The Economics of Poverty Traps
A National Bureau
of Economic Research
Conference Report
The Economics of Poverty Traps

Edited by Christopher B. Barrett, Michael R. Carter, and Jean-Paul Chavas

The University of Chicago Press

Chicago and London
National Bureau of Economic Research

Officers
Karen N. Horn, chair
John Lipsky, vice chair
James M. Poterba, president and chief executive officer
Robert Mednick, treasurer
Kelly Horak, controller and assistant corporate secretary
Alterra Milone, corporate secretary
Denis Healy, assistant corporate secretary

Directors at Large
Peter C. Aldrich
Elizabeth E. Bailey
John H. Biggs
John S. Clarkeson
Kathleen B. Cooper
Charles H. Dallara
George C. Eads
Jessica P. Einhorn
Mohamed El-Erian
Jacob A. Frenkel
Robert S. Hamada
Peter Blair Henry
Karen N. Horn
Lisa Jordan
John Lipsky
Laurence H. Meyer
Karen Mills
Michael H. Moskow
Alicia H. Munnell
Robert T. Parry
James M. Poterba
John S. Reed
Marina v. N. Whitman
Martin B. Zimmerman

Directors by University Appointment
Timothy Bresnahan, Stanford
Pierre-André Chiappori, Columbia
Alan V. Deardorff, Michigan
Ray C. Fair, Yale
Edward Foster, Minnesota
John P. Gould, Chicago
Mark Grinblatt, California, Los Angeles
Bruce Hansen, Wisconsin–Madison
Benjamin Hermalin, California, Berkeley
George Mailath, Pennsylvania
Marjorie B. McElroy, Duke
Joel Mokyr, Northwestern
Cecilia Rouse, Princeton
Richard L. Schmalensee, Massachusetts Institute of Technology
Ingo Walter, New York
David B. Yoffie, Harvard

Directors by Appointment of Other Organizations
Jean-Paul Chavas, Agricultural and Applied Economics Association
Martin J. Gruber, American Finance Association
Philip Hoffman, Economic History Association
Arthur Kennickell, American Statistical Association
Jack Kleinhenz, National Association for Business Economics
Robert Mednick, American Institute of Certified Public Accountants
Peter L. Rousseau, American Economic Association
Gregor W. Smith, Canadian Economics Association
William Spriggs, American Federation of Labor and Congress of Industrial Organizations
Bart van Ark, The Conference Board

Directors Emeriti
George Akerlof
Jagdish Bhagwati
Don R. Conlan
Franklin Fisher
George Hatsopoulos
Saul H. Hymans
Rudolph A. Oswald
Andrew Postlewaite
John J. Siegfried
Craig Swan
1. The object of the NBER is to ascertain and present to the economics profession, and to the public more generally, important economic facts and their interpretation in a scientific manner without policy recommendations. The Board of Directors is charged with the responsibility of ensuring that the work of the NBER is carried on in strict conformity with this object.

2. The President shall establish an internal review process to ensure that book manuscripts proposed for publication DO NOT contain policy recommendations. This shall apply both to the proceedings of conferences and to manuscripts by a single author or by one or more coauthors but shall not apply to authors of comments at NBER conferences who are not NBER affiliates.

3. No book manuscript reporting research shall be published by the NBER until the President has sent to each member of the Board a notice that a manuscript is recommended for publication and that in the President’s opinion it is suitable for publication in accordance with the above principles of the NBER. Such notification will include a table of contents and an abstract or summary of the manuscript’s content, a list of contributors if applicable, and a response form for use by Directors who desire a copy of the manuscript for review. Each manuscript shall contain a summary drawing attention to the nature and treatment of the problem studied and the main conclusions reached.

4. No volume shall be published until forty-five days have elapsed from the above notification of intention to publish it. During this period a copy shall be sent to any Director requesting it, and if any Director objects to publication on the grounds that the manuscript contains policy recommendations, the objection will be presented to the author(s) or editor(s). In case of dispute, all members of the Board shall be notified, and the President shall appoint an ad hoc committee of the Board to decide the matter; thirty days additional shall be granted for this purpose.

5. The President shall present annually to the Board a report describing the internal manuscript review process, any objections made by Directors before publication or by anyone after publication, any disputes about such matters, and how they were handled.

6. Publications of the NBER issued for informational purposes concerning the work of the Bureau, or issued to inform the public of the activities at the Bureau, including but not limited to the NBER Digest and Reporter, shall be consistent with the object stated in paragraph 1. They shall contain a specific disclaimer noting that they have not passed through the review procedures required in this resolution. The Executive Committee of the Board is charged with the review of all such publications from time to time.

7. NBER working papers and manuscripts distributed on the Bureau’s web site are not deemed to be publications for the purpose of this resolution, but they shall be consistent with the object stated in paragraph 1. Working papers shall contain a specific disclaimer noting that they have not passed through the review procedures required in this resolution. The NBER’s web site shall contain a similar disclaimer. The President shall establish an internal review process to ensure that the working papers and the web site do not contain policy recommendations, and shall report annually to the Board on this process and any concerns raised in connection with it.

8. Unless otherwise determined by the Board or exempted by the terms of paragraphs 6 and 7, a copy of this resolution shall be printed in each NBER publication as described in paragraph 2 above.
# Contents

Acknowledgments ix

**Introduction**
Christopher B. Barrett, Michael R. Carter, and Jean-Paul Chavas 1

I. Nutrition, Health, and Human Capital Formation

   Elizabeth Frankenberg and Duncan Thomas 23

2. Poverty and Cognitive Function
   Emma Boswell Dean, Frank Schilbach, and Heather Schofield
   *Comment on chapters 1 and 2: John Hoddinott* 57 119

II. Psychology of Poverty, Hope, and Aspirations

3. Depression through the Lens of Economics: A Research Agenda
   Jonathan de Quidt and Johannes Haushofer 127

4. Hope as Aspirations, Agency, and Pathways: Poverty Dynamics and Microfinance in Oaxaca, Mexico
   Travis J. Lybbert and Bruce Wydick
   *Comment on chapters 3 and 4: Rachid Laajaj* 153 179
III. Imperfect and Incomplete Financial Markets

5. Taking Stock of the Evidence on Microfinancial Interventions  
   Francisco J. Buera, Joseph P. Kaboski, and Yongseok Shin  
   Page 189

6. Poverty Traps and the Social Protection Paradox  
   Munenobu Ikegami, Michael R. Carter, Christopher B. Barrett, and Sarah Janzen  
   Comment on chapters 5 and 6:  
   Stephen C. Smith  
   Page 257

IV. Dynamics and Resilience in Natural Resources and Agriculture

7. Heterogeneous Wealth Dynamics: On the Roles of Risk and Ability  
   Paulo Santos and Christopher B. Barrett  
   Page 265

8. Agroecosystem Productivity and the Dynamic Response to Shocks  
   Jean-Paul Chavas  
   Comment on chapters 7 and 8:  
   Edward B. Barbier  
   Page 315

V. Policy in the Presence of Poverty Trap Mechanisms

9. Sustaining Impacts When Transfers End: Women Leaders, Aspirations, and Investments in Children  
   Karen Macours and Renos Vakis  
   Page 325

10. Can Cash Transfers Help Households Escape an Intergenerational Poverty Trap?  
    M. Caridad Araujo, Mariano Bosch, and Norbert Schady  
    Comment on chapters 9 and 10:  
    Maitreesh Ghatak  
    Page 383

Contributors  
Page 395
Author Index  
Page 399
Subject Index  
Page 409
This volume grew out of a conference held June 28–29, 2016, in Washington, DC, hosted by the National Bureau of Economic Research (NBER). We thank the NBER, and in particular Jim Poterba for his strong support for this conference and project, Carl Beck and Lita Kimble for their outstanding work organizing the conference, and Helena Fitz-Patrick for her expert guidance during the publication process. Sophie Javers at the University of California, Davis created and produced video interviews with conference participants that are available on the BASIS website. Liz Bageant at Cornell University handled much of the background organization of the conference and volume on behalf of the editors.

This book, and the conference that preceded it, were made possible by the generous support of the American people through the United States Agency for International Development (USAID) under grant AID-OAA-L-12-00001 to the BASIS Assets and Market Access Feed the Future Innovation Lab. The Agricultural and Applied Economics Association provided valuable travel support that enabled younger professionals to participate in the conference. The editorial board of the Economics That Really Matters blog and contributing authors Mohamad Alloush, Liz Bageant, Julia Berazneva, Jennifer Denno Cissé, Kibrom Tafere Hirfrfot, Nathan Jensen, Jeong Hyun Lee, Linden McBride, Emilia Tjernström, and Joanna Upton summarized the papers and discussions at the conference on social media.

Conference participants provided excellent feedback on the papers, including an excellent talk by Oriana Bandiera, whose paper was unfortunately already committed to be published elsewhere. Makhtar Diop gave an inspiring lunchtime address, and Kaushik Basu and Greg Collins offered excellent summary comments on policymaker perspectives on the papers.
and discussions. We thank them and all of the contributors—who also served as single-blind peer reviewers on one another’s papers—for making this volume possible. The contents of this volume do not necessarily reflect the views of USAID or the United States government. Any remaining errors are our sole responsibility.
Depression through the Lens of Economics
A Research Agenda
Jonathan de Quidt and Johannes Haushofer

3.1 Introduction

Major depressive disorder (MDD; henceforth simply “depression”) is one of the leading causes of disease burden worldwide, second only to lower back pain in terms of years lost to disability (Vos et al. 2012). The cross-sectional prevalence is an estimated 4 to 5 percent of the global population at a given time (Vos et al. 2012; Steel et al. 2014), and lifetime prevalence averages 13 percent across a sample of eighteen countries (Bromet et al. 2011; see Kessler and Bromet 2013 for a review). The economic costs of depression from lost productivity have been estimated at around €76 billion in Europe (Sobocki et al. 2006) and $31 billion in the United States (Stewart et al. 2003).

Depression is intimately linked to poverty for two reasons: first, prevalence among low-income populations is higher than among high-income populations (Bromet et al. 2011; Lund et al. 2010; Lund et al. 2011). Second, low-income individuals have significantly less access to treatment than high-income populations: the World Health Organization (WHO) reports that low-income countries on average have 2.1 psychiatric beds (a proxy for the capacity of the mental health system as a whole) per 100,000 individuals, while high-income countries have 90.9.
Given this high prevalence, especially among the poor, the significant economic cost, and economists’ interest in other psychiatric conditions such as substance abuse (Becker and Murphy 1988), it is perhaps surprising that depression has not received greater attention in the economics literature. In this chapter we seek to make three contributions. First, we describe the canonical symptoms of depression in the language of economics and discuss what these symptoms imply for economic outcomes. Second, we present descriptive evidence illustrating the relationships between depression and important economic variables. Third, we discuss two main approaches to how economic theory might model depression. Together, our hope is to signpost ways that economics, and in particular economic theory, can take toward understanding depression.

Our first exercise is to describe depression in the language of economics. In doing so, we follow the classification of the symptoms of depression provided by Aaron Beck, one of the foremost theorists on depression in psychiatry, as well as the diagnostic criteria laid out in the standard diagnostic manual, the DSM-5. Beck grouped the symptoms of depression broadly into four categories, which he termed cognitive, motivational, emotional, and somatic, respectively (Beck 1967). We argue that many symptoms can be thought of as capturing distorted beliefs about the returns to effort, informed by shocks that the decision maker experiences, or distortions in preferences, for example, by shocks that affect marginal utility. Specifically, many depressed patients exhibit pessimistic beliefs about the future, themselves, and the world (this classic group of symptoms is known as Beck’s “cognitive triad”), suggesting a change in beliefs. In addition, they are frequently unable to derive pleasure from otherwise enjoyable activities, suggesting a change in preferences. These features of depression are reflected in economic outcomes: depressed individuals reduce labor supply, consumption, and investment, increase temptation good spending, and have altered eating and sleeping patterns.

Our second contribution is to illustrate the economic characteristics of depression using cross-sectional data from the Indonesia Family Life Survey (IFLS-5), which surveyed 50,148 individuals in 16,204 households. We show that depressed individuals indeed have lower labor supply and consumption than nondepressed individuals, their educational investment is lower, they spend more money on temptation goods, and they have altered sleeping patterns. This correlational analysis fulfills two purposes. First, the economic correlates of depression provide a first plausibility check on our description of depression in terms of economic primitives described above. Second, the analysis, together with existing literature, provides a list of stylized facts to be accounted for by theory.

Our final contribution is to propose a research agenda for modeling depression using standard economic analysis. Specifically, we discuss two possible modeling approaches. The first is to model depression with dis-
Depression through the Lens of Economics

3.2 Describing Depression in the Language of Economics

In this section, we make an attempt to describe the symptoms of depression in the language of economics. The goal of this exercise is to see to what extent we can distill the complex symptomatology of depression down to economic primitives, in particular, beliefs and preferences. We mainly use the comprehensive list of symptoms provided by Beck (1967), and in the entire following section we paraphrase heavily from his exposition. Beck’s list of symptoms was originally compiled by generating a list of candidate symptoms from textbooks and monographs, conducting a pilot test comparing the presence of the individual symptoms in fifty depressed patients and thirty nondepressed patients, constructing an inventory consisting of items relevant to depression and pretesting it on 100 patients, and, finally, presenting the revised inventory to 966 psychiatric patients, of whom 224 had no depression and 297, 360, and 85 patients had mild, moderate, and severe depression, respectively.1

1. Beck leaves open the question of how these patients were diagnosed as depressed and how severity was assessed; the standard tool is the clinical interview that tests for the presence of depression symptoms, so it is likely that there is a degree of circularity in the list of symptoms.
The other obvious candidate list of depression symptoms are the diagnostic criteria presented in standard diagnostic manuals, such as the DSM-5 in the United States. However, these symptoms are a subset of those described by Beck; we therefore focus on his more comprehensive list, and mention in our discussion which of these symptoms are also used as diagnostic criteria. In addition, the DSM-5 diagnostic criteria are listed in the appendix.

