either through before-and-after payday comparisons, experimental cash transfers, or debt relief.⁴⁴ With these manipulations, intertemporal arbitrage becomes a plausible alternative explanation to changes in time preferences. When participants are financially constrained, they may be more likely to opt for smaller, sooner payments, whereas when they are flush, they may be willing to wait, without any changes in underlying preferences.⁴⁵ In line with this view, Leandro Carvalho, Stephan Meier, and Stephanie Wang find no evidence of increased present bias before payday when decisions are made over effort rather than money.⁴⁶

⁴³ Heather Schofield and Atheendar S. Venkataramani, “Poverty-Related Bandwidth Constraints Reduce the Value of Consumption,” *Proceedings of the National Academy of Sciences* 118, no. 35 (2021).

⁴⁴ Leandro S. Carvalho, Stephan Meier, and Stephanie W. Wang, “Poverty and Economic Decision-Making: Evidence from Changes in Financial Resources at Payday,” *American Economic Review* 106, no. 2 (2016): 260–84; Holly Dykstra, “Patience Across the Payday Cycle” (unpublished manuscript, November 30, 2020), <https://scholar.harvard.edu/files/holly-dykstra/files/payday.pdf>; Rachel Cassidy, “Are the Poor So Present-Biased?” (IFS Working Papers, W18/24, Institute for Fiscal Studies, 2018); Colin West, Ashley V. Whillans, and Sanford DeVoe, “Income Volatility Increases Financial Impatience” (unpublished manuscript, 2020); Ong, Theseira, and Ng, “Reducing Debt Improves Psychological Functioning.”

⁴⁵ Thomas Epper, “Income Expectations, Limited Liquidity, and Anomalies in Intertemporal Choice” (unpublished manuscript, April 12, 2017), <https://www.thomasepper.com/papers/TaR2Theory.pdf>; Mark Dean and Anja Sautmann, “Credit Constraints and the Measurement of Time Preferences,” *Review of Economics and Statistics* 103, no. 1 (2021): 119–35; Cassidy, “Are the Poor So Present-Biased?” For the opposing view, that is, that participants engage in narrow bracketing, see Yoram Halevy, “Some Comments on the Use of Monetary and Primary Rewards in the Measurement of Time Preferences” (unpublished manuscript, 2014); Yoram Halevy, “Time Consistency: Stationarity and Time Invariance,” *Econometrica* 83, no. 1 (2015): 335–52; and Uttara Balakrishnan, Johannes Haushofer, and Pamela Jakiela, “How Soon Is Now? Evidence of Present Bias from Convex Time Budget Experiments,” *Experimental Economics* 23, no. 2 (2020): 294–321.

⁴⁶ Carvalho, Meier, and Wang, “Poverty and Economic Decision-Making.” For a qualifying view, see Andandi Mani et al., “Scarcity and Cognitive Function around Payday: A Conceptual and Empirical Analysis,” *Journal of the Association for Consumer Research* 5, no. 4 (2020): 365–76.

Table 3. Effects of Scarcity on Time Preferences

Study	Sample size	Country	Type of study	Scarcity identification	Experimental task	Result
Carvalho, Meier, and Wang (2016): Study 1*	1056	USA	Online experiment	Payday strategy	Convex time budgets	↑
Carvalho, Meier, and Wang (2016): Study 1*	1056	USA	Online experiment	Payday strategy	Multiple price list with real effort task	○
Cassidy (2018)*	530	PAK	Natural experiment	Harvest & income strategy	Multiple price list	↑
Haushofer and Fehr (2019)*	148	CHE	Lab experiment	Income strategy	Titration	↑
Ong, Theseira, and Ng (2019) [§] *	196	SGP	Natural experiment	Other strategy	Multiple price list	↑
Dykstra (2020)	1229	USA	Online experiment	Payday strategy	Single decision	↑
West, Whillans, and DeVoe (2020): Study 2	286	USA	Online experiment	Other strategy	Single decision	↑
West, Whillans, and DeVoe (2020): Study 3	524	KEN	Lab-in-the-field experiment	Income strategy	Multiple price list	↑
Bartoš, Bauer, Chytilová, and Levely (2021) [‡] *	289	UGA	Lab-in-the-field experiment	Priming strategy	Convex time budgets with entertainment allocation	↑

Notes: Overview of the effects of scarcity on time preferences. ↑ Significant increase in present-bias or impatience. ↓ Significant decrease in present-bias or impatience. ‡ Mixed effects. ○ No significant results. * Articles studying present-bias. “Convex time budgets” refers to the convex allocation task developed by Andreoni & Sprenger (2012). “Multiple price lists” refers to multiple ordered choices between outcomes of different delay and magnitude. “Single decision” refers to one single decision between a smaller, sooner and larger, later payoff. “Titration” refers to iterated choices between a smaller, sooner and larger, later payoff, where a bisection algorithm gradually approximates an indifference point. | Offered different drinks to vary the levels of calories consumed. § Examined the effects of a debt relief program.

A study by Colin West, Ashley Whillans, and Sanford DeVoe is superficially at odds with the evidence on increased discounting under liquidity constraints, as these authors find increased discounting after positive income shocks.⁴⁷ One possible explanation, advocated by West and coauthors, is that their income shocks, though positive, induced financial uncertainty, whereas uncertainty is reduced after debt relief and is likely no factor in payday studies. Thus, financial uncertainty may have its own effects on discounting, beyond those of liquidity constraints.

Two additional studies suggest that liquidity constraints are not the sole explanation of increased discounting under scarcity. First, Vojtěch Bartoš and coauthors find increased discounting in an effort- versus leisure-allocation task after priming participants with income concerns.⁴⁸ This result is not vulnerable to the arbitrage concern, both because the identification strategy does not rely on changes in material resources and because the main outcome variable measures the intertemporal allocation of time rather than money. Second, Haushofer and Fehr find increased present bias after participants in a laboratory study receive downward income shocks.⁴⁹ This approach controls for overall wealth and is thus similarly immune to the arbitrage concern. However, the results are statistically weak and the mechanisms unclear. Altogether, we conclude that there is clear evidence for increased discounting under conditions of scarcity,⁵⁰ but it remains to be resolved how much of that effect reflects psychological mechanisms as opposed to liquidity constraints.