3.2.1 “Cognitive” Symptoms

The cognitive symptoms of depression describe a set of negative beliefs and attitudes toward oneself and the environment, distorted “notions of causality” in which patients blame themselves for problems, and indecisiveness. Specifically, Beck describes five such symptoms: First, depressed individuals have low self-evaluation or self-esteem; that is, they feel that they are inadequate and not performing well, including in their financial lives, for example, feeling that they are impoverished. Second, they have negative expectations about the future, “a pattern of expecting the worst and rejecting the possibility of any improvement.” Third, patients engage in self-blame and self-criticism because their “egocentric notions of causality” cause them to “ascribe adverse occurrences to some deficiency in themselves.” Fourth, patients exhibit indecisiveness, that is, are unable to make even simple decisions. The reason for this inability is that “[d]epressed patients anticipate making the wrong decision: whenever they consider one of various possibilities they tend to regard it as wrong and think they will regret making that choice.” Finally, patients suffer from distortion of body image, thinking that they are unattractive. For instance, a man might “worr[y] incessantly about the beginnings of hair loss, convinced that women find him unattractive.”

These cognitive symptoms are closely congruous with the idea that depressed patients have pessimistic beliefs about their returns to effort. Specifically, a patient with negative expectations about the future and egocentric notions of causality would believe precisely that her actions led to undesirable outcomes. This, in turn, would generate self-blame and self-criticism and result in low self-evaluation. Such beliefs could lead to indecisiveness because patients are worried about their actions leading to bad outcomes. Finally, the distortion of body image, for example, the belief that one is unattractive, could be conceived of as a pessimistic belief about the returns to investment in one’s own physical appearance.

3.2.2 “Motivational” Symptoms

The motivational symptoms of depression are mainly characterized by withdrawal from activities, escapist tendencies and avoidance of responsi-

---

2. Evidence on the predictors of depression onset suggests that shocks in domains where individuals believe outcomes are under their control are particularly predictive of depression (Kendler, Karkowski, and Prescott 1999).
bility, the assumption of a childlike rather than an adult’s role, and a focus on “immediate but transient gratification instead of delayed but prolonged gratifications.” Specifically, Beck describes four symptoms in this category: First, patients have paralysis of the will, that is, they “have a major problem in mobilizing themselves to perform even the most elemental and vital tasks.” Beck identifies as the reason for this paralysis that “although they can define for themselves what they should do, they do not experience any internal stimulus to do it.” Second, patients show avoidance, escapist, and withdrawal wishes: they want to shirk from their duties and want to withdraw into other activities. Third, patients exhibit increased dependency on others, in the sense that they want others to perform tasks for them. Finally, depressed patients often have suicidal wishes.

Most of these motivational symptoms can be understood as direct consequences of the core cognitive symptom described above, that is, pessimistic beliefs about oneself. In particular, when an individual believes that their actions lead to negative outcomes, she may naturally want others to perform tasks for them instead. Relatedly, if she believes that her own efforts will not amount to anything, she may choose not to undertake them in the first place, which presents itself as paralysis of the will to the observer. Similar reasoning could be implicated in avoidance, escapist, and withdrawal wishes, that is, individuals with negative beliefs about the consequences of their actions may avoid having to perform these actions in the first place and instead withdraw from life. Finally, suicidal wishes may be an extreme manifestation of the escapist tendencies described above; for instance, they could occur when people believe that efforts generate negative returns.

3.2.3 “Emotional” Symptoms

The emotional symptoms of depression mainly consist of dysphoria, that is, low mood and an inability to feel pleasure, and related symptoms. Specifically, depressed patients experience dejected mood, that is, they feel “sad,” “hopeless,” or “miserable.” They also exhibit a reduction in gratification, in the sense that they are unable to derive pleasure from activities they usually enjoy. This inability extends to both professional and personal contexts, and includes basic activities such as eating and sex. Third, patients experience negative feelings toward themselves, blaming themselves for mistakes and believing that they “can’t do anything right.” Fourth, the inability to derive pleasure from previously enjoyable activities is accompanied by a loss of emotional attachment, that is, a “decline in interest in particular activities or in affection or concern for other persons,” including one’s job, family, and friends. Fourth, depressed patients show a loss of the mirth response, that is, their sense of humor: they still understand the point of jokes, but do not find them funny. Finally, they frequently experience crying spells.

Dejected mood and crying spells may be thought of as consequences of the reduction in income and overall experienced utility that results from the
behaviors above. Similarly, negative feelings toward oneself are a natural consequence of this effect to the extent one assumes blame (which depressed individuals often do; recall the “egocentric notions of causality” described above).

In contrast, loss of emotional attachment, reduction in gratification, and loss of mirth response are, in our view, best understood as consequences of a low marginal utility of consumption of experiences, relationships, and humor. This subgroup of emotional symptoms is the leading set of symptoms that is difficult to conceptualize as resulting from pessimistic beliefs. Put differently, these symptoms appear to be about preferences rather than beliefs.

3.2.4 Delusions, Hallucinations, and Somatic Symptoms

Depressed people frequently suffer from delusions. Beck describes five main categories: delusions of worthlessness; delusions of having committed crimes; nihilistic delusions, for example, thinking that the world is “empty”; somatic delusions, for example, believing that one’s body is decaying; and delusions of poverty, that is, believing that one is impoverished. Depressed patients also frequently report hallucinations, for example, of voices that condemn them. Delusions and hallucinations are more difficult to fit into a framework of beliefs and preferences, but several of them are plausibly extreme consequences of pessimistic beliefs. Most prominently, the belief that one is or will be impoverished may be a natural consequence of such beliefs.

Not covered in Beck’s description of the symptoms of depression, but contained in the DSM-5 diagnostic criteria, are two important somatic symptoms. Specifically, depressed individuals often display either hypersomnia or insomnia, that is, excessive sleeping or an inability to sleep. Second, they frequently suffer from either a lack of appetite or overeating. Such nonmonotonicities provide interesting restrictions on the form economic theories can take. Theories in which people face conflicting internal and external motives (for example, they need to sleep eight hours to be productive, but their “natural tendency” is to sleep more or less) may be able to fit these facts. In these cases, distortions to beliefs or preferences might alter the trade-offs between motives: a negative shock to beliefs about the returns to labor provision, for instance, would shift the optimum level of food and sleep from the “productive” optimum to the “consumption” optimum. As a consequence, the observed levels of eating and sleeping may either rise or fall, depending on whether the consumption optima lie below or above the production optima.

3.3 Stylized Facts

In this section, we briefly present a number of empirical stylized facts about depression that our model attempts to predict. Owing to the dearth of
good causal evidence on the consequences of depression, we mainly do this by presenting correlations between depression and other variables. We rely on the 2014–2015 wave of the Indonesia Family Life Survey (IFLS-5), which surveyed 50,148 individuals in 16,204 households. Depression is measured using the Center for Epidemiologic Studies Depression Scale (CESD), a widely used and validated self-report instrument for measuring depression. We emphasize that the usual disclaimers about correlational evidence apply, and that future work should tease out the direction and strength of causality in the relationships we describe below.

We begin by noting that, in our data, economic shocks are associated with depression. We present in table 3.1 the relationship between CESD scores and indicator variables for whether the household had a business that closed in the past eighteen months, experienced natural disaster or civic strife, or experienced any economic disruption. We find moderately sized and highly significant associations between depression scores and all three variables, with the largest point estimate, a 0.19 standard deviations difference in depression scores, for households with a business that recently shut down. Thus, depression is associated with economic shocks. In addition, quasi-experimental evidence suggests that economic shocks in the form of floods, droughts, or job loss lead to increases in mental disorders, including depression (Amstadter et al. 2009; Goenjian et al. 2001; Mendolia 2009; see Rataj, Kunzweiler, and Garthus-Niegel 2016 for a review). Conversely, randomized controlled trials and natural experiments have shown that poverty alleviation interventions such as unconditional cash transfers lead to reductions in depression (Haushofer and Shapiro 2016). Recent work by Alloush (2017) uses panel GMM estimation to show that the relationship between income and depression is bidirectional, which is consistent with the mechanisms we describe in this chapter. More broadly, programs like health insurance, pensions, microfinance, and access to water lead to improvements in mental health.

Table 3.1 CESD correlations: economic variables

<table>
<thead>
<tr>
<th></th>
<th>CESD total raw score (1)</th>
<th>CESD total z-score (2)</th>
<th>N (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH business shut down in last 18 months</td>
<td>0.8077*** (0.2367)</td>
<td>0.1902*** (0.0557)</td>
<td>13,095</td>
</tr>
<tr>
<td>Experienced natural disaster or civil strife</td>
<td>0.3967*** (0.0695)</td>
<td>0.0934*** (0.0164)</td>
<td>31,401</td>
</tr>
<tr>
<td>Experienced economic disruption</td>
<td>0.5800*** (0.0703)</td>
<td>0.1366*** (0.0166)</td>
<td>31,401</td>
</tr>
</tbody>
</table>

Notes: Each row is a separate regression of depression on the variable listed on the left. Each regression includes controls for sex and age. Standard errors are clustered at the household level and are reported in parentheses below the coefficient estimate. ***Significant at the 1 percent level.

We next ask how depression relates to economic choice variables such as labor supply and expenditure decisions. Panels A–D of figure 3.1 illustrate relevant relationships in the Indonesia data using local linear regressions. Pessimistic beliefs about returns would suggest that labor supply should correlate negatively with depression, by weakening the incentives to supply labor. Indeed, we find a strong negative overall relationship between depression and the number of hours the individual works in a typical week. The relationship is not completely monotonic at low levels of labor supply: below about twenty-two working hours per week, it has a shallow positive association with depression scores. However, over most of the distribution, the relationship is strongly negative.

Next we consider investment and temptation goods, whose consumption might be affected by belief or preference change. In the Indonesia data, we find negative relationships between depression and total expenditure and spending on education; conversely, we find a positive relationship with spending on tobacco. This finding is supported by correlations between depression and changes in tobacco consumption within individuals (Taylor et al. 2014). The causal relationship between depression and tobacco use has been the subject of intense debate in the medical literature, with authors arguing both that smoking precedes and precipitates depression (Munafò et al. 2008; Boden, Fergusson, and Horwood 2010), and that depression increases smoking (Windle and Windle 2001); however, we are not aware of rigorously causally identified studies of the effect of changes in depression status on smoking.

Finally, we highlighted a nonmonotonic relationship between depression and food intake, and between depression and sleep. The diagnostic criteria suggest that depressed individuals suffer from either increased or decreased appetite, and increased or decreased sleep. In our data, we proxy increased or decreased food intake with body mass index (BMI; measured in kg/m²), and sleep with the number of hours the individual slept in the preceding night. Panels E–F of figure 3.1 show that indeed we find nonmonotonic relationships between these variables and depression scores: high depression scores are associated with both very short and very long sleep duration, and with both high and low BMI. The upward-sloping relationship between BMI and depression at the upper end of the BMI distribution is not very pronounced, possibly because in this sample, the BMI distribution does not have much support at high levels of BMI.

3. Spending on another important temptation good, alcohol, is not shown because Indonesia is a Muslim country and therefore the vast majority of our sample does not consume any alcohol.
Fig. 3.1 Relationship between depression and other variables

Notes: Local linear regressions of depression (CESD) scores on other variables. The raw CESD score ranges from 0 (not depressed) to 60 (severely depressed), with a cutoff of 16 for depression. Labor supply is measured in hours of labor supplied by the respondent in their main income-generating activity in a typical week; we exclude individuals who supplied zero or more than 100 hours of labor. Total expenditure and spending on tobacco and education is measured in USD PPP. Sleep duration is measured through self-report in hours for the preceding night. BMI is imputed from self-reports of height and weight. In each regression we first use the Frisch-Waugh theorem to create residuals from a regression of the variables of interest on gender, age, their square terms, and the interactions; we then create a new variable by adding the unconditional mean. Local linear regressions use a tricube weighting function and have a bandwidth of 0.8.
On the whole, we find good correlational support for the associations between depression and economic variables. We stress again that these relationships are not causal, and can therefore only be suggestive. In particular, it is likely that in several cases causality runs from the other variables to depression; for example, being unable to work, being overweight or underweight, or having a sleep disorder can plausibly lead to depression. Future work could investigate the causal effect from depression to these variables.

3.4 Avenues for Economic Theory

The goal of this section is to suggest directions for new theoretical work on depression. The symptoms outlined above suggest a core set of mechanisms that we believe are amenable to economic modeling.

We see three main benefits of using economic theory to study depression. First and foremost, depression and mental health more broadly raise first-order welfare concerns, and translating the core of the symptomatology and evidence for driving mechanisms into economic theory can give economists a richer language and terminology with which to discuss these issues. Second, formal models of depression would allow it to be incorporated into other applied analyses, for instance into macroeconomic modeling or policy analysis. Third, theoretical analysis may deliver new insights for understanding mechanisms underlying depression, predicting new behaviors caused by depression and even guiding potential new approaches to treatment.

In the following, we discuss two main approaches for capturing the symptoms of depression in economic models: belief-based and preference-based models. As mentioned above and further discussed below, a number of features of depression lend themselves to a description in terms of distorted beliefs, while others (in particular, emotional symptoms) are more readily captured by changes in preferences. We do not view these mechanisms as mutually exclusive.

3.4.1 Beliefs

In the following, we outline a simple model of belief-driven depression (de Quidt and Haushofer 2017). The core mechanism at the heart of the model is that external shocks can lead people to hold negative beliefs about themselves. This mechanism is analogous to the first pillar of Beck’s cognitive triad, and turns out to predict several of the stylized facts described above. Consider a decision maker who maximizes utility from consumption and makes productive decisions to generate income by supplying labor. In each period, the decision maker chooses labor effort, then observes her income realization. Based on this, she forms a (Bayesian) belief about her income realization. In the model, we take as a
benchmark the optimal choices that would be made if the agent had correct beliefs, and study what happens when her beliefs become distorted following shocks.