C. Effects of scarcity on risk preferences

A few studies examine the impact of scarcity manipulations on risky choice (see Table 4). Carvalho, Meier, and Wang as well as Rachel Cassidy find no impact of payday and harvest timing on risk preferences across three studies.⁵¹ Mika Akesaka and coauthors find a significant reduction in risk aversion in low-income respondents in the United States just before payday.⁵² Patricio Dalton, Nguyen Nhung, and Julius Rüschepöhler show that exposure to financial worries lowers risk aversion in a sample of Vietnamese entrepreneurs.⁵³ In contrast, Ong, Theseira, and Ng document

⁴⁷ West, Whillans, and DeVoe, "Income Volatility Increases Financial Impatience."

⁴⁸ Vojtěch Bartoš et al., "Psychological Effects of Poverty on Time Preferences," *The Economic Journal* 131, no. 638 (2021): 2357–82.

⁴⁹ Haushofer and Fehr, "Negative Income Shocks Increase Discount Rates."

⁵⁰ See also Sudhanshu Handa, David Seidenfeld, and Gelson Tembo, "The Impact of a Large-Scale Poverty-Targeted Cash Transfer Program on Intertemporal Choice," *Economic Development and Cultural Change* 69, no. 1 (2020): 485–512.

⁵¹ Carvalho, Meier, and Wang, "Poverty and Economic Decision-Making"; Cassidy, "Are the Poor So Present-Biased?"

⁵² Mika Akesaka et al., "Temporal Instability of Risk Preference among the Poor: Evidence from Payday Cycles," *American Economic Journal* 15, no. 4 (2023): 68–99.

⁵³ Patricio S. Dalton, Nguyen Nhung, and Julius Rüschepöhler, "Worries of the Poor: The Impact of Financial Burden on the Risk Attitudes of Micro-Entrepreneurs," *Journal of Economic Psychology* 79, no. 1 (2020).

Table 4. Effects of Scarcity on Risk Preferences

Study	Sample size	Country	Type of study	Scarcity identification	Experimental task	Result
Carvalho, Meier, and Wang (2016): Study 1	1056	USA	Online experiment	Payday strategy	Choice between lotteries	○
Carvalho, Meier, and Wang (2016): Study 2	2600	USA	Online experiment	Payday strategy	Choice between lotteries	○
Cassidy (2018)	530	PAK	Natural experiment	Harvest & income strategy	Certainty equivalent task	○
Ong, Theseira, and Ng (2019) [§]	196	SGP	Natural experiment	Other strategy	Choice between lotteries	↑
Dalton, Nhung, and Rüschenpöhler (2020)	121	VNM	Lab-in-the-field experiment	Priming strategy	Investment game	↓
Akesaka, Eibich, Hanaoka, and Shigeoka (2021)	1227	USA	Natural experiment	Payday strategy	Choice between lotteries	↓

Notes: Overview of the effects of scarcity on risk preferences. ↑ Significant increase in risk aversion. ↓ Significant decrease in risk aversion. ⚡ Mixed effects. ○ - No significant results. § Examined the effects of a debt relief program.

a reduction in risk aversion after debt relief in Singapore.⁵⁴ Thus, the evidence on the impact of scarcity on risk preferences is ambiguous, with relatively few studies available. Studies using naturally occurring shocks, such as natural disasters or recessions, have generally found that such shocks increase risk aversion.⁵⁵ It remains to be established whether these patterns hold true using the identification strategies typically employed in the scarcity literature.

D. Effects of scarcity on social preferences

The literature on the effects of scarcity on social preferences is still in its infancy (see Table 5). Using a harvest identification strategy, both Bartoš and Suparee Boonmanunt and Stephan Meier find no strong impacts of scarcity on dictator game giving.⁵⁶ However, enforcement of social norms and in-group bias appears to be affected by scarcity. Bartoš shows that social norm enforcement is weaker before the harvest, possibly because such enforcement is not seen as a necessity. Boonmanunt and Meier find that the harvest affects cooperation in a public goods game and third-party punishment in a prisoner's dilemma game; preferential treatment of the in-group is reduced before the harvest, suggesting less in-group bias under conditions of scarcity. Together, these findings suggest that scarcity may weaken social norm enforcement and in-group bias. This interpretation is supported by Billur Aksoy and Marco Palma, who show that in-group favoritism in dictator game giving is reduced before the harvest.⁵⁷

Additional studies have found reduced trust in a trust game before the harvest, exacerbated by food scarcity primes and a greater tendency to destroy other people's payoffs in a "joy of destruction" game under conditions of scarcity.⁵⁸ Thus, while little is known about the impacts of scarcity

⁵⁴ Ong, Theseira, and Ng, "Reducing Debt Improves Psychological Functioning."

⁵⁵ Ulrike Malmendier and Stefan Nagel, "Depression Babies: Do Macroeconomic Experiences Affect Risk Taking?" *The Quarterly Journal of Economics* 126, no. 1 (2011): 373–416; Oliver Gloede, Lukas Menkhoff, and Hermann Waibel, "Shocks, Individual Risk Attitude, and Vulnerability to Poverty among Rural Households in Thailand and Vietnam," *World Development* 71 (2015): 54–78; Hitoshi Shigeoka, "Long-Term Consequences of Growing up in a Recession on Risk Preferences" (NBER Working Paper Series, National Bureau of Economic Research, 2019). For a conflicting result, see Chie Hanaoka, Hitoshi Shigeoka, and Yasutora Watanabe, "Do Risk Preferences Change? Evidence from the Great East Japan Earthquake," *American Economic Journal: Applied Economics* 10, no. 2 (2018): 298–330.

⁵⁶ Vojtěch Bartoš, "Seasonal Scarcity and Sharing Norms," *Journal of Economic Behavior & Organization* 185 (2021): 303–16; Suparee Boonmanunt and Stephan Meier, "The Effect of Financial Constraints on In-Group Bias: Evidence from Rice Farmers in Thailand," *Journal of Economic Behavior & Organization* 207 (2023): 96–109.

⁵⁷ Billur Aksoy and Marco A. Palma, "The Effects of Scarcity on Cheating and In-Group Favoritism," *Journal of Economic Behavior & Organization* 165 (2019): 100–117.

⁵⁸ Gustav Agneman et al., "Does Scarcity Reduce Cooperation? Experimental Evidence from Rural Tanzania" (Development Economics Research Group, Working Paper Series 04-2020, ISSN 2597-1018); Sebastian Prediger, Björn Vollen, and Benedikt Herrmann, "Resource Scarcity and Antisocial Behavior," *Journal of Public Economics* 119 (2014): 1–9.