This very simple model can fit a number of the key facts. It generates pessimistic beliefs following negative shocks, which lead to withdrawal of labor effort. In addition, inputs into production that are complementary to beliefs, such as food and sleep, are not optimally chosen: because these variables are both consumption and inputs into production, decreases in one’s beliefs about the returns to effort will lead to changes in food intake and sleep away from the production-optimal allocations toward the consumption-optimal allocations, which will decrease output. Income and consumption are also therefore lower among the depressed, and food and sleep patterns are altered. Investment, for example, in education, would be reduced for similar reasons, and spending on temptation goods, which can be thought of as negative investment, would increase. Thus, a simple model of pessimistic beliefs about the returns to effort has the potential to capture many of the stylized facts.

Role of Non-Bayesian Updating

A natural starting point for any modeling effort is that agents learn about their returns to effort via Bayesian updating, and in a sense become depressed “rationally.” Modeling belief formation as Bayesian has many attractive theoretical properties—it is familiar to economists, captures the key intuition needed (essentially, that beliefs become more negative following a shock), and is tractable and parsimonious.

But Bayesian belief formation also raises questions. Is it reasonable to think of depression as “rational”? We suspect many would find this at least highly controversial. Moreover, is it calibrationally realistic? Individuals have a whole lifetime to learn about their returns to effort, so for a single unemployment shock to be sufficient to convince them their returns are much lower than they previously thought may not be quantitatively consistent with Bayesian updating.4

Promising directions for future work could involve use of models of non-Bayesian updating. A number of papers study models of “motivated cognition” in which decision makers distort or selectively remember information to arrive at biased beliefs.5 A key empirical finding is overconfidence, potentially arrived at by asymmetric updating after positive and negative information (see, e.g., Eil and Rao 2011; Möbius et al. 2011). But there is some evidence of “depressive realism,” that depressed people hold more accurate

4. A related calibration point: in discussion at the AEA meetings, Justin Wolfers pointed out that while depressed people in the United States have somewhat lower incomes than non-depressed people, the drop in life satisfaction associated with depression is considerably larger than would be expected from income alone.

5. See, for example, the review in Bénabou and Tirole (2016).
beliefs about the world, thus appearing relatively pessimistic (Alloy and Abramson 1979). As for calibration issues, one possibility is that depressed people tend to focus “too much” on recent negative news, overweighting it relative to the past. Underweighting of prior information is referred to as the “base-rate fallacy” (Bar-Hillel 1980).

In sum, a potential force driving the onset of depression is changes to the belief-updating process, to become more selectively negative, or to focus too much on recent shocks and events.

**Poverty Traps**

The flip side of becoming overly pessimistic in response to recent bad news is a tendency for spells of depression to persist and recur. In the model sketched above, this could lead to a “depression poverty trap,” in which pessimistic beliefs cause people to withdraw effort and stop learning about returns. This can lead to multiple equilibria, where a poverty trap equilibrium is one in which effort is inefficiently low but the depressed person does not learn. An important mechanism in models in which learning depends on choice is the extent to which the decision maker is sophisticated about future learning. For example, a depressed person who is aware that her beliefs might be overly pessimistic might continue to take exploratory actions so as to ascertain whether that is the case. The extent to which depressed people are sophisticated in this manner is, to our knowledge, unknown.

### 3.4.2 Preferences

**Shocks to Marginal Utility**

The experience of dysphoria as discussed under “emotional” symptoms most naturally lends itself to a preference-driven explanation. Something about the preferences of depressed people changes to reduce the satisfaction from once-pleasurable activities. One possible source of this effect is that pessimistic expectations of the future diminish the pleasure of consumption today, perhaps even as a form of protection against future disappointment. Such behavior might be well captured in a reference-dependent model, relating to, for example, Kőszegi and Rabin (2006, 2009). Hermelin and Isen (2007) also present a model in which preferences are influenced by mood, which depends on past outcomes.

A simple way to capture dysphoria is to distort marginal utilities. For example, depression could be characterized as a decrease in the marginal

---

utility of nonfood consumption. Such a lower marginal utility of nonfood consumption reduces the incentive to earn income, and also distorts the trade-off between consumption and production motives in food and sleep. It literally captures the notion that consumption delivers “less utility” than before. While such a mechanism is less congruent with symptoms related to a negative view of the self, it aligns well with pessimistic beliefs about the future if the individual expects that future consumption will also be less satisfying and pleasurable.

**Beliefs about Marginal Utility**

A further potential avenue for research is a model that links preferences to beliefs. In particular, suppose that utility is subject to a shock. The decision maker is uncertain about the marginal utility of consumption, and learns about it over time by observing consumption and experienced utility. A negative utility shock (for example, a stressful life event) that enters may be (incorrectly) partially attributed to the marginal utility of consumption, leading the agent to become more pessimistic about her future ability to generate utility and resulting in the behavior changes described above. For example, anticipating lower marginal utility in the future might reduce earning incentives and decrease the incentive to choose “production optimal” food and sleep consumption.

**Substitutes in the Utility Function**

The medical literature largely mentions self-medication as the motivation for temptation good consumption in depression (Khantzian 1985). Partly this may be because of psychoactive properties of nicotine, alcohol, and other drugs, which might directly interact with the belief or preference distortions induced by depression. It could also be that depression changes trade-offs in the utility function, and that such goods become more attractive substitutes when the returns to other forms of consumption diminish.

### 3.5 Conclusion

The goal of this chapter was to make first steps in understanding depression through the lens of economic analysis. In particular, we have described the core symptoms of depression in terms of economic primitives, and present correlational data illustrating the relationship between depression and important economic variables. Finally, we have discussed two possible modeling approaches for depression: belief-based and preference-based theories. In this conclusion, we briefly discuss the relative merits of both.

---

7. We thank Yves Le Yaouanq for this suggestion.
The virtue of belief-based theories is that they have the potential to capture a large number of the core symptoms of depression described at the outset of the chapter. In addition, belief-based theories of depression resonate with prominent psychological and psychiatric theories of depression, and the therapeutic approaches to which they gave rise. An early account of depression in the tradition of the behaviorist B. F. Skinner was provided by the psychologist Charles Ferster, who argued that depression resulted from an overexposure to negative reinforcement and underexposure to positive reinforcement in the environment (Ferster 1973). This view led to the development of behavioral activation therapy, which focuses on exposing the patient to positive reinforcement. While today’s treatment approaches are different, Ferster’s account of the etiology of depression is closely aligned with analysis that emphasizes the importance of exposure to negative shocks.

When the cognitive revolution in psychology shifted the focus from simple stimulus-response contingencies in the tradition of Skinner to the cognitive processes that mediate an individual’s responses, the classic work of the psychiatrist Aaron Beck suggested that a core reason for depression is distorted thinking (Beck 1967). Correcting such distorted thoughts is still a central element in the standard therapeutic tool to treat depression, cognitive behavioral therapy (CBT). Inaccurate beliefs about the returns to effort are an example of such distorted beliefs, and the focus of CBT on correcting such beliefs may explain its effectiveness. An equally important component of CBT—correcting distorted behaviors—might also be effective by exposing individuals to more opportunities to learn that their beliefs are overly pessimistic.

However, while beliefs may be a suitable target for therapeutic efforts, a description of the symptomatology and etiology of depression purely in terms of beliefs falls short of capturing reality. The emotional symptoms of depression are especially difficult to characterize as resulting from pessimistic beliefs. Instead, they call for a preference-based account of depression, such as the one outlined above. Nevertheless, while preference distortions caused by depression seem well aligned with some of the facts, they provide a less satisfying and potentially less helpful account than belief-based models. In particular, it is unclear how preference shocks could come about, and how practitioners might be able to treat “distorted marginal utility.” In contrast, the causal chain from shock to belief to behavior is very clear, and offers good targets for treatment. Future work may be able to provide richer psychological and economic foundations to preference change induced by and inducing depression, and to gather new evidence to separate preference and belief-based explanations of depression. Together, our hope is that this approach will enable economists to advance our understanding of depression in particular, and mental health in general.
Appendix

Major Depressive Disorder: DSM-5 Diagnostic Criteria

A. Five (or more) of the following symptoms have been present during the same two-week period and represent a change from previous functioning: at least one of the symptoms is either (a) depressed mood or (b) loss of interest or pleasure.

Note: Do not include symptoms that are clearly attributable to another medical condition.

(a) Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad, empty, hopeless) or observation made by others (e.g., appears tearful). (Note: In children and adolescents, can be irritable mood.)

(b) Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation).

(c) Significant weight loss when not dieting or weight gain (e.g., a change of more than 5 percent of body weight in a month), or decrease or increase in appetite nearly every day. (Note: In children, consider failure to make expected weight gain.)

(d) Insomnia or hypersomnia nearly every day.

(e) Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).

(f) Fatigue or loss of energy nearly every day.

(g) Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).

(h) Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).

(i) Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

C. The episode is not attributable to the physiological effects of a substance or to another medical condition.

Note: Criteria A–C represent a major depressive episode.

Note: Responses to a significant loss (e.g., bereavement, financial ruin, losses from a natural disaster, a serious medical illness or disability) may include the feelings of intense sadness, rumination about the loss, insomnia, poor appetite, and weight loss noted in Criterion A, which may resemble a depressive episode. Although such symptoms may be understandable
or considered appropriate to the loss, the presence of a major depressive episode in addition to the normal response to a significant loss should also be carefully considered. This decision inevitably requires the exercise of clinical judgment based on the individual’s history and the cultural norms for the expression of distress in the context of loss.8

D. The occurrence of the major depressive episode is not better explained by schizoaffective disorder, schizophrenia, schizophreniform disorder, delusional disorder, or other specified and unspecified schizophrenia spectrum and other psychotic disorders.

E. There has never been a manic episode or a hypomanic episode.

Note: This exclusion does not apply if all of the manic-like or hypomanic-like episodes are substance-induced or are attributable to the physiological effects of another medical condition.

Diagnostic Features

The criterion symptoms for major depressive disorder must be present nearly every day to be considered present, with the exception of weight change and suicidal ideation. Depressed mood must be present for most of the day, in addition to being present nearly every day. Often insomnia or fatigue is the presenting complaint, and failure to probe for accompanying depressive symptoms will result in underdiagnosis. Sadness may be denied at first, but may be elicited through interview or inferred from facial expression and demeanor. With individuals who focus on a somatic complaint, clinicians should determine whether the distress from that complaint is associated with specific depressive symptoms. Fatigue and sleep disturbance are present in a high proportion of cases; psychomotor disturbances are much less common but are indicative of greater overall severity, as is the presence of delusional or near-delusional guilt.

The essential feature of a major depressive episode is a period of at least two weeks during which there is either depressed mood or the loss of interest

---

8. In distinguishing grief from a major depressive episode (MDE), it is useful to consider that in grief the predominant affect is feelings of emptiness and loss, while in MDE it is persistent depressed mood and the inability to anticipate happiness or pleasure. The dysphoria in grief is likely to decrease in intensity over days to weeks and occurs in waves, the so-called pangs of grief. These waves tend to be associated with thoughts or reminders of the deceased. The depressed mood of MDE is more persistent and not tied to specific thoughts or preoccupations. The pain of grief may be accompanied by positive emotions and humor that are uncharacteristic of the pervasive unhappiness and misery characteristic of MDE. The thought content associated with grief generally features a preoccupation with thoughts and memories of the deceased, rather than the self-critical or pessimistic ruminations seen in MDE. In grief, self-esteem is generally preserved, whereas in MDE feelings of worthlessness and self-loathing are common. If self-derogatory ideation is present in grief, it typically involves perceived failings vis-à-vis the deceased (e.g., not visiting frequently enough, not telling the deceased how much he or she was loved). If a bereaved individual thinks about death and dying, such thoughts are generally focused on the deceased and possibly about “joining” the deceased, whereas in MDE such thoughts are focused on ending one’s own life because of feeling worthless, undeserving of life, or unable to cope with the pain of depression.
or pleasure in nearly all activities (Criterion A). In children and adolescents, the mood may be irritable rather than sad. The individual must also experience at least four additional symptoms drawn from a list that includes changes in appetite or weight, sleep, and psychomotor activity; decreased energy; feelings of worthlessness or guilt; difficulty thinking, concentrating, or making decisions; or recurrent thoughts of death or suicidal ideation or suicide plans or attempts. To count toward a major depressive episode, a symptom must either be newly present or must have clearly worsened compared with the person’s preepisode status. The symptoms must persist for most of the day, nearly every day, for at least two consecutive weeks. The episode must be accompanied by clinically significant distress or impairment in social, occupational, or other important areas of functioning. For some individuals with milder episodes, functioning may appear to be normal but requires markedly increased effort.

The mood in a major depressive episode is often described by the person as depressed, sad, hopeless, discouraged, or “down in the dumps” (Criterion A1). In some cases, sadness may be denied at first but may subsequently be elicited by interview (e.g., by pointing out that the individual looks as if he or she is about to cry). In some individuals who complain of feeling “blah,” having no feelings, or feeling anxious, the presence of a depressed mood can be inferred from the person’s facial expression and demeanor. Some individuals emphasize somatic complaints (e.g., bodily aches and pains) rather than reporting feelings of sadness. Many individuals report or exhibit increased irritability (e.g., persistent anger, a tendency to respond to events with angry outbursts or blaming others, an exaggerated sense of frustration over minor matters). In children and adolescents, an irritable or cranky mood may develop rather than a sad or dejected mood. This presentation should be differentiated from a pattern of irritability when frustrated.

Loss of interest or pleasure is nearly always present, at least to some degree. Individuals may report feeling less interested in hobbies, “not caring anymore,” or not feeling any enjoyment in activities that were previously considered pleasurable (Criterion A2). Family members often notice social withdrawal or neglect of pleasurable avocations (e.g., a formerly avid golfer no longer plays, a child who used to enjoy soccer finds excuses not to practice). In some individuals, there is a significant reduction from previous levels of sexual interest or desire.

Appetite change may involve either a reduction or increase. Some depressed individuals report that they have to force themselves to eat. Others may eat more and may crave specific foods (e.g., sweets or other carbohydrates). When appetite changes are severe (in either direction), there may be a significant loss or gain in weight, or, in children, a failure to make expected weight gains may be noted (Criterion A3).

Sleep disturbance may take the form of either difficulty sleeping or sleeping excessively (Criterion A4). When insomnia is present, it typically takes
the form of middle insomnia (i.e., waking up during the night and then having difficulty returning to sleep) or terminal insomnia (i.e., waking too early and being unable to return to sleep). Initial insomnia (i.e., difficulty falling asleep) may also occur. Individuals who present with oversleeping (hypersomnia) may experience prolonged sleep episodes at night or increased daytime sleep. Sometimes the reason that the individual seeks treatment is for the disturbed sleep.

Psychomotor changes include agitation (e.g., the inability to sit still, pacing, handwringing; or pulling or rubbing of the skin, clothing, or other objects) or retardation (e.g., slowed speech, thinking, and body movements; increased pauses before answering; speech that is decreased in volume, inflection, amount, or variety of content, or muteness) (Criterion A5). The psychomotor agitation or retardation must be severe enough to be observable by others and not represent merely subjective feelings.

Decreased energy, tiredness, and fatigue are common (Criterion A6). A person may report sustained fatigue without physical exertion. Even the smallest tasks seem to require substantial effort. The efficiency with which tasks are accomplished may be reduced. For example, an individual may complain that washing and dressing in the morning are exhausting and take twice as long as usual.

The sense of worthlessness or guilt associated with a major depressive episode may include unrealistic negative evaluations of one’s worth or guilty preoccupations or ruminations over minor past failings (Criterion A7). Such individuals often misinterpret neutral or trivial day-to-day events as evidence of personal defects and have an exaggerated sense of responsibility for untoward events. The sense of worthlessness or guilt may be of delusional proportions (e.g., an individual who is convinced that he or she is personally responsible for world poverty). Blaming oneself for being sick and for failing to meet occupational or interpersonal responsibilities as a result of the depression is very common and, unless delusional, is not considered sufficient to meet this criterion.

Many individuals report impaired ability to think, concentrate, or make even minor decisions (Criterion A8). They may appear easily distracted or complain of memory difficulties. Those engaged in cognitively demanding pursuits are often unable to function. In children, a precipitous drop in grades may reflect poor concentration. In elderly individuals, memory difficulties may be the chief complaint and may be mistaken for early signs of a dementia (“pseudodementia”). When the major depressive episode is successfully treated, the memory problems often fully abate. However, in some individuals, particularly elderly persons, a major depressive episode may sometimes be the initial presentation of an irreversible dementia.

Thoughts of death, suicidal ideation, or suicide attempts (Criterion A9) are common. They may range from a passive wish not to awaken in the morning or a belief that others would be better off if the individual were
dead, to transient but recurrent thoughts of committing suicide, to a specific suicide plan. More severely suicidal individuals may have put their affairs in order (e.g., updated wills, settled debts), acquired needed materials (e.g., a rope or a gun), and chosen a location and time to accomplish the suicide. Motivations for suicide may include a desire to give up in the face of perceived insurmountable obstacles, an intense wish to end what is perceived as an unending and excruciatingly painful emotional state, an inability to foresee any enjoyment in life, or the wish to not be a burden to others. The resolution of such thinking may be a more meaningful measure of diminished suicide risk than denial of further plans for suicide.

The evaluation of the symptoms of a major depressive episode is especially difficult when they occur in an individual who also has a general medical condition (e.g., cancer, stroke, myocardial infarction, diabetes, pregnancy). Some of the criterion signs and symptoms of a major depressive episode are identical to those of general medical conditions (e.g., weight loss with untreated diabetes, fatigue with cancer, hypersomnia early in pregnancy, insomnia later in pregnancy or postpartum). Such symptoms count toward a major depressive diagnosis except when they are clearly and fully attributable to a general medical condition. Nonvegetative symptoms of dysphoria, anhedonia, guilt or worthlessness, impaired concentration or indecision, and suicidal thoughts should be assessed with particular care in such cases. Definitions of major depressive episodes that have been modified to include only these nonvegetative symptoms appear to identify nearly the same individuals as do the full criteria.

Associated Features Supporting Diagnosis

Major depressive disorder is associated with high mortality, much of which is accounted for by suicide; however, it is not the only cause. For example, depressed individuals admitted to nursing homes have a markedly increased likelihood of death in the first year. Individuals frequently present with tearfulness, irritability, brooding, obsessive rumination, anxiety, phobias, excessive worry over physical health, and complaints of pain (e.g., headaches; joint, abdominal, or other pains). In children, separation anxiety may occur.

Although an extensive literature exists describing neuroanatomical, neuroendocrinological, and neurophysiological correlates of major depressive disorder, no laboratory test has yielded results of sufficient sensitivity and specificity to be used as a diagnostic tool for this disorder. Until recently, hypothalamic-pituitary-adrenal axis hyperactivity had been the most extensively investigated abnormality associated with major depressive episodes, and it appears to be associated with melancholia, psychotic features, and risks for eventual suicide. Molecular studies have also implicated peripheral factors, including genetic variants in neurotrophic factors and proinflammatory cytokines. Additionally, functional magnetic resonance imaging stud-
ies provide evidence for functional abnormalities in specific neural systems supporting emotion processing, reward seeking, and emotion regulation in adults with major depression.

**Summary of the Literature on Economic Causes of Depression**

The related economics literature almost exclusively studies mental well-being as an outcome, often as a component of a more holistic view of well-being than conventional measures such as income or consumption. We provide a brief review of that literature here, discussing studies of the effects of unemployment, fear of unemployment, wealth shocks, crime and fear of crime, and social comparisons. For brevity, we focus on the studies that explicitly seek causal identification through use of panel data techniques, natural experiments, instrumental variables, or field experiments. Most studies use composite measures of mental well-being, but we highlight those that specifically measure depression prevalence or incidence.

**Unemployment and Fear of Unemployment**

It is well documented that depression rates are much higher among the unemployed, but causality could run in both directions. In our theory, we would interpret an unemployment shock (or fear of unemployment) as a shock to an individual’s perceived future returns to her labor.

Clark (2003) uses the British Household Panel Survey (BHPS) (from 1991/92–1997/98) and studies the GHQ-12 composite measure of mental well-being, which includes questions on depression, as well as “feelings of strain,” and insomnia. Mental well-being is significantly lower among the unemployed and among those whose partner is unemployed. In fixed-effects regressions he shows that mental well-being falls when an individual moves into unemployment and increases when he/she moves into employment.

Marcus (2013) uses the German Socio-Economic Panel (2002–2010) to study the impact of plant closures on composite mental health, measured by the Mental Component Summary Scale (MCS). Households that experienced a job loss due to plant closure during the period are matched on observables to households that did not, and the plant closure effect estimated by difference-in-differences. He finds approximately equal negative effects on mental health from own or spouse’s unemployment—only in seven households did both members become unemployed, so he cannot study the interaction considered by Clark (2003) (see below). Our framework focuses on private returns of a representative agent and cannot directly speak to depression induced by shocks to a close family member, except to the extent that they induce pessimism about own returns.

Farré, Fasani, and Mueller (2015) use the Spanish Health Survey (2006 and 2011 waves) to estimate the causal effect of job loss on mental health. They exploit the collapse of the Spanish construction industry since 2007
as a source of exogenous negative to both short- and long-run employment for construction workers. They argue that a key advantage of this natural experiment (as opposed to plant closures) is that it enables the study of long-run effects since it was very hard for unemployed, low-education construction workers to re-enter employment, while those laid off because of a plant closure might reenter employment differentially according to their (mental) health status.

Key outcomes of interest are diagnoses of, and self-reported, mental disorders (depression or chronic anxiety). In addition, they study responses to the GHQ-12 questions. The identification strategy is instrumental variables, with location-specific exposure to construction as the instrument. They find a statistically significant 1.1 standard deviation in mental disorder diagnoses, and a 0.9 standard deviation in mental health as measured by GHQ-12. Closely in line with our theory, they write “[the shock] led to long unemployment spells, hopelessness and feelings of uselessness.”

Colantone, Crinò, and Ogliari (2015) use the BHPS (2001–2007) to study the effect of import competition in an individual’s industry on his/her mental distress, measured using GHQ-12. Using individual fixed-effects regressions, they find that a one standard deviation increase in import competition (defined as the ratio of imports to national consumption) in the individual’s industry leads to a decline of 0.13 standard deviations in the GHQ-12 index. Splitting out the components, they find particularly large effects on anxiety and depression. Analyzing mechanisms, they use a two-step procedure to study how import competition feeds through to final mental health outcomes. They find support for the effect working through decreased job security, lower wage growth, and lower job satisfaction particularly regarding workload. We interpret these findings as closely aligned with our theory.

**Wealth Shocks**

While our theory only considers wealth shocks that operate through the return to labor, the link we invoke from anticipated future consumption to mood also naturally carries over to shocks to nonlabor income. We highlight two studies of the effect of stock market losses on the mental health of retirees.

McInerney, Mellor, and Nicholas (2013) study the effect of wealth shocks on mental health in the US Health and Retirement Study (HRS), exploiting exogenous variation in interview dates: some individuals in the 2008 wave were surveyed before the October stock market crash, and some after. They find that antidepressant use and self-reported measures of depression and mental health worsened after the crash. Notably, the effect was strongest for individuals with high stock holdings. However, clinically validated measures based on the CESD showed no systematic effects.

Schwandt (2014) also uses the HRS to study wealth shocks, extending the analysis to the 1998–2011 waves. He constructs individual-specific exposure to stock market shocks by measuring individual stock market participa-
tion. He finds strong negative effects on both physical health and depression (using the CESD).

Crime and Fear of Crime

One interpretation in line with our theory is that recent crime experience or exposure induces fear of future crime and either directly reduces the return to labor effort (through theft or destruction of property) or indirectly because of lost productivity caused by the crime event, particularly when violence is involved.

Cornaglia, Feldman, and Leigh (2014) use the Household, Income and Labour Dynamics in Australia (HILDA) survey from 2002 to 2006, and measure mental health outcomes using subsets of the 36-Item Short Form Health Survey (SF-36). We are primarily interested in their mental health scale, using five questions that focus on depression and nervousness. In individual fixed-effects regressions, they find a negative relationship between recent experience of violent crime and mental health, and also between local crime rates and mental health. They find smaller, not significant effects from property crime.

Dustmann and Fasani (2016) study the BHPS, focusing also on the GHQ-12 index that they divide into separate components, including an anxiety and depression component. In individual fixed-effects regressions they find that increases in the local crime rate harm mental health, including anxiety and depression. In contrast with Cornaglia, Feldman, and Leigh (2014), and closer in spirit to our theory, the effect of property crime is statistically significant while violent crime is not. Dustmann and Fasani (2016) also use data from the English Longitudinal Study of Ageing (ELSA) of individuals age fifty and older, which contains a direct measure of depression, the Psychosocial Health Module (PSH) based on the CESD, which we also use. They find that increases in local crime rates, both violent and property crime, lead to increases in depression rates.

Socioeconomic Environment

We highlight two sets of studies that can be thought of as analyzing the effects of changes to peer-group composition or outcomes on own mental health.

Katz, Kling, and Liebman (2001) study the two-year impacts of the well-known Moving to Opportunity program (at the Boston site), in which poor households were randomly assigned subsidies to move to low-poverty neighborhoods or rent subsidies that could be used in any neighborhood. Income and employment did not change relative to control, but the predicted probability of a major depressive episode \(^{10}\) fell by 5 to 10 percentage points (not

\(^{10}\) A measure constructed from the Composite Diagnostic Interview Short Form (CIDI-SF).
statistically significant) from a baseline of 25 to 35 percent. Medium-run effects (four to seven years), studied in Kling, Liebman, and Katz (2007), are more positive—poverty rates declined and mental health outcomes, both for depression specifically, as well as composite measures, improved substantially. The effect on mental health is also shown to be larger the lower is the poverty rate of the new neighborhood. Finally, Ludwig et al. (2012) study long-run effects (ten to fifteen years), finding persistently lower poverty rates and (marginally significant) improvements in composite mental health. We note also that an additional channel discussed in these papers is through the fear of crime, and that fear of crime declined after moving to better neighborhoods.

In contrast with these positive effects of low relative socioeconomic status on mental health outcomes, a second set of studies suggests negative effects. Luttmer (2005) studies the relationship between neighbors’ average earnings on individuals’ self-reported happiness and finds a negative effect, holding constant the individual’s own income. Similarly, Baird, de Hoop, and Özler (2013) and Haushofer, Reisinger, and Shapiro (2015) provide evidence of negative spillovers of cash transfer programs in Malawi and Kenya on neighbors’ psychological well-being. Clark (2003), discussed above, studies the interaction between own unemployment and unemployment in three reference groups: the spouse or partner, household members, and the region. He finds a moderating effect: the mental well-being of the unemployed is higher when the unemployment rate among plausible reference groups is higher (spouse or partner, household members, region).

The two sets of findings seem to conflict—the Moving to Opportunity experiment decreased the relative standing of the treated households relative to their neighbors and increased mental well-being, while the remainder of the studies suggest an opposite effect of peer comparisons. However, Moving to Opportunity also improved the absolute prospects of the treated households as seen in the poverty and crime exposure results, and this may have outweighed the relative effects.