Table 5. Effects of Scarcity on Social Preferences

Study	Sample size	Country	Type of study	Scarcity identification	Experimental task	Result
Prediger, Vollan, and Hermann (2014) ^{\$}	120	NAM	Natural experiment	Other strategy	Joy of destruction game	↓
Aksoy and Palma (2019)	109	GTM	Natural experiment	Harvest strategy	Dictator game	↑
Agneman, Falco, Selejio, and Joel (2020)	363	TZA	Natural experiment	Harvest and priming strategy	Trust game	↓
Boonmanunt and Meier (2020)	568	THA	Natural experiment	Harvest strategy	Dictator game	○
Boonmanunt and Meier (2020)	568	THA	Natural experiment	Harvest strategy	Prisoner dilemma game	↑
Boonmanunt and Meier (2020)	568	THA	Natural experiment	Harvest strategy	Prisoner dilemma game with third party punishment	⚡
Boonmanunt, Kajackaite, and Meier (2020)	568	THA	Natural experiment	Harvest strategy	Cheating	○
Bartoš (2021)	207	AFG	Natural experiment	Harvest strategy	Dictator game	○
Bartoš (2021)	207	AFG	Natural experiment	Harvest strategy	Dictator game with third party punishment	⚡

Notes: Overview of the effects of scarcity on social preferences. ↑ Significant increase in pro-social behavior. ↓ Significant decrease in pro-social behavior. ⚡ Mixed effects. ○ No significant effects. \$ Investigated how an exogenous variation in biomass production affected individuals.

on social relations, the existing evidence is intriguing and this area is ripe for further study.

IV. EFFECTS OF STRESS ON ECONOMIC CHOICE

Related to but somewhat separate from the literature on scarcity, stress has received increased attention in recent years as a possible mechanism by which poverty may affect economic outcomes. In particular, Haushofer and Fehr suggested that stress may increase time-discounting and risk aversion, thereby potentially contributing to short-sighted and overly cautious investment behavior.⁵⁹ Since then, a number of new studies have revisited this claim and studied additional outcomes.

First, several recent studies confirm earlier evidence on time preferences (discussed by Haushofer and Fehr) showing higher time-discounting in stressful situations.⁶⁰ Lina Koppel and coauthors show that when participants are exposed to a physical stressor (painful forearm stimulation), they are more likely to choose an immediate than a delayed payoff.⁶¹ Similarly, an economic stressor in which participants competed for resources increased discounting in a lab study in Kenya.⁶² Finally, in another study in Kenya, Haushofer and coauthors induced stress in two ways: first, through administration of hydro-cortisone, which pharmacologically elevates levels of the stress hormone cortisol, and second, through a social stressor called the Trier Social Stress Test (TSST), in which participants are exposed to a stressful social situation.⁶³ This study finds that stress increases discounting in the gains domain, but reduces it in the loss domain. However, the results are statistically weak. In addition, several other studies find that stress either does not affect discounting or actually decreases it. For example, one study by Haushofer and coauthors reports no effects of the TSST in Switzerland,⁶⁴ while another finds an increase in patience after exposure to the TSST, but no effects of the cold pressor task (CPT) in which stress is induced by asking participants to immerse their hands in cold water.⁶⁵ In summary, in our view, recent studies suggest that the evidence on the impact of stress on time-discounting is weak and inconclusive.

⁵⁹ Johannes Haushofer and Ernst Fehr, "On the Psychology of Poverty," *Science* 344, no. 6186 (2014): 862–67.

⁶⁰ See, e.g., Michala Iben Riis-Vestergaard et al., "The Effect of Hydrocortisone Administration on Intertemporal Choice," *Psychoneuroendocrinology* 88 (2018): 173–82.

⁶¹ Lina Koppel et al., "The Effect of Acute Pain on Risky and Intertemporal Choice," *Experimental Economics* 20 (2017): 878–93.

⁶² Johannes Haushofer et al., "Stress and Temporal Discounting: Do Domains Matter?" (unpublished manuscript, February 26, 2018), https://johanneshaushofer.com/publications/Haushofer_et_al_StressDomains_2018.pdf.

⁶³ Johannes Haushofer et al., "Stress May Increase Choice of Sooner Outcomes, but Not Temporal Discounting," *Journal of Economic Behavior & Organization* 183 (2021): 377–96.

⁶⁴ Johannes Haushofer et al., "No Effects of Psychosocial Stress on Intertemporal Choice," *PLOS ONE* 8, no. 11 (2013); Haushofer et al., "Stress and Temporal Discounting,"

⁶⁵ Haushofer et al., "Stress and Temporal Discounting."

Similarly, recent work has cast some doubt on the relatively uniform result reported in Haushofer and Fehr that stress increases risk aversion.⁶⁶ For example, Lisa Klueen and coauthors study the effect that the pharmacological administration of hydrocortisone has on risk-taking in a “balloon task,” in which participants blow up a virtual balloon, earning rewards with each pump, but losing everything if the balloon pops.⁶⁷ The study finds that high cortisol levels increase risk-taking among men, but not women. Koppel and coauthors find that painful forearm stimulation increases risk-seeking for gains but not losses, a result that stands in opposition to that of Anthony Porcelli and Mauricio Delgado, who find increased risk aversion in the gains domain and increased risk-seeking in the loss domain after a cold pressor task.⁶⁸ One possible explanation for the discrepancy is that in the study by Koppel and coauthors, participants make decisions during pain, while in Porcelli and Delgado’s study, they make decisions after stress. Risk-seeking behavior may be appropriate to get out of a painful situation, while risk aversion may be appropriate in the aftermath to avoid another. In summary, recent work has added considerable nuance to the straightforward claim that stress increases risk aversion, so the simple version of the claim should be regarded with some caution.

A fascinating new strand of literature has developed around the effects of stress on competitiveness. Competitiveness is typically measured in behavioral economics using the classic Niederle-Vesterlund task, in which participants perform a real-effort task, such as adding numbers, first for piece-rate payment and then using tournament incentives where payment depends on performance relative to a group.⁶⁹ In a third round, participants have a choice between the two incentive schemes; competitiveness is defined as choosing the tournament rather than the piece-rate incentives.