References


Contributors

M. Caridad Araujo
Inter-American Development Bank
1300 New York Avenue, NW
Washington, DC 20577

Edward B. Barbier
Department of Economics
Colorado State University
1771 Campus Delivery
Fort Collins, CO 80523-1771

Christopher B. Barrett
Charles H. Dyson School of Applied Economics and Management
301G Warren Hall
Cornell University
Ithaca, NY 14853-7801

Mariano Bosch
Inter-American Development Bank
1300 New York Avenue, NW
Washington, DC 20577

Francisco J. Buera
Department of Economics
Washington University in St. Louis
One Brookings Drive
St. Louis, MO 63130-4899

Michael R. Carter
Department of Agricultural and Resource Economics
University of California, Davis
One Shields Avenue
Davis, CA 95616

Jean-Paul Chavas
Department of Agriculture and Applied Economics
University of Wisconsin
Taylor Hall, 427 Lorch Street
Madison, WI 53706

Emma Boswell Dean
Department of Health Management and Policy
5250 University Drive
Miami Business School
University of Miami
Coral Gables, FL 33146

Jonathan de Quidt
Institute for International Economic Studies
Stockholm University
106 91 Stockholm Sweden
Elizabeth Frankenberg
Carolina Population Center and
Department of Sociology
University of North Carolina, Chapel Hill
123 West Franklin Street
Chapel Hill, NC 27514

Maitreesh Ghatak
London School of Economics
Department of Economics
Houghton Street
London WC2A 2AE United Kingdom

Johannes Haushofer
Woodrow Wilson School
427 Peretsman-Scully Hall
Princeton University
Princeton, NJ 08540

John Hoddinott
Division of Nutritional Sciences
Savage Hall, Room 305
Cornell University
Ithaca, NY 14853

Munenobu Ikegami
Faculty of Economics
Hosei University
4342 Aiharamachi, Machidashi
Tokyo 194-0298 Japan

Sarah Janzen
Department of Agricultural Economics
Kansas State University
342 Waters Hall
Manhattan, KS 66506

Joseph P. Kaboski
Department of Economics
434 Flanner Hall
University of Notre Dame
Notre Dame, IN 46556

Rachid Laajaj
Department of Economics
Universidad de los Andes
Calle 19A No. 1-37 Este, Edificio W
Bogota, Colombia

Travis J. Lybbert
Agricultural and Resources Economics
University of California, Davis
1 Shields Avenue
Davis, CA 95616

Karen Macours
Paris School of Economics
Campus Jourdan
48 Boulevard Jourdan
75014 Paris France

Paulo Santos
Department of Economics
Monash University
900 Dandenong Road, Caulfield
Victoria 3145 Australia

Norbert Schady
Inter-American Development Bank
1300 New York Avenue, NW
Washington, DC 20577

Frank Schilbach
Department of Economics, E52-560
Massachusetts Institute of Technology
77 Massachusetts Avenue
Cambridge, MA 02139

Heather Schofield
Perelman School of Medicine and
The Wharton School
University of Pennsylvania
Blockley Hall 11th floor
423 Guardian Drive
Philadelphia, PA 19104

Yongseok Shin
Department of Economics
Washington University in St. Louis
One Brookings Drive
St. Louis, MO 63130

Stephen C. Smith
Department of Economics
Monroe Hall 340
The George Washington University
2115 G Street, NW
Washington, DC 20052
Duncan Thomas  
Department of Economics  
Duke University  
Box 90097  
Durham, NC 27708

Bruce Wydick  
Department of Economics  
University of San Francisco  
San Francisco, CA 94117

Renos Vakis  
The World Bank  
1818 H Street, NW  
Washington, DC 20043
Author Index

Ableidinger, J., 52
Abramson, L. Y., 138
Adato, M., 15, 326n3
Adhvaryu, A., 11, 17n16, 82
Aghion, P., 209, 210, 227n5
Akerlof, G., 87
Alderman, H., 32
Aleem, I., 88
Alexander, M. P., 71
Ali, S. N., 138n6
Alloy, L. B., 138
Almond, D., 26, 57, 359n6
Al-Omari, A., 80
Alston, L. J., 318
Altmann, S., 92
Amstadter, A. B., 133
Anderson, C. M., 71
Andersson, O., 93
Andreoni, J., 15
Andrewes, D. G., 71
Angelucci, M., 202, 203, 358n3
Annan, J., 10n10
Appadurai, A., 157, 163, 164, 180, 328, 328n6
Araujo, C., 329, 358, 359, 361, 362, 363n10, 373n21, 379
Ariely, D., 89
Armstrong, A. W., 91
Ashraf, N., 88
Athey, S., 333
Attanasio, O., 200, 203, 326n3, 358n3
Augsburg, B., 202, 203
Avnaim-Pesso, L., 76
Avol, E., 82
Azariadis, C., 5, 5n4, 179, 226, 265n1, 278, 291, 383n1
Baddeley, A. D., 68
Baird, S., 149, 325, 358n5
Balas, E. A., 91
Bandiera, O., 17, 58, 197, 198, 204, 212, 213, 288, 384, 389, 391
Bandura, A., 156
Banerjee, A., 5, 17, 58, 86, 197, 200, 200n6, 202, 203, 204, 208, 209, 210, 214, 224n2, 227n5, 243n26, 358, 387
Banich, M. T., 74
Barbier, E. B., 315n1, 316, 318
Barbosa, W. A., 80
Barham, V. R., 5, 329, 358
Bar-Hillel, M., 138
Barker, D., 25
Barkley, A., 308, 310
Barrera-Osorio, F., 329, 363n10
Barrett, C. B., 3, 4, 5, 5n4, 9, 10n10, 12, 14, 15, 57, 58, 121, 180n1, 226, 227, 227n4, 232n14, 233, 243n26, 250, 266, 266n2, 267, 272n9, 274n11, 280, 287, 291, 292, 295, 319, 383n1
Barros, K. M., 121
Bartoš, V., 84
Basner, M., 64, 74, 79
Bastagli, F., 224n1
<table>
<thead>
<tr>
<th>Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bates, M. E.</td>
<td>64</td>
</tr>
<tr>
<td>Bauchet, J.</td>
<td>198, 213</td>
</tr>
<tr>
<td>Bauer, P. J.</td>
<td>70</td>
</tr>
<tr>
<td>Bauch, B.</td>
<td>3n3</td>
</tr>
<tr>
<td>Baum, A.</td>
<td>82</td>
</tr>
<tr>
<td>Baumeister, R. F.</td>
<td>65, 76, 79</td>
</tr>
<tr>
<td>Baumgärtner, S.</td>
<td>292, 320, 321</td>
</tr>
<tr>
<td>Beaman, E.</td>
<td>158, 184, 326, 327n4, 328</td>
</tr>
<tr>
<td>Beck, A. T.</td>
<td>128, 129, 140</td>
</tr>
<tr>
<td>Becker, G. S.</td>
<td>128, 227n5</td>
</tr>
<tr>
<td>Bedi, A. S.</td>
<td>362</td>
</tr>
<tr>
<td>Beegle, K.</td>
<td>31, 38, 40, 52</td>
</tr>
<tr>
<td>Behrman, J. R.</td>
<td>329, 359</td>
</tr>
<tr>
<td>Bénabou, R.</td>
<td>137n5</td>
</tr>
<tr>
<td>Ben-David, I.</td>
<td>76</td>
</tr>
<tr>
<td>Benítez-Bribiesca, L.</td>
<td>121</td>
</tr>
<tr>
<td>Beresteau, N.</td>
<td>271n8</td>
</tr>
<tr>
<td>Berg, E. A.</td>
<td>73</td>
</tr>
<tr>
<td>Bergemann, D.</td>
<td>138n6</td>
</tr>
<tr>
<td>Berger, D. E.</td>
<td>93</td>
</tr>
<tr>
<td>Berlinski, S.</td>
<td>365</td>
</tr>
<tr>
<td>Berman, M. G.</td>
<td>65</td>
</tr>
<tr>
<td>Bernard, T.</td>
<td>160, 184, 326, 327n4</td>
</tr>
<tr>
<td>Beshears, J.</td>
<td>72, 84</td>
</tr>
<tr>
<td>Besley, T.</td>
<td>328</td>
</tr>
<tr>
<td>Bevis, L. E. M.</td>
<td>14</td>
</tr>
<tr>
<td>Bhargava, S.</td>
<td>84</td>
</tr>
<tr>
<td>Billingsley, P.</td>
<td>297</td>
</tr>
<tr>
<td>Binswanger, H. P.</td>
<td>14</td>
</tr>
<tr>
<td>Bishop, J. H.</td>
<td>93</td>
</tr>
<tr>
<td>Blatt, G. L.</td>
<td>121</td>
</tr>
<tr>
<td>Blattman, C.</td>
<td>90, 198, 199, 199n5</td>
</tr>
<tr>
<td>Bleakley, H.</td>
<td>199n5, 208</td>
</tr>
<tr>
<td>Bliss, C.</td>
<td>57, 76</td>
</tr>
<tr>
<td>Block, S.</td>
<td>35</td>
</tr>
<tr>
<td>Bloem, J.</td>
<td>157</td>
</tr>
<tr>
<td>Bloom, N.</td>
<td>86</td>
</tr>
<tr>
<td>Bobonis, G.</td>
<td>369</td>
</tr>
<tr>
<td>Boden, J. M.</td>
<td>134</td>
</tr>
<tr>
<td>Bogliacino, F.</td>
<td>157</td>
</tr>
<tr>
<td>Bollerslev, T.</td>
<td>299</td>
</tr>
<tr>
<td>Bolton, P.</td>
<td>209, 210, 227n5</td>
</tr>
<tr>
<td>Bonds, M. H.</td>
<td>15n15</td>
</tr>
<tr>
<td>Bordalo, P.</td>
<td>85</td>
</tr>
<tr>
<td>Borrella, E.</td>
<td>60</td>
</tr>
<tr>
<td>Boren, S. A.</td>
<td>91</td>
</tr>
<tr>
<td>Bos, M.</td>
<td>77</td>
</tr>
<tr>
<td>Bosch, M.</td>
<td>329, 358, 362, 379</td>
</tr>
<tr>
<td>Bowles, S.</td>
<td>265n1</td>
</tr>
<tr>
<td>Breza, E.</td>
<td>203, 215</td>
</tr>
<tr>
<td>Broadbent, D.</td>
<td>62</td>
</tr>
<tr>
<td>Bromet, E.</td>
<td>127</td>
</tr>
<tr>
<td>Brown, R.</td>
<td>26</td>
</tr>
<tr>
<td>Browning, M.</td>
<td>36</td>
</tr>
<tr>
<td>Brunetti, R.</td>
<td>70</td>
</tr>
<tr>
<td>Bryan, G.</td>
<td>5n5, 87</td>
</tr>
<tr>
<td>Bullinger, M.</td>
<td>31</td>
</tr>
<tr>
<td>Burke, M.</td>
<td>82</td>
</tr>
<tr>
<td>Burnette, D. J.</td>
<td>292, 308, 310</td>
</tr>
<tr>
<td>Bushong, B.</td>
<td>85</td>
</tr>
<tr>
<td>Cacciottolo, M.</td>
<td>82</td>
</tr>
<tr>
<td>Cachon, G. P.</td>
<td>82</td>
</tr>
<tr>
<td>Cahlíková, J.</td>
<td>83</td>
</tr>
<tr>
<td>Cai, S.</td>
<td>202, 203</td>
</tr>
<tr>
<td>Calvo, C.</td>
<td>234, 237n21</td>
</tr>
<tr>
<td>Canas, J. J.</td>
<td>71</td>
</tr>
<tr>
<td>Carlin, D.</td>
<td>72</td>
</tr>
<tr>
<td>Carlson, S. M.</td>
<td>65</td>
</tr>
<tr>
<td>Carpenter, P. A.</td>
<td>69</td>
</tr>
<tr>
<td>Carretti, B.</td>
<td>60</td>
</tr>
<tr>
<td>Carter, M. R.</td>
<td>3n3, 4, 5, 7, 9, 11, 11n11, 12, 12n13, 13, 13n14, 14, 15, 57, 121, 180, 180n1, 225, 226, 227, 227n4, 227n5, 230, 232n13, 232n14, 233, 235, 236n20, 250, 250n33, 266, 267, 291, 295, 319, 383n1</td>
</tr>
<tr>
<td>Carvalho, L.</td>
<td>80</td>
</tr>
<tr>
<td>Cas, A.</td>
<td>51, 52</td>
</tr>
<tr>
<td>Case, A.</td>
<td>52, 78, 379</td>
</tr>
<tr>
<td>Cassar, A.</td>
<td>161</td>
</tr>
<tr>
<td>Cattaneo, A.</td>
<td>369</td>
</tr>
<tr>
<td>Cattell, R. B.</td>
<td>61, 71, 72</td>
</tr>
<tr>
<td>Cawley, J.</td>
<td>93, 94</td>
</tr>
<tr>
<td>Chandramouli, B. A.</td>
<td>121</td>
</tr>
<tr>
<td>Chang, T.</td>
<td>82</td>
</tr>
<tr>
<td>Chantarat, S.</td>
<td>15, 249n32, 250</td>
</tr>
<tr>
<td>Chattopadhyay, R.</td>
<td>328</td>
</tr>
<tr>
<td>Chavas, J. P.</td>
<td>292, 295, 299, 309n5, 310, 315</td>
</tr>
<tr>
<td>Chemin, M.</td>
<td>82</td>
</tr>
<tr>
<td>Chen, E.</td>
<td>82</td>
</tr>
<tr>
<td>Chen, H.</td>
<td>82</td>
</tr>
<tr>
<td>Chetty, R.</td>
<td>86</td>
</tr>
<tr>
<td>Cheung, S. S.</td>
<td>81n7</td>
</tr>
<tr>
<td>Chi, M. T. H.</td>
<td>93</td>
</tr>
<tr>
<td>Choi, S.</td>
<td>84, 93</td>
</tr>
<tr>
<td>Chong, A.</td>
<td>328</td>
</tr>
<tr>
<td>Chou, E. Y.</td>
<td>78</td>
</tr>
<tr>
<td>Chowdhury, S.</td>
<td>5n5</td>
</tr>
<tr>
<td>Chun, M. M.</td>
<td>62</td>
</tr>
<tr>
<td>Cingl, L.</td>
<td>83</td>
</tr>
<tr>
<td>Clark, A. E.</td>
<td>146, 149</td>
</tr>
</tbody>
</table>
Coble, K., 308
Coelli, T. J., 280
Cohen, J. D., 60, 68
Cohen, R. A., 62
Cohen, S., 82
Colantone, I., 147
Coleman, R. H., 79
Common, M., 292
Constas, M. A., 291, 292, 295
Coppock, D. L., 272
Corsi, P. M., 69
Cossée, O., 45
Costa-Font, J., 79
Cowan, N., 76
Crément, B., 200, 203
Crombez, G., 78
Crossley, T. E., 36
Csikszentmihalyi, M., 155
Dalton, P. S., 138n6, 157, 180
Daneman, M., 69
Darnton-Hill, L., 28
Dasgupta, P., 5, 57, 76, 291
Datta, S., 85
Davidson, M. C., 66
Deaton, A., 7, 36, 78, 227n4, 229
de Frias, C. M., 60
De Hoop, J., 83, 149
De Janvry, A., 363n10
de Laat, J., 82
De la Rosa-Alvarez, I., 121
Delavande, A., 269
Delgado, M. R., 83
Del Gatto, C., 70
Dell, M., 82, 83
DellaVigna, S., 87
Delogu, F., 70
de Mel, S., 192, 211
Dempster, F. N., 65
de Quidt, J., 136
Dercon, S., 52, 234, 237n21
Derissen, S., 292
Deryugina, T., 82
Desai, J., 200, 203
de Sousa Almeida, S., 121
Desta, S., 266
Devlin, R. B., 82
Devoto, F., 134
De Weerdt, J., 52
Dewey, K. G., 121, 122
Diamond, A., 60, 65, 66, 68, 70, 71n4, 72
Diamond, J. M., 292
Diamond, P. A., 154
Dickinson, D. L., 79
Di Falco, S., 292, 295, 299, 309n5, 310
Ding, D., 58, 63, 64, 72, 74, 79
Diniz, F. B., 80
Dixon, R. A., 60
Dooey, S., 45
Dorrian, J., 64
Doss, C., 269, 270n5
Doyle, W. J., 82
Duflo, E., 58, 197, 202, 203, 204, 328
Dulmen, S., 91
Duncan, G. J., 60
Dupas, P., 88
Durlauf, S., 265n1
Duryea, S., 328
Dustmann, C., 148
Dwyer, A., 38, 40
Ebenstein, A., 82
Eccleston, C., 78
Edmonds, E., 358n3, 362, 373n21
Edgeland, J., 63
El, D., 137
Elbers, C., 227
Emran, M. S., 197n3
Enders, W., 299
Engle, R. W., 65
English, K., 82
Ericson, K. M., 91
Eriksen, B. A., 66
Eriksen, C. W., 66
Evans, D., 52, 358n3
Evans, G. W., 81, 82, 83
Fafchamps, M., 94, 194, 212
Famulari, M., 93
Fang, H., 8, 57
Farré, L., 146
Fasani, F., 146, 148
Feder, G., 268n3
Federico, G., 318
Fedorikhin, A., 65
<table>
<thead>
<tr>
<th>Author</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fehr, E.</td>
<td>58, 88</td>
</tr>
<tr>
<td>Feigenberg, B.</td>
<td>328</td>
</tr>
<tr>
<td>Feldman, N. E.</td>
<td>148</td>
</tr>
<tr>
<td>Fergussen, D. M.</td>
<td>134</td>
</tr>
<tr>
<td>Fernald, L.</td>
<td>82, 83, 362</td>
</tr>
<tr>
<td>Ferrie, J. P.</td>
<td>199n5, 208</td>
</tr>
<tr>
<td>Ferster, C. B.</td>
<td>140</td>
</tr>
<tr>
<td>Fessler, D. M. T.</td>
<td>80n6</td>
</tr>
<tr>
<td>Février, P.</td>
<td>93</td>
</tr>
<tr>
<td>Fiala, N.</td>
<td>198</td>
</tr>
<tr>
<td>Field, E.</td>
<td>204, 205, 328</td>
</tr>
<tr>
<td>Filmer, D.</td>
<td>329, 359, 363n10</td>
</tr>
<tr>
<td>Finan, F.</td>
<td>369</td>
</tr>
<tr>
<td>Finkelstein, A.</td>
<td>134</td>
</tr>
<tr>
<td>Finn, D. P.</td>
<td>58, 78</td>
</tr>
<tr>
<td>Fisman, R.</td>
<td>29</td>
</tr>
<tr>
<td>Fiszbein, A.</td>
<td>325, 358, 358n5</td>
</tr>
<tr>
<td>Flamson, T. J.</td>
<td>80n6</td>
</tr>
<tr>
<td>Fleche, S.</td>
<td>79</td>
</tr>
<tr>
<td>Flores, R.</td>
<td>358n3</td>
</tr>
<tr>
<td>Folke, C.</td>
<td>292</td>
</tr>
<tr>
<td>Fonseca-Azevedo, K.,</td>
<td>76</td>
</tr>
<tr>
<td>Fox, H.</td>
<td>81n7</td>
</tr>
<tr>
<td>Franco Suglia, S.</td>
<td>82</td>
</tr>
<tr>
<td>Frankenberg, E.</td>
<td>24, 31, 32, 37, 40, 45, 46, 47, 51</td>
</tr>
<tr>
<td>Franses, P. H.</td>
<td>299</td>
</tr>
<tr>
<td>Frederick, S.</td>
<td>87, 93</td>
</tr>
<tr>
<td>Free, C.</td>
<td>91</td>
</tr>
<tr>
<td>Friedman, J.</td>
<td>24</td>
</tr>
<tr>
<td>Friedman, L. N.</td>
<td>65</td>
</tr>
<tr>
<td>Friedman, N. P.</td>
<td>71</td>
</tr>
<tr>
<td>Friese, M.</td>
<td>65</td>
</tr>
<tr>
<td>Froh, J. J.</td>
<td>155</td>
</tr>
<tr>
<td>Fudenberg, D.</td>
<td>88</td>
</tr>
<tr>
<td>Gabaux, X.</td>
<td>84, 86</td>
</tr>
<tr>
<td>Gailliott, M. T.</td>
<td>76</td>
</tr>
<tr>
<td>Galinsky, A. D.</td>
<td>78</td>
</tr>
<tr>
<td>Gallagher, K. S.</td>
<td>86</td>
</tr>
<tr>
<td>Galler, J. R.</td>
<td>122</td>
</tr>
<tr>
<td>Gallino, S.</td>
<td>82</td>
</tr>
<tr>
<td>Galor, O.</td>
<td>227n5</td>
</tr>
<tr>
<td>Galvao, A.</td>
<td>292, 299</td>
</tr>
<tr>
<td>Ganimian, A. J.</td>
<td>325</td>
</tr>
<tr>
<td>Gaoua, N.</td>
<td>81</td>
</tr>
<tr>
<td>Garg, T.</td>
<td>5n4, 9, 58, 226, 266, 267</td>
</tr>
<tr>
<td>Garthus-Niegel, S.</td>
<td>133</td>
</tr>
<tr>
<td>Gawande, A.</td>
<td>86</td>
</tr>
<tr>
<td>Gawronski, B.</td>
<td>65</td>
</tr>
<tr>
<td>Gelade, G.</td>
<td>62</td>
</tr>
<tr>
<td>Genicot, G.</td>
<td>157, 184, 328</td>
</tr>
<tr>
<td>Gennaioli, N.</td>
<td>85</td>
</tr>
<tr>
<td>Gertler, P. J.</td>
<td>224n1, 329, 358n4</td>
</tr>
<tr>
<td>Ghatak, M.</td>
<td>209, 210, 226, 227n5, 383n1, 384, 386</td>
</tr>
<tr>
<td>Ghio, A. J.</td>
<td>82</td>
</tr>
<tr>
<td>Ghosal, S.</td>
<td>138n6, 157, 180</td>
</tr>
<tr>
<td>Gibson, M.</td>
<td>79</td>
</tr>
<tr>
<td>Gill, R. B.</td>
<td>292</td>
</tr>
<tr>
<td>Giné, X.</td>
<td>89, 210, 269</td>
</tr>
<tr>
<td>Glass, D. C.</td>
<td>65</td>
</tr>
<tr>
<td>Glennerster, R.</td>
<td>202, 203</td>
</tr>
<tr>
<td>Glewwe, P.</td>
<td>159, 160, 164, 326n2</td>
</tr>
<tr>
<td>Gobin, V. J.</td>
<td>17, 243n26, 280</td>
</tr>
<tr>
<td>Godefroy, O.</td>
<td>60</td>
</tr>
<tr>
<td>Godfrey, E. B.</td>
<td>320</td>
</tr>
<tr>
<td>Goenjian, A. K.</td>
<td>133</td>
</tr>
<tr>
<td>Goklany, I. M.</td>
<td>318</td>
</tr>
<tr>
<td>Goldberg, N.</td>
<td>197, 204</td>
</tr>
<tr>
<td>Golomb, J. D.</td>
<td>62</td>
</tr>
<tr>
<td>Gonsalkorale, K.,</td>