Several studies have examined the likelihood of choosing the tournament incentives after exposure to laboratory stress paradigms. Thomas Buser, Anna Dreber, and Johanna Möllerström used the CPT to induce stress and find an increase in tournament entry in the stress condition in women, but not in men.⁷⁰ Songfa Zhong and coauthors used the TSST to study the same outcome and found no statistically significant effect, although the point estimate goes in the same direction.⁷¹ Jana Cahlíková, Lubomír Cingl, and Ian Lively induced stress using the TSST and find a decrease in

⁶⁶ Haushofer and Fehr, “On the Psychology of Poverty.”

⁶⁷ Lisa Marie Klueen et al., “Cortisol Boosts Risky Decision-Making Behavior in Men but Not in Women,” *Psychoneuroendocrinology* 84 (2017): 181–89.

⁶⁸ Koppel et al., “The Effect of Acute Pain on Risky and Intertemporal Choice”; Anthony J. Porcelli and Mauricio R. Delgado, “Acute Stress Modulates Risk Taking in Financial Decision Making,” *Psychological Science* 20, no. 3 (2009): 278–83.

⁶⁹ Muriel Niederle and Lise Vesterlund, “Do Women Shy Away from Competition? Do Men Compete Too Much?” *The Quarterly Journal of Economics* 122, no. 3 (2007): 1067–101.

⁷⁰ Thomas Buser, Anna Dreber, and Johanna Möllerström, “The Impact of Stress on Tournament Entry,” *Experimental Economics* 20, no. 2 (2017): 506–30.

⁷¹ Songfa Zhong et al., “Competitiveness and Stress,” *International Economic Review* 59, no. 3 (2018): 1263–81.

competitiveness in a mixed-gender sample.⁷² Finally, Kristina Esopo and coauthors used the CPT to induce stress in Kenyan men and find a reduction in competitiveness. They conclude their paper with a meta-analysis that includes data from their own study and find a robust reduction in competitiveness in men, but not in women, across the studies.⁷³ This negative effect of stress on competitiveness is important because entrepreneurship is one of the most salient pathways out of poverty in many low-income, high-stress settings.

More broadly, researchers have recently turned their attention to the impact of stress on social preferences. This literature has yielded somewhat conflicting findings. In an early study, Bernadette von Dawans and coauthors documented increases in pro-social behavior—understood as trust and trustworthiness in the trust game and sharing in the dictator game—after exposing participants to the TSST.⁷⁴ Their interpretation of this finding is that stress brings a “tend-and-befriend” motive to the fore whose function is to reduce stress: When they find themselves in a stressful situation, people may want to build social alliances to get out of it. Zsofia Margittai and coauthors find that exposure to the TSST increases dictator game giving to socially close others, but not distant others, broadly confirming the positive impact of stress on social preferences, but suggesting that the tend-and-befriend motive may extend only to close social contacts.⁷⁵ In contrast, Christiaan Vinkers and coauthors find a decrease in dictator game giving after the TSST and decreased rejection rates in a dictator game, suggesting that subjects act more in their financial self-interest under stress.⁷⁶ Similarly, Haushofer and coauthors find a decrease in dictator game giving and first-mover transfers in a trust game after hydrocortisone administration; these effects are not moderated by whether the other player belongs to the same or a different ethnic group.⁷⁷

Thus, existing studies provide inconclusive evidence about the existence and even the direction of an effect of stress on pro-social behavior. More generally, the effects of stress on economic preferences and decision-making

⁷² Jana Čahlíková, Lubomír Cingl, and Ian Levely, “How Stress Affects Performance and Competitiveness Across Gender,” *Management Science* 66, no. 8 (2020): 3295–310.

⁷³ Kristina Esopo et al., “Acute Stress Decreases Competitiveness Among Men” (unpublished manuscript, July 9, 2019), https://johanneshaushofer.com/publications/Esopo_Haushofer_Kleppin_Skarpeid_StressCompetitiveness_2019-07-09.pdf, discussing Buser, Dreber, and Möllerstrom, “The Impact of Stress on Tournament Entry”; Čahlíková, Cingl, and Levely, “How Stress Affects Performance and Competitiveness Across Gender”; and Zhong et al., “Competitiveness and Stress.”

⁷⁴ Bernadette von Dawans et al., “The Social Dimension of Stress Reactivity: Acute Stress Increases Prosocial Behavior in Humans,” *Psychological Science* 23, no. 6 (2012): 651–60.

⁷⁵ Zsofia Margittai et al., “A Friend in Need: Time-Dependent Effects of Stress on Social Discounting in Men,” *Hormones and Behavior* 73 (2015): 75–82.

⁷⁶ Christiaan H. Vinkers et al., “Time-Dependent Changes in Altruistic Punishment Following Stress,” *Psychoneuroendocrinology* 38, no. 9 (2013): 1467–75.

⁷⁷ Johannes Haushofer et al., “Stress, Ethnicity, and Prosocial Behavior,” *Journal of Political Economy: Microeconomics* 1, no. 2 (2023): 225–69.

are not compelling on the whole; in particular, recent evidence on time, risk, and social preferences is weak and inconsistent. The nascent literature on competitiveness is perhaps slightly less muddled, although here, too, effects of individual studies are small and often insignificant. This is an area that deserves further exploration. The same is true for overconfidence, which has recently been shown to be increased after the TSST in low-anxiety participants.⁷⁸ Additional studies could clarify the robustness of this effect. Another recent study finds no effect of stress on rationality⁷⁹; this fascinating new direction also deserves more attention. In addition, an important caveat is that these studies study acute stress; chronic stress—which is difficult to induce under experimental conditions—may have different effects on economic choice and should be the subject of future study. For now, however, the evidence that poverty perpetuates itself through an influence of stress on economic choice is weak.

V. EFFECTS OF PSYCHOLOGICAL INTERVENTIONS ON ECONOMIC OUTCOMES

A. *Light-touch psychological interventions*

Another approach to better understand the economic impacts of the psychological consequences of poverty has been to study the effect of interventions that target psychological variables on economic decision-making and performance. These interventions come in two broad categories. First, there are light-touch interventions that target highly circumscribed psychological constructs, such as aspirations, future orientation, or self-esteem. Second, there are more intensive interventions, such as psychotherapy or pharmacotherapy, which aim to improve mental health more broadly. We will discuss recent work on each type of intervention in turn, with the preamble that the boundary between the two approaches is fluid.