<td>65</td>
</tr>
<tr>
<td>Goodman, R.</td>
<td>379</td>
</tr>
<tr>
<td>Gorlick, M. A.</td>
<td>83</td>
</tr>
<tr>
<td>Gottfredson, M. R.</td>
<td>90</td>
</tr>
<tr>
<td>Graff Zivin, J.</td>
<td>82</td>
</tr>
<tr>
<td>Grandner, M. A.</td>
<td>78</td>
</tr>
<tr>
<td>Grant, D. A.</td>
<td>73</td>
</tr>
<tr>
<td>Gray, C.</td>
<td>45</td>
</tr>
<tr>
<td>Greaney, B.</td>
<td>203, 204</td>
</tr>
<tr>
<td>Green, C. R.</td>
<td>78</td>
</tr>
<tr>
<td>Greenstone, M.</td>
<td>82</td>
</tr>
<tr>
<td>Gruber, R.</td>
<td>78, 89</td>
</tr>
<tr>
<td>Gul, F.</td>
<td>84, 88</td>
</tr>
<tr>
<td>Gunderson, L. H.</td>
<td>292</td>
</tr>
<tr>
<td>Gunnar, M. R.</td>
<td>82, 83</td>
</tr>
<tr>
<td>Gunning, J. W.</td>
<td>227</td>
</tr>
<tr>
<td>Gupta, S. K.</td>
<td>80</td>
</tr>
<tr>
<td>Guy, R.</td>
<td>92</td>
</tr>
<tr>
<td>Habicht, J. P.</td>
<td>32</td>
</tr>
<tr>
<td>Hagger, M. S.</td>
<td>65</td>
</tr>
<tr>
<td>Hales, C.</td>
<td>25</td>
</tr>
<tr>
<td>Ham, J. C.</td>
<td>82</td>
</tr>
<tr>
<td>Hamilton, J. D.</td>
<td>299</td>
</tr>
<tr>
<td>Han, C.-K.</td>
<td>134</td>
</tr>
<tr>
<td>Hancock, P. A.</td>
<td>81</td>
</tr>
<tr>
<td>Handel, B. R.</td>
<td>84</td>
</tr>
<tr>
<td>Hanna, R.</td>
<td>85</td>
</tr>
<tr>
<td>Hansen, B.</td>
<td>279n15</td>
</tr>
<tr>
<td>Hansen, Z. K.</td>
<td>318, 319</td>
</tr>
<tr>
<td>Harri, A.</td>
<td>308</td>
</tr>
<tr>
<td>Harrod, R. F.</td>
<td>180</td>
</tr>
<tr>
<td>Hasher, L.</td>
<td>68</td>
</tr>
</tbody>
</table>
Hasselblatt, B., 294, 295
Haushofer, J., 58, 82, 83, 88, 90, 133, 136, 149, 199
Haynes, R. B., 91
Headey, D., 292
Heckman, J. J., 27, 94, 103, 359n6, 379
Henrion, M., 270
Herculano-Houzel, S., 76
Hermans, R. E., 45
Hidrobo, M., 362
Hinson, J. M., 92
Hirschi, T., 90
Hitch, G., 68
Hochard, J. P., 315n1
Hochberg, Y., 44n3
Hockey, G. R., 81
Hodgson, J., 3n3, 14, 32
Hoff, K., 265n1, 328
Hofmann, W., 65
Holling, C. S., 292, 295
Holmer, I., 81
Hommel, G., 44n3
Horn, J. L., 61, 71
Hornbeck, R., 293, 299, 310, 311
Hoswood, L. J., 134
Howieson, D. B., 61
Hsiang, S. M., 82
Huang, L. T., 121
Hubbard, R. G., 245n28
Huizme, D., 17
Hurd, M. D., 269
Hurrell, A., 223n1, 224
Hurst, C., 94
Hurt, D. R., 310
Hygge, S., 81
Ikegami, M., 11, 12, 225, 232n13, 235, 250, 250n33
Imbens, G. W., 333, 369
Inzlicht, M., 65
Irgens-Hansen, K., 81
Izen, A. M., 138
Jaeggi, S. M., 70
Jagnani, M., 9
Jalan, J., 57, 315n2
James, W., 68
Jameson, T. L., 92
Jamir, L., 80
Jamison, J. C., 90
Jamraa, A., 80
Jang, C., 83
Janzon, S. A., 13, 13n14, 225, 227, 250, 250n33
Jaušovec, N., 93
Jensen, R., 159, 250, 326, 328, 390
Jesell, T., 67
Ji, Y.-B., 280n16
Jiang, N. H., 209, 210, 227n5
Johansen, S. N., 63
Johnson, K., 200, 203
Jones, B. F., 82
Josephs, R. A., 58, 76
Judge, T. A., 94, 156n1
Jurado, M. B., 60
Just, R. E., 268n3
Kaboski, J. P., 191, 192n2, 202, 203, 203n8, 204, 206, 207, 207n10, 208, 208n11, 210, 212, 213, 214, 215
Kala, N., 82
Kalkuhl, M., 292
Kalyanaraman, K., 369
Kamara, A., 272n9
Kandasamya, N., 83
Kandel, E., 67
Kane, M. J., 65, 70
Kaplan, S., 65
Kar, B. R., 121
Karkowski, L. M., 130n2
Karlan, D., 21, 87, 88, 91, 194, 200, 200n6, 202, 202n7, 203
Katz, L. F., 148, 149, 170, 332, 333
Kaufman, A. S., 73
Kendler, K. S., 130n2
Kessler, R. C., 127
Keswell, M., 199n5
Khantzian, E. J., 139
Kilby, A., 78
Killgore, W. D. S., 79
Kim, C., 82
Kimberg, D. Y., 60
King, J., 91n9
Kinnan, E., 215
Knobler, W., 92
Kirchner, W. K., 70
Kirk, M., 272n9
Kjellstrom, T., 81
Kling, J. R., 148, 149, 170, 332, 333
Knight, R., 194
Knox, A. B., 72
Knutson, B., 78
Koenker, R., 299
Kolstad, J. T., 84
Koppl, L., 78
Koppitz, E. M., 159n2
Kőszegi, B., 85, 89, 138
Kraay, A., 3n3, 57, 58, 226, 227n4, 233, 266, 291, 295, 315, 383n1
Krasnegor, N. A., 60
Kremer, M., 91
Krishna, A., 224
Krishna, S., 91
Kroft, K., 86
Kuhnlen, C. M., 78
Kumbhakar, S., 279
Kunzweiler, K., 133
Kwak, S., 227n4
Laajaj, R., 10n10, 180, 181, 183, 280
La Ferrara, E., 328
Laibson, D., 86, 87
Lalive, R., 369
Lauderdale, D. S., 59
Lavie, N., 65
Lechene, V., 358n3
Lee, C., 280n16
Lefcourt, H. M., 155
Leibenstein, H., 57, 76
Leigh, A., 148
Lemay, E. P., 64
Lemke, B., 81
Lerner, J. S., 80n6
Letzler, R., 92
Levav, J., 76
Levine, D. K., 88
Levinsohn, J., 24
Levitsky, D., 121
Levy, F., 93
Levy, S., 358
Lezak, M. D., 60, 61, 69
Li, L., 82
Libecap, G. D., 318, 319
Lichtenberger, E. O., 73
Liebenstein, H., 23
Liebman, J. B., 148, 149, 170, 332, 333
Lighthall, N. R., 83
Lim, J., 58, 63, 64, 72, 79, 82
Lindeboom, M., 25
Linden, L. L., 329
Lipscomb, M., 208n11
Lipton, M., 12n13
Little, P., 269, 270n5
Loewenstein, G., 80n6, 84, 87, 183
Looney, A., 86
López, R. E., 315n1
Loring, D. W., 61
Loury, G. C., 4, 8, 57, 224, 227n5
Lovell, A. K., 279
Lu, C.-L., 66n1
Lucas, R. E., Jr., 190
Ludwig, J., 149
Lukowski, A. F., 70
Lund, C., 82, 127
Luo, Y., 84
Lupien, S. J., 82
Lusardi, A., 36
Luseno, W. K., 270n5
Luttmer, E., 149
Lybbert, T. J., 14, 154, 156, 162, 163, 227, 266, 267, 268, 269, 270n5, 272, 276, 279, 281n18, 283, 287, 326n2
Lynham, J., 83
Lyon, G. R., 60
Lyon, K. S., 320
MacKowiak, B., 84
Mackworth, J. F., 64
MacLeod, C. M., 67, 67n3
Madrian, B. C., 84
Maldonado, J. H., 224n1
Maluccio, J., 32, 329, 358n3, 358n4
Mani, A., 73, 79, 80, 95, 138n6, 157, 180
Mankiw, N. G., 180
Mann, T., 65
Mansilla-Olivares, A., 121
Manski, C. F., 269, 271n8, 327
Marcus, J., 146
Marenya, P. P., 14
Marriner, N., 292
Martin, M. M., 71
Martin, S., 198, 224n1, 329, 358n4
Martorell, R., 32
Matějka, F., 84
Mather, M., 83
Matsuyama, K., 209n12
May, J., 3n3, 15
May, R. M., 291, 295
Mazer, C., 121
Mazloymi, A., 81
Mazumdar, D., 4, 23
Mazumder, B., 26
McBride, L., 5n4, 58, 226, 266, 267
McElroy, T., 79
McGranahan, G., 82
McGuire, B. E., 58, 78
McInerny, M., 147
Mcintosh, C., 325
McKenna, B., 79
McKenzie, D., 3n3, 58, 192, 194, 195, 211, 226, 227n4, 233, 266, 269, 291, 295, 315, 383n1, 390
McLellan, T. M., 81n7
McNaughton, L. R., 79
McPeak, J., 7n8, 227, 269, 270n5
Medina-Elizalde, M., 292
McH., M. R., 80
Meier, S., 80
Mellor, J. M., 147
Mendolia, S., 133
Menninger, K., 155
Meyn, S. P., 297
Mezhoud, S., 45
Midrigan, V., 297n11
Miguel, E., 52, 82
Milkman, K. L., 72
Miller, K. L., 72
Miller, E. K., 60, 68
Miller, G. A., 68
Miller, G. E., 82
Milner, B., 70
Mollicone, D., 64
Mondria, J., 84
Montes-Rojas, G., 292, 299
Moore, K., 17
Moore-Ede, M. C., 79
Morduch, J., 198, 213
Morgan, M. G., 270
Moriarty, O., 58, 78
Moses, L. J., 65
Moya, A., 10, 180
Mude, A. G., 250
Muehlegger, E., 86
Muelner, H. F., 146
Mullainathan, S., 58, 74, 85, 86, 88, 90, 387
Mullane, J. C., 66
Mullington, J. M., 79
Munafö, M. R., 134
Munakata, Y., 68
Muñoz-Sandoval, A., 379
Muraven, M., 65
Murnane, R. J., 94, 325
Murphy, K. M., 128, 154
Murray, F., 82
Naifeh, M., 3
Nalley, L. L., 308, 310
Naschold, F., 8, 227n4
Neidell, M., 82
Neillands, T. B., 134
Nelson, G. C., 292
Nelson, R. R., 4
Nelson, S., 87
Nes, L. S., 78
Newman, A. F., 5, 209, 210, 227n5
Ngonghala, C. N., 15n15
Nguyen, T., 326
Nicholas, L. H., 147
Nideffer, R. M., 63
Nikiforakis, N., 15
Nongkynrih, B., 80
Nuland, S. B., 86
Nyshadham, A., 82
O’Donoghue, T., 87
Ogliari, L., 147
Okuda, S. M., 93
Olivares, M., 82
Olken, B. A., 82
Olmo, J., 292, 299
Olmstead, A. L., 310
Oosterbeek, H., 134, 362
Ortoleva, P., 157
Oster, E., 159, 328
Oyedepo, O. S., 80
Özler, B., 83, 149, 325
Paluck, E. L., 328
Pande, R., 204, 328
Park, A., 202, 203
Parker, S. W., 329, 359
Parmar, B. L., 78
Parmar, B. L., 78
Pashler, H., 62
Patel, N. P., 78
Paxson, C., 52, 361, 365, 366, 373, 373n21, 374n22, 379
Pechmann, C., 91n9
Pelegrina, S., 60
Perrings, C., 292
Pesendorfer, W., 84, 88
Peterson, S., 63
Petrides, M., 70
Petrie, D., 134
Phelps, E. A., 62, 87
Philibert, I., 79
Phillips, D. A., 359n6
Piketty, T., 138n6, 209, 210, 227n5
Pillsworth, E. G., 80n6
Poleshuck, E. L., 78
Pollak, R. A., 87
Polman, R. C. J., 79
Ponce, J., 362
Pope, C. A., 82
Pop-Eleches, C., 91
Popova, A., 358n3
Porcelli, A. J., 83
Posner, M. I., 63, 65
Power, M. C., 82
Prabhakaran, V., 73
Prado, E., 121, 122
Pratt, T. C., 90
Premand, P., 329, 333
Prescott, C. A., 130
Proctor, R. W., 66n1
Psacharopoulos, G., 94
Quaas, M. F., 320, 321
Quisumbing, A. R., 94
Rabin, M., 85, 87, 138
Radakovic, S. S., 81n7
Raddatz, C., 57
Ranade, S. C., 121
Rao, J. M., 137
Rao, S. L., 121
Ratn, E., 133
Rauch, W., 65
Ravallion, M., 2, 57, 315n2
Ravelli, A. C. J., 25
Raven, J. C., 73
Ravi, S., 198, 213
Raviv, A., 78
Ray, D., 5, 57, 76, 157, 180, 184, 227n5, 328
Reisinger, J., 149
Rhode, P. W., 310
Rhodes, S. L., 318
Roach, A. R., 78
Robano, V., 197n3
Robbins, H., 138n6
Robertson, I. H., 64
Robinson, J., 88
Rockmore, M., 10n10
Rodriguez, M. L., 65
Roehrs, T., 78
Rogers, N. L., 64
Rohling, E. J., 292
Rommel, D., 180
Rooij, W. H., 25
Roopnaraine, T., 326n3
Roseboom, T. J., 25
Rosenzweig, M. R., 14
Ross, P., 159
Rosselli, M., 60
Roth, S., 82
Rothbart, M. K., 65
Rotter, J. B., 155, 156
Rubin, R. B., 71
Rubio-Codina, M., 224n1, 329, 358n4
Runcro, M. A., 93
Rutledge, L., 159, 160, 164, 326n2
Saada, A. A., 80
Saavedra, J. E., 329
Sabates-Wheeler, R., 223n1, 224
Sachs, J., 57, 265
Sadah, A., 78
Sadoulet, E., 363n10
Saez, E., 86
Santos, P., 17, 227, 243n26, 266, 272n9, 274n11, 280, 287
Saridjana, N. S., 82
Schamber, M. A., 83
Schilbach, F., 58, 74, 76, 89
Schmeichel, B. J., 65
Schofield, H., 58, 74, 76, 95
Scholtz, R., 25
Schultz, T. W., 268, 272, 363n10
Schwandt, H., 147
Schwartzstein, J., 72, 85
Schwarz, G., 26
Scott, J. P. R., 79
Seaton, A., 82
Segerstrom, S. C., 78
Seligman, M. E., 155
Seligman, M. E., 153, 164, 184
Shafir, E., 58
Shapiro, C., 23, 83, 133
Shapiro, J., 149, 199
Sharabi, R., 80
Shaw, J., 292
Shea, D. F., 84
Shepherd, H., 328
Sheridan, M., 90
Sherlund, S. M., 280
Sherrod, D. R., 65
Shin, Y., 191, 206, 207, 207n10, 208, 210, 212, 213, 214
Shiv, B., 65
Shleifer, A., 85, 154
Shoda, Y., 65
Shonkoff, J. P., 359n6
Shrader, J., 79
Sikoki, B., 38
Silk, T., 91n9, 159n2
Silverman, B., 271n8
Simmons, S. E., 81
Simon, L. S., 94
Sims, C. A., 84
Singer, J. E., 65
Sippel, R., 93
Skiba, A. K., 11, 228n8, 230, 230n11
Skinner, J., 245n28
Small, D. A., 80n6
Smith, J. P., 24, 31, 32, 37
Smith, S. C., 197n3, 227n4
Snyder, C. R., 156, 162
Solow, R. M., 180
Ssewamala, F. M., 134
Stachurski, J., 5, 5n4, 179, 226, 265n1, 278, 291
Stahle, D. W., 292, 308, 310
Stansfeld, S. A., 81
Steel, Z., 127
Steele, C. M., 58, 76
Stern, N., 57, 76
Sternberg, K., 62
Sternberg, R. J., 62
Stewart, W. F., 127
Stiglitz, J. E., 4, 23, 57, 76, 328
Stillman, S., 52
Stoop, J., 15
Strack, F., 65
Strauss, E., 60
Strauss, J., 38, 40
Streufert, P. A., 227n5
Strotz, R., 87
Strupp, B., 121
Stuss, D. T., 71
Subramanian, S., 227n4
Suchy, Y., 60
Swallow, B. M., 3, 272n9
Sydnor, J., 84
Szalma, J. L., 81
Szeitl, A., 85
Tack, J. A., 308, 310
Tainter, J. A., 292
Taraz, V., 9
Taronzi, A., 200, 203
Tasoff, J., 92
Taylor, C., 65
Taylor, G., 134
Tchanturia, K., 71
Teräsvirta, T., 299
Thomas, D., 24, 26, 31, 32, 34, 37, 40, 52, 159n2
Thurston, B. J., 93
Tice, D. M., 65
Tirole, J., 137n5
Todd, P. E., 329, 359
Tomes, N., 227n5
Tong, H., 299
Torell, L., 320
Torrero, M., 292
Torrance, E. P., 93
Toth, R., 17, 243n26, 266, 280
Townsend, R., 192n2, 202, 203, 203n8, 210, 215
Traxler, C., 92
Treisman, A. M., 62
Tseng, F.-M., 134
Turk-Browne, N. B., 62
Tweedie, R. L., 297
Udry, C., 194
Ueland, T., 63
Unterrainer, J. M., 74
Vakis, R., 160, 184, 325, 326, 327, 327n5, 329, 331, 332n12, 333, 336, 348, 358n3, 379, 388, 392n8
Valadares, C. T., 121
Valimaki, J., 138n6
van den Berg, G., 25
Van Dijk, D., 299
Van Dongen, G. M., 79
van Ewijk, R., 26
Van Leemput, E., 203, 204
Van Nieuwerburg, S., 84
Veldkamp, L., 84
Velez, E., 94
Vervloet, M., 91
Vishny, R., 154
Visser, M., 93
Vogl, T. S., 94
Vohs, K. D., 76
von Braun, J., 292
von Hippel, W., 65
Vos, T., 127
Vytlacil, E., 93, 94