In the domain of light-touch interventions, a number of recent studies have reported some success in affecting economic behaviors. One of the first studies in this literature was that of Tanguy Bernard and colleagues, who delivered an “aspirations” intervention in rural Ethiopia in 2010–2011.⁸⁰ In theoretical conceptualizations, aspirations are typically thought of as reference points in the utility function relative to which one evaluates outcomes.⁸¹ The intervention consisted of short films that depict individuals

⁷⁸ Lorenz Goette et al., “Stress Pulls Us Apart: Anxiety Leads to Differences in Competitive Confidence under Stress,” *Psychoneuroendocrinology* 54 (2015): 115–23.

⁷⁹ Elena Cettolin et al., “Cortisol Meets GARP: The Effect of Stress on Economic Rationality,” *Experimental Economics* 23, no. 2 (2020): 554–74.

⁸⁰ Tanguy Bernard et al., “The Future in Mind: Aspirations and Forward-Looking Behavior in Rural Ethiopia” (CSAE Working Paper Series 2014-16, Centre for the Study of African Economies, University of Oxford, 2014).

⁸¹ Garance Genicot and Debraj Ray, “Aspirations and Inequality,” *Econometrica* 85, no. 2 (2017): 489–519; Patricio Dalton, Sayantan Ghosal, and Anandi Mani, “Poverty and Aspirations Failure,” *The Economic Journal* 126, no. 590 (2016): 165–88.

from the community who have succeeded in business or other endeavors; the control group watched a placebo video. Immediately after watching the videos, respondents had higher aspirations for both their own economic outcomes and their children's educational attainment. These changes in aspirations translated into changes in economic behavior and outcomes. Six months after the treatment, the authors report increases in labor supply, savings, and educational investment. Impressively, five years later, treated households had higher levels of assets and children had higher levels of educational attainment (by 0.43 years, a very large effect). Thus, a brief, low-cost video screening can have long-lasting effects on economic and human capital outcomes. In a similar study in Mexico targeting female microenterprise owners, Ruben Rojas Valdes and coauthors delivered an intervention that aimed to increase "aspirational hope."⁸² The intervention consisted of a twenty-five-minute video depicting successful microentrepreneurs from the local area of the respondent, goal-setting exercises, and reminders about these treatments. The intervention was successful in increasing hope and led to improvements in an index of business performance one year later, although other important measures, such as sales and profits, showed no significant changes at this time-horizon. A similar intervention in India increased student test scores after six weeks.⁸³ It is possible that the "role model" aspect of the videos in these interventions is important; in line with this hypothesis, Emma Riley finds that showing students in Uganda a movie featuring a female role model leads to increased exam performance, especially among female students.⁸⁴

A more recent study in rural Kenya, led by Kate Orkin, conducted workshops teaching techniques to raise aspirations and plan to achieve them and combined this with unconditional cash transfers.⁸⁵ Participants received either the workshop intervention only, cash transfers only, or both interventions. The study finds positive effects of the workshop intervention on economic outcomes, including labor supply, investment, and revenue, nineteen months after the treatment. Adding the workshop treatment to the cash transfer leads to similar outcomes compared to the cash transfer alone, suggesting that the two interventions may activate similar processes.⁸⁶

⁸² Ruben Rojas Valdes et al., "Can Hope Elevate Microfinance? Evidence from Oaxaca, Mexico," *Oxford Economic Papers* 74, no. 1 (2022): 236–64.

⁸³ Prateek Chandra Bhan, "Do Role Models Increase Student Hope and Effort? Evidence from India" (unpublished manuscript, 2020).

⁸⁴ Emma Riley, "Role Models in Movies: The Impact of Queen of Katwe on Students' Educational Attainment," *The Review of Economics and Statistics* (2022): 1–48.

⁸⁵ Kate Orkin et al., "Aspirations, Assets, and Anti-Poverty Policies" (unpublished manuscript, 2021).

⁸⁶ The effects of brief motivational videos can extend to more traditional economic outcomes. In a study with Indonesian retailers, Patricio S. Dalton and coauthors show that a short documentary video about the paths of successful peers can increase profits and sales when coupled with a second intervention that provides individual counseling. In contrast to the papers discussed above, which hold information content constant, the informational elements of the intervention are potentially important in generating these results. Patricio S. Dalton et al.,

Other recent work has targeted self-image or identity. Identity has traditionally been modeled as a utility function that provides identity-specific payoffs; identity-conforming behavior has positive payoffs, while behavior that violates one's identity generates anxiety.⁸⁷ Sayantan Ghosal and coauthors delivered a psychological program to sex workers in India that aimed to alter their self-image from being morally depraved and dishonest into one that emphasized their similarity to others, their dignity, and their honesty.⁸⁸ The treated workers had higher savings balances and were more likely to attend health checkups fifteen and twenty-one months after the intervention. A nice feature of the study is the use of administrative data to establish these effects, which does not suffer from the experimenter demand effects one might worry about after an intervention of this nature.

Thus, interventions that target aspirations and self-image have shown some promise. Another recent study has instead targeted beliefs. Self-efficacy refers to beliefs about whether one is able to achieve desired outcomes. Madeline McKelway administered a behavioral intervention to boost generalized self-efficacy to women in India.⁸⁹ The intervention had a sizable effect on employment; treated women were 32 percent more likely to work outside of their household farm. However, this effect was short-lived and dissipated one year after the intervention. The light-touch nature of the intervention may be responsible for the short-lived effect.

Another recent study tests two further possible mechanisms through which cognitive and behavioral consequences of poverty might affect economic and other welfare outcomes. One putative consequence of poverty, possibly mediated by stress, is a high rate of time-discounting.⁹⁰ Another, possibly driven by the demands of poverty on one's bandwidth, is insufficient planning for the future.⁹¹ Anett John and Orkin developed light-touch interventions that aimed to help women in Kenya better visualize the future and improve their planning for future outcomes.⁹² The interventions were delivered in two sessions and consisted of guided visualization and planning exercises. While the planning intervention had little effect, the visualization intervention increased chlorination of drinking water and savings over a time-horizon of up to three years, suggesting that a light-touch

"Curating Local Knowledge: Experimental Evidence from Small Retailers in Indonesia," *Journal of the European Economic Association* 19, no. 5 (2021): 2622–57.

⁸⁷ George A. Akerlof and Rachel E. Kranton, "Economics and Identity," *The Quarterly Journal of Economics* 115, no. 3 (2000): 715–53.

⁸⁸ Sayantan Ghosal et al., "Sex Workers, Stigma, and Self-Image: Evidence from Kolkata Brothels," *The Review of Economics and Statistics* 104, no. 3 (2022): 431–48.

⁸⁹ Madeline McKelway, "Women's Employment in India: Intra-Household and Intra-Personal Constraints" (unpublished manuscript, 2023).

⁹⁰ Haushofer and Fehr, "On the Psychology of Poverty"; Riis-Vestergaard et al., "The Effect of Hydrocortisone Administration on Intertemporal Choice."

⁹¹ Shah, Mullainathan, and Shafir, "Some Consequences of Having Too Little."

⁹² Anett John and Kate Orkin, "Can Simple Psychological Interventions Increase Preventive Health Investment?" *Journal of the European Economic Association* 20, no. 3 (2022): 1001–47.

program to improve future visualization is effective in improving important welfare outcomes.

In summary, over the past few years, a fledgling literature has begun to describe the effects of light-touch psychological interventions on a variety of economic outcomes, including human capital investment, savings, health behavior, and labor supply. Impressively, some of the reported effects persist for several years after the intervention. Targeted psychological interventions are thus a promising avenue for improving economic outcomes. It is important to note, however, that the literature also contains some null findings.⁹³ In addition, the effects are often not large and dissipate quickly, although this is perhaps not surprising given the bare-bones and low-cost nature of the interventions. More intensive interventions, such as psychotherapy, may have the potential to generate larger and more lasting effects; we now turn to such programs.

B. Mental health and psychotherapy interventions

The evidence concerning the effect of poverty on psychological well-being discussed in Section I above raises the question of whether interventions that directly target well-being can improve both well-being and economic outcomes. Recently, researchers have turned their attention to the economic impacts of psychotherapy and related interventions. For instance, in one of the first such studies in the economics literature, Victoria Baranov and coauthors found that a simple psychotherapy intervention delivered to perinatally depressed mothers in Pakistan led to large increases in investment in their children.⁹⁴ Impressively, both these increases and the positive effects of the treatment on the mental health of the mothers persist for up to seven years after treatment.

While the study of the economic effects of psychotherapy in the economics literature is relatively new, trials testing mental health interventions often measure economic variables as secondary outcomes. Capitalizing on this fact, Crick Lund and coauthors conducted a systematic review and meta-analysis in which they screened all existing RCTs that study the effects of psychotherapy or pharmacotherapy, and identified those that measured economic variables.⁹⁵ Specifically, after screening 15,031 papers, they identified thirty-nine RCTs that met the inclusion criteria, covering

⁹³ Victoria Baranov, Johannes Haushofer, and Channing Jang, "Can Positive Psychology Improve Psychological Well-Being and Economic Decision-Making? Experimental Evidence from Kenya," *Economic Development and Cultural Change* 68, no. 4 (2020): 1345–76.

⁹⁴ Victoria Baranov et al., "Maternal Depression, Women's Empowerment, and Parental Investment: Evidence from a Randomized Controlled Trial," *American Economic Review* 110, no. 3 (2020): 824–59; Nathan Barker et al., "Cognitive Behavioral Therapy among Ghana's Rural Poor Is Effective Regardless of Baseline Mental Distress," *American Economic Review: Insights* 4, no. 4 (2022): 527–45; Manuela Angelucci and Daniel Bennett, "The Economic Impact of Depression Treatment in India," *American Economic Review* (forthcoming).

⁹⁵ Crick Lund et al., "Economic Impacts of Mental Health Interventions in Low and Middle-Income Countries: A Systematic Review and Meta-Analysis" (unpublished manuscript, 2021).

over 24,000 participants. The main economic outcome is an index of labor market variables, such as employment status, time spent working, capacity to work, and engagement in job search. The average effect of treatment on this outcome is a 0.16 SD improvement. Treating more severe mental disorders, like schizophrenia, may have even larger effects; the authors estimate an average effect of 0.30 SD.

Given the effectiveness of both economic interventions in improving mental health and of mental health interventions in improving economic outcomes, a salient policy question is: Which of these interventions is most effective in improving both groups of outcomes? Relatedly, does the combination of both interventions have larger effects than either intervention alone; are they possibly more than additive?

To answer these questions, a small number of recent studies directly compared the impact of unconditional cash transfers and psychotherapy interventions.⁹⁶ Christopher Blattman, Julian Jamison, and Margaret Sheridan study the impact of an eight-week psychotherapy program on the psychological, social, and economic outcomes of criminally engaged young men in Monrovia, Liberia.⁹⁷ They find short-term impacts on economic outcomes for cash transfers and the combined intervention and, to a lesser extent, for therapy. Twenty-five weeks after treatment, the cash transfer increases consumption by 54 percent, the combined intervention by 47 percent, and therapy alone by 24 percent. Thus, therapy has the potential to improve economic outcomes over very short time-horizons. However, this increase in consumption was the only statistically significant effect among several economic outcomes and did not survive multiple-inference correction. In addition, one year after the therapy intervention, the treatment effects on all outcomes are close to zero: for consumption, the one-year impacts of the cash transfer alone and the therapy alone are nonsignificant decreases of 6 percent and 4 percent, respectively. The combined intervention decreases consumption by 11 percent—again, not statistically significant. Other economic outcomes similarly show no effect. Together, these results suggest that the cash transfer may have been more effective in improving economic outcomes than the psychotherapy intervention in the short run.

However, this does not necessarily make the cash transfer more effective per dollar spent. The relative cost-effectiveness of psychological and economic interventions has been a theme of several recent studies. In Niger, Thomas Bossuroy and coauthors study the relative effects on both

⁹⁶ A recent overview of the effects of psychotherapy on depression in low- and middle-income countries can be found in Joel McGuire et al., "Talking through Depression: The Cost-Effectiveness of Psychotherapy in LMICs, Revised and Expanded" (Working Paper, Happier Lives Institute, 2023).