Wachtel, P. L., 63
Wang, S., 80, 202, 203
Ward, A., 65
Warren, P. L., 138n6
Webster, D. L., 292
Wechsler, D., 73
Weil, D. N., 180
Wertenbroch, K., 89
Weuve, J., 82
Wheeler, S. E., 318
Whitney, P., 92

Wiebe, S. A., 118
Wiederholt, M., 84
Wilkening, T. S., 183n6
Willett, J. B., 94
Windle, M., 134
Windle, R. C., 134
Woodford, M., 84
Woodruff, C., 192, 194, 211, 390
Wuepper, D., 156
Wydick, B., 154, 159, 160, 162, 163, 164, 326n2

Yates, F. A., 62
Yin, W., 88
Zacks, R. T., 68
Zannin, P. H. T., 80
Zeira, J., 227n5
Zeldes, S. P., 245n28
Zilberman, D., 268n3
Zimmerman, F. J., 5, 7, 11n11, 12n13, 227n5, 230, 236n20
Zinman, J., 200, 200n6, 202, 202n7, 203, 214
Zweig, J. S., 82
Subject Index

Page numbers followed by “f” or “t” refer to figures or tables, respectively.

accidents: traffic, 86–87; workplace, 86–87
air pollution, 82
alcohol consumption, excessive, impact of poverty on, 77
Appadurai, Arjun, 157–58
aspirations: Appadurai’s conception of, 157; impact of augmented, 159–60; impact of television and its effect on women’s, in India, 158; Ray’s concepts of, 157–58; role modeling and, 158. See also hope aspirations failure, 157–58
aspirations gap, 157
aspirations window, 157
aspire, capacity to, 157
asset accumulation, 1–2
asset dynamics, model of, 227–30
asset grants: assessment of role of programs for, 212–14; to microentrepreneurs, 192–99; studies of, 193t, 196t; to ultra poor, 195–99
asset shocks, ex post and ex ante effects of, 233–36
associativeness, 90
Atención a Crisis program (Nicaragua): data for study, 331–33; described, 329–30; outcomes for leaders, 333–36; randomization in, 330–31. See also conditional cash transfer (CCT) programs
attention: defined, 61, 62; described, 62; empirical evidence for, 85–86; impact of economic conditions on, 83–87; internal vs. external, 62–63; measuring, 63–65; narrow vs. broad, 63; potential pathways for, 86–87; simple vs. complex, 63; theories of, in shaping economic behavior, 84–85
attributional style, 156
Backward Digit Span Task, 98t
BDH. See Bono de Desarrollo Humano (BDH) (Ecuador); conditional cash transfer (CCT) programs
Beck, Aaron, 140
belief-driven depression, model of, 136–37
Bono de Desarrollo Humano (BDH) (Ecuador), 359–61. See also conditional cash transfer (CCT) programs
Boran (Ethiopia) pastoralist households: ability and expected herd dynamics, 279–84; data for, 268–74; expected herd dynamics in stochastic environment, 274–79; policy challenges, 284–87
broad attention, vs. narrow, 63
Cambodia, cash transfer programs in, 359
capacity to aspire, 157
capital. See human capital
CBT (cognitive behavioral therapy), 140
CCT programs. See conditional cash transfer (CCT) programs
child height and exposure to, 47–51
chronic poverty, Micawber Frontier and, 230–33

Classic Stroop Test, 67, 98t
cognition, impact of poverty on, 75–83
cognitive behavioral therapy (CBT), 140
cognitive flexibility: composition of, 71; defined, 61, 71

Cognitive Reflection Test, 93
cognitive tasks, summary table of, 97–99t

Compassion (Indonesian organization), 159, 159n2
complex attention, vs. simple, 63
Concentration Endurance Test, 64–65, 97t
conditional cash transfer (CCT) programs, 223–25, 325–27, 357–58; in Cambodia, 359; in Ecuador, 360–61; effectiveness of, 358; experimental analysis of, 365–67; in Mexico, 359; in Nicaragua, 358–59; regression discontinuity (RD) analysis of, 367–72; results from randomized evaluation of, 372–75; results from regression discontinuity (RD) analysis of, 372–75. See also Atención a Crisis program (Nicaragua); Bono de Desarrollo Humano (BDH) (Ecuador)

consumption choices, self-control and, 89 cooperation, 95
copays, to implement social protection, 249–51
Corsi Block Test, 69–70, 98t
crime, depression and, 148
crystallized intelligence, 61; defined, 71–72
delusions, depression and, 132
depression (major depressive disorder), 82–83; associative features supporting diagnosis of, 145–46; avenues using economic theory for studying, 136–39; belief-based theories of, 140; CBT and, 140; cognitive symptoms of, 130; crime and, 148; delusions and, 132; diagnostic features, 142–45; DSM-5 diagnostic criteria, 141–42; early accounts of, 140; emotional symptoms of, 131–32; grief vs., 142n8; hallucinations and, 132; in language of economics, 129–32; literature on economic causes of, 146–49; model of belief-driven, 136–37; motivational symptoms of, 130–31; overview of, 127–29; poverty traps, 138; predictors of, 130n2; role of non-Bayesian updating, 137–38; socioeconomic environment and, 148–49; somatic symptoms of, 132; stylized facts for, 132–36; unemployment and, 146–47; wealth shocks and, 146–47
deprivations, 3; material, of poverty, 58; nutrition, 25–26; sleep, impact of poverty on, 78–79
developmental economics, hope in, 156–62
developmental traps, 153–54

Digit Span Tasks, 69
disasters, natural, human capital and, 44–51
dots Task, 66

DSM-5 diagnostic criteria, for major depressive disorder, 141–42
dual-self models, 88

Dust Bowl, 292–93, 310–11. See also wheat productivity, dynamics of
Dutch Hunger Winter, 25
dynamics: economic development and, 291–92; nonlinear, 292; stochastic, econometric analysis of, 298–300
dynamic systems, evolvement of, according to state equations, 293–98
dysphoria, 131, 138–39
eyear life shocks, human capital in later life and, 24–27

economic behavior, impact of poverty on, 75–83
economic conditions, impact of cognitive functions on, 83–95

Ecuador: cash transfer programs in, 360–61; schooling in, 362–65
environmental factors, impact of poverty on, 80; noise pollution, 80–81

Eriksen Flanker Task, 66–67, 97t
Ethiopia. See Boran (Ethiopia) pastoralist households
external attention, vs. internal, 62–63
extreme poverty, 1; defined, 2; spell length of, 3

Family Independence Initiative (FII), 163
feedback loops, 59
Ferster, Charles, 140
FII (Family Independence Initiative), 163
financial frictions, poverty traps and, 208–10
financial shocks, 14–15; behavioral responses to, 27; early life, and human capital in later life, 24–27; literature linking poverty and poverty traps to, 23–24; to marginal utilities, 138–39. See also wealth shocks, depression and fluid intelligence, 61; defined, 71–72
Forward Digit Span Task, 69, 98t
Fuentes Libres, 165–66
generalized autoregressive conditional heteroscedastic (GARCH) model, 299 grants. See asset grants
grief, vs. major depressive episode (MDE), 142n8

hallucination, depression and, 132
healthful behaviors, 23; reminders and, 91
Hearts and Flowers Task, 66, 66n1, 97t
heat, 81–82
heterogeneous ability, model of, 227–30
higher-order cognitive functions, 61–62; defined, 70–71; described, 70–71; empirical evidence for, 93–94; identifying alternative tasks, 75; measuring, 72–74; potential pathways for studying, 94–95; practical concerns, 74–75; theory, 93
home matters, inattention to, and consequences of, 87
hope: in developmental economics, 156–62; elements of, 156; poverty dynamics and, 154–55; psychology of, 155–56; reflections on, 174–75. See also Oaxaca Hope Project
human capital, 23; immediate impacts on child health and education outcomes of shocks, 31–38; investments in, 23; investments in, social interaction effects on, 337–38, 339–41t, 342–44; in later life, and early life financial shocks, 24–27; longer-term impacts on child health and education of shocks, 38–44; natural disasters and, 44–51
Human Development Bond. See Bono de Desarrollo Humano (BDH) (Ecuador)
Hunger Safety Net Programme (HSNP), 224
Hunger Winter (Netherlands), 25

index insurance, to implement social protection, 249–51
Indian Ocean earthquake and tsunami of 2004, 45–47; in utero exposure to, 47–51
Indonesian Financial Crisis of 1998: immediate impacts on child health and education of, 31–38; overview of, 28–30
influenza pandemic of 1918, in utero exposure to, and impact on adult life, 26–27
inhibitory control: defined, 61, 65; described, 65; measuring, 65–67. See also self-control
innovation, 93
intelligence, fluid vs. crystallized, 61
internal attention, vs. external, 62–63
in utero exposure, to Indian Ocean earthquake and tsunami of 2004, 47–51

Kenya, Hunger Safety Net Programme in, 224

labor market outcomes, cognitive skills and, 93–94
limited attention, model of, 84
locus of control, 156
long-term memory, 68
Lucas, Robert E., Jr., 189–90
Machoian, Robert, 169
major depressive disorder (MDD). See depression (major depressive disorder)
major depressive episode (MDE), vs. grief, 142n8
malnutrition, 58; impact of poverty on, 76–77. See also nutrition deprivation marginal utilities: beliefs about, 139; shocks to, 138–39; substitutes and, 139
material deprivations, of poverty, 58
MDD (major depressive disorder). See depression (major depressive disorder)
memory: defined, 61, 67–68; described, 67–68; economic theories of, 90–91; empirical evidence on, 91–92; long-term, 68; measuring, 69–70; potential pathways for studying, 92; procrastination and, 91; short-term, 68; working, 68–69

mental health, poverty and, 83

Mexico, cash transfer programs in, 359

Micawber Frontier, 12, 12n13, 242; chronic poverty and, 230–33

microcredit programs, 214–15; evaluations of, 199–204; studies of, 201t

microfinancial interventions, 189–92; asset grants, 192–95; comparison of, 190; differences among, 204–5; existing quantitative theories on, 191–92; lessons from empirical literature on, 190; quantitative theory of, 205–17; research evaluations of, 199–204; studies of, 201t

Miller, Maurice Lim, 161

monetary concerns, impact of poverty on, 79–80

moral hazard: design of anticipated social protection, 244–51; negative, 245–49; positive, 245–49

multiple financial market failure poverty-trap model, 226–27

narrow attention, vs. broad, 63

natural disasters, human capital and, 44–51

N-Back Task, 70, 98t

negative moral hazard, 245–49

Netherlands, Hunger Winter in the, 25

Nicaragua, cash transfer programs in, 358–59. See also Atención a Crisis program (Nicaragua)

noise pollution, 80–81

nonlinear dynamics, 292

nutrition, 23

nutrition deprivation: during in utero gestation, 25–26; during Ramadan, 26. See also malnutrition

nutrition wage hypothesis, 23

Oaxaca Hope Project, 155; short-term effects in, 165–74; theoretical framework of, 162–65. See also hope optimization behavior, 93

pain, physical, impact of poverty on, 78

planning, defined, 61

positive moral hazard, 245–49

positive psychology, 155–56

poverty: chronic, Micawber Frontier and, 230–33; cognitive function of, 58–59; economic behavior and, 58; extreme, 1–3; impact of, on alcohol consumption, 77; impact of, on cognition, 75–83; impact of, on economic behavior, 75–83; impact of, on malnutrition, 76–77; impact of, on monetary concerns, 79–80; material deprivations of, 58; persistence of, 57; progress against, 2; stochastic, 3n3; transitory, 3n3; ultra, 2–3

poverty dynamics: absent social protection, 236–40; hope and, 154–55; reflections on, 174–75; with unanticipated social protection, 240–44

poverty-trap models: with endogenous capabilities, 6–11; multiple-equilibrium, with endogenous capabilities, 11–15

poverty traps, 3, 57, 265–66; defined, 5, 226; depression, 138; empirical evidence on, 58; essence of, 5; financial frictions and, 208–10; integrative theory of, 4–6; literature reviews of, 5n4; mechanisms of, 5; model of, with endogenous capabilities, 6–11; multiple-equilibrium model of, with endogenous capabilities, 11–15; research on, 153; single-equilibrium, 5

poverty-traps hypothesis, policy implications of, 3–4

preferences, 132, 138–39

procrastination, memory and, 91

productivity, 86; self-control and, 89

Progressive (Raven’s) Matrices Test, 73

psychology, positive, 155–56

Psychomotor Vigilance Task (PVT), 64, 97t

quantile autoregressive (QAR) model, 299

quantitative theory of microfinancial interventions, 205–17

quasi-hyperbolic discounting theory, 87–88

Ramadan, nutrition deprivation during, 26

Raven’s (Progressive) Matrices Test, 73, 93, 94, 99t

Ray, D., 157–58

regression discontinuity (RD) analysis: of cash transfer programs, 367–72; results from, for cash transfer programs, 372–75

quantiative theory of microfinancial interventions, 205–17

progress against, 2; stochastic, 3n3; transitory, 3n3; ultra, 2–3

poverty dynamics