⁹⁷ Christopher Blattman, Julian C. Jamison, and Margaret Sheridan, "Reducing Crime and Violence: Experimental Evidence from Cognitive Behavioral Therapy in Liberia," *American Economic Review* 107, no. 4 (2017): 1165–1206.

psychological and economic outcomes of adding a cash transfer, a psychosocial intervention, or both to an existing poverty “graduation” program (consisting of a savings promotion, coaching, and entrepreneurship training).⁹⁸ They find impacts of all treatments on both psychological as well as important economic outcomes, including consumption and revenue. Importantly, because the cash transfer is about twice as expensive as the psychosocial intervention, but the treatment effects are roughly comparable in magnitude, the psychosocial intervention is much more cost-effective. Similarly, the workshop intervention in Kenya studied by Orkin and colleagues was more cost-effective than a cash transfer by at least a factor of two. One caveat to these successes is that it is unclear whether psychological interventions can be delivered at “high doses”; it is possible that the impacts of psychological interventions are more concave in intervention intensity than those of cash transfers.

A further recent dimension of innovation has been whether interventions are targeted toward specific populations or general population samples. For instance, the cognitive behavioral therapy (CBT) intervention studied by Blattman and coauthors was not primarily deployed to improve economic outcomes, but rather, to reduce crime and violence. Indeed, it was more successful than the cash transfer in achieving this goal in the short run (index of antisocial behaviors, CBT impact after twenty-five weeks 0.25 SD, cash impact 0.08 SD). This result raises the question of whether psychological interventions work best when they are targeted to specific problems of specific populations or whether they can have broad impacts in general population samples.

Nathan Barker and coauthors find positive impacts of a psychotherapy program delivered to a general population sample in Ghana on both psychological and economic outcomes, irrespective of the baseline severity of distress.⁹⁹ This result raises the interesting possibility that mental health interventions might be useful even for non-distressed participants, which could reduce both stigma and the costs of targeting.

A contrasting result comes from a study by Haushofer, Robert Mudida, and Shapiro, which delivered a World Health Organization-developed psychotherapy program called “Problem Management Plus” (PM+) to a sample of poor farmers in central Kenya.¹⁰⁰ Others received an unconditional cash transfer of USD 1,076 PPP, and a third group received both interventions. A final group served as the control. Fourteen months after the interventions, the cash transfer had large positive effects on economic outcomes: a 20 percent consumption increase, a 47 percent wealth increase,

⁹⁸ Thomas Bossuroy et al., “Tackling Psychosocial and Capital Constraints to Alleviate Poverty,” *Nature* 605 (2022): 291–97.

⁹⁹ Barker et al., “Cognitive Behavioral Therapy among Ghana’s Rural Poor.”

¹⁰⁰ Johannes Haushofer, Robert Mudida, and Jeremy Shapiro, “The Comparative Impact of Cash Transfers and Psychotherapy on Psychological and Economic Well-Being” (NBER Working Paper No. 28106, 2020).

and a 26 percent increase in income. It also improved a psychological well-being index by 0.23 SD. In contrast, the psychotherapy intervention had no significant impact on these variables, although the point estimates on economic outcomes were positive (5 percent consumption and wealth increases and 9 percent income increase). The impact of PM+ on the well-being index was 0.01 SD (not significant). Thus, the cash transfer was more effective in improving both economic and psychological outcomes in this setting. This was true both when focusing on the sample as a whole and when restricting attention to the subgroup of participants who had poor mental health at baseline. Importantly, the cash transfer was also less than half as costly as the therapy intervention, making it a significantly more cost-effective intervention. Thus, this study suggests that this particular psychotherapy program is less effective than cash transfers, even for well-being outcomes, and for participants with both poor and good mental health at baseline. A recent study in which older people living alone in India received either CBT, a cash transfer, or both, also found reductions in depression for the cash transfer, but not the CBT intervention or the combination.¹⁰¹

How can we reconcile these conflicting findings on the effectiveness of psychotherapy programs targeted at general population samples? One promising avenue is to ask through which mechanisms a given program operates (or not). For instance, in Niger, Bossuroy and coauthors find that both cash transfers and the psychosocial intervention improved women's empowerment, but the likely mechanism in the case of cash transfers was control over earnings, whereas for the psychosocial intervention it was likely improved social relationships. Understanding these mechanisms may make it possible to anticipate whether an intervention will be effective in a given place or population.

The tools of behavioral economics may be particularly useful for addressing this question, as they permit cost-effective isolation of specific motives and mechanisms. In an attempt to bring these tools to bear on the mechanisms through which psychotherapy operates, Bhargav Bhat and coauthors conducted behavioral economics tasks with participants of two RCTs of psychotherapy in India several years after treatment.¹⁰² They found that psychotherapy reduced overconfidence when participants performed a work task during which they learned about their own performance through feedback. This finding is at odds with "depressive realism," that is, the view that depression leads to more realistic assessments of oneself. Such clarifications of the behavioral and motivational underpinnings of depression have the potential to improve our understanding of both its economic causes and consequences.

¹⁰¹ Madeline McKelway et al., "Effects of Cognitive Behavioral Therapy and Cash Transfers on Older Persons Living Alone in India: A Randomized Trial," *Annals of Internal Medicine* 176, no. 5 (2023): 632–41.

¹⁰² Bhargav Bhat et al., "The Long-Run Effects of Psychotherapy on Depression, Beliefs, and Economic Outcomes" (NBER Working Paper, National Bureau of Economic Research, 2022).

A tantalizing recent development has been the study of the economic impacts of antidepressant treatment. In a large randomized experiment in India, Manuela Angelucci and Daniel Bennett find no strong economic effects after eight months of psychiatric care, including pharmacotherapy, was delivered to a sample of (mostly female) individuals suffering from depression.¹⁰³ However, combination of the pharmacotherapy with a livelihood program had qualitatively larger effects on earnings than either intervention alone and there is some evidence of positive effects on investment in children's human capital. An important frontier for future work is to understand when and which pharmacological interventions affect core economic outcomes such as consumption,¹⁰⁴ whether pharmacotherapy can be cost-effective relative to psychotherapy or cash transfers, how long the respective effects persist, and whether and when psychological and economic interventions have additive or multiplicative effects.

VI. IS THERE A PSYCHOLOGICAL POVERTY TRAP?

How much importance we accord the psychological causes and consequences of poverty in policy decisions depends on how strongly they reinforce poverty. It is tempting to describe the potentially bidirectional relationship between poverty and psychological well-being as a "poverty trap." However, this term has a precise definition in economics: a poverty trap exists only if large positive income shocks are required to put the individual on a permanent trajectory out of poverty. A simple feedback loop in which poverty has negative effects on psychological well-being, which in turns exacerbates poverty, does not necessarily constitute a trap. It is therefore important to ask: Are the effects of income changes on subjective well-being described above strong enough to plausibly create a psychological poverty trap?

We can approach this question by first noting that the technical requirement for a poverty trap is that the function mapping income today into income tomorrow must cross the forty-five-degree line from below. With two variables that mutually affect each other, such as income and psychological well-being, this condition can alternatively be expressed as follows: the product of the elasticities of income and psychological well-being with respect to each other must be greater than one over some range of income.

Below, we briefly derive this condition (and the expression in terms of elasticities and derivation are due to Esther Duflo). Denote the relationship between income today and psychological well-being by $\psi = g(y_t)$, and that between psychological well-being and income tomorrow as $y_{t+1} = f(\psi)$. For

¹⁰³ Angelucci and Bennett, "The Economic Impact of Depression Treatment in India."

¹⁰⁴ For instance, Barbara Biasi and coauthors report a 26 percent earnings increase among Danes who suffered from bipolar disorder and gained access to lithium; see Barbara Biasi, Michael S. Dahl, and Petra Moser, "Career Effects of Mental Health" (unpublished manuscript, 2023).

the relationship between income today and tomorrow to cross the forty-five-degree line from below at a point y^* , the slope of the function $y_t + 1 = f(g(y_t))$ must be greater than one at that point:

$$\frac{\partial y_{t+1}}{\partial y_t} > 1$$

Differentiation yields the following expression:

$$\begin{aligned} \frac{\partial y_{t+1}}{\partial y_t} &= \frac{\partial y_{t+1}}{\partial \psi_t} \frac{\partial \psi_t}{\partial y_t} \\ &= \frac{\partial y^*}{\partial \psi_t} \frac{\partial \psi_t}{\partial y^*} \end{aligned}$$

The last equality uses the fact that

$$y_t = y_{t+1} \text{ at } y_t^*$$

Notice that this expression is the product of two elasticities: first, the elasticity of income with respect to psychological well-being, which is:

$$\frac{\partial y^*}{\partial \psi_t} \frac{\psi_t}{y^*}$$

Second, the elasticity of psychological well-being with respect to income, which is:

$$\frac{\partial \psi_t}{\partial y^*} \frac{y^*}{\psi_t}$$

Thus, for a psychological poverty trap to exist, the product of these elasticities has to be greater than unity over some range. For example, if a 0.4 standard deviation (SD) increase in income increases psychological well-being by 0.2 SD, the elasticity of psychological well-being with respect to income is $0.2 / 0.4 = 0.5$. Suppose further that a 0.2 SD increase in psychological well-being in turn increases income by 0.5 SD, so the elasticity of income with respect to psychological well-being is $0.5 / 0.2 = 2.5$. The product of the two elasticities is therefore $0.5 \times 2.5 = 1.25$. Under these circumstances, there is a psychological poverty trap: a one-unit increase in income today leads to an increase in income tomorrow that is greater than one unit, and the converse is true for a one-unit decrease in income.

This clarification of what is required for a psychological poverty trap to exist allows us to ask: Is the causal effect of income changes on subjective well-being strong enough to make a trap plausible? Note, of course, that this question does not address the second elasticity, that is, that of income with respect to subjective well-being; it is thus underdetermined. However, it can nevertheless be informative; for example, if the elasticity of psychological

well-being with respect to income is extremely small, then the elasticity of income with respect to psychological well-being would have to be very large to create a trap. Conversely, if the elasticity is relatively large, for example, if it is above one, a trap becomes more likely because then the other elasticity (that of income with respect to well-being) can “afford” to be smaller than one and a trap still exists.

To obtain an estimate of this elasticity, Haushofer re-analyzes the dataset from Haushofer and Shapiro in the following way.¹⁰⁵ Various measures of subjective well-being are regressed on total expenditure, the classic proxy for income used in the development literature. To make the units uniform, all variables are z-scored. Importantly, to circumvent the endogeneity of this relationship, expenditure is instrumented with random assignment to the cash transfer. This approach allows an estimation of the effect of a one-unit change in income on psychological well-being, that is, the elasticity of well-being with respect to income. The estimated elasticities are relatively large, with several estimates around unity, especially for the larger of the two transfer amounts. The estimate for depression is 0.59.

What about the second elasticity, that of income with respect to psychological well-being? The meta-analysis by Lund and coauthors suggests that the effect of psychological and pharmacological interventions on economic outcomes is relatively large relative to their impacts on mental health; for example, a 1 SD reduction in depression generates a 0.77 SD reduction in the days when people are unable to work. This is not the same as income, and so firm conclusions cannot be drawn. However, while there are large effects of income changes on depression and of depression reductions on economic variables, the product of the two elasticities is likely not large enough to generate a poverty trap in the strict sense. Of course, this does not negate the fact that there is a bidirectional causal relationship between the two.

VII. CONCLUSION

The purpose of this essay was to provide an overview of recent developments in the literature on the psychology of poverty. There has been significant progress in recent years, in particular, in establishing causality in the effect of income on psychological well-being; elucidating the precise functional form of psychological well-being with respect to income (satiation); and improving our understanding of the importance of relative income. Most saliently, the causal effect of income on psychological well-being is now robustly established. Research on the effects of scarcity and stress on economic decision-making has also made great strides in the past few years. However, the picture that emerges from these literatures is not as clear;

¹⁰⁵ Johannes Haushofer, “Is There a Psychological Poverty Trap?” (unpublished manuscript, July 2, 2019), https://johanneshaushofer.com/publications/Haushofer_PsychologicalTrap_2019.pdf.

individual studies are often statistically weak, provide conflicting evidence, and replication efforts have not always been successful. While the last word has perhaps not been spoken, in our view, the case for a poverty trap that operates through the effects of poverty on stress, decision-making, and cognition is currently not strong. Finally, the effect of psychological interventions on economic well-being has recently received significant attention, and this literature has produced some encouraging successes. In particular, it seems that more involved psychotherapy programs have the potential to improve economic outcomes, especially labor market participation. At the same time, some individual studies that compare the effectiveness of psychotherapy against that of cash transfers suggest a more cautionary interpretation of the promise of psychotherapy, especially relative to the robust and frequently replicated effects of cash on both psychological and economic outcomes. A promising avenue for future work is to further improve the performance of psychotherapy interventions for both psychological and economic outcomes.

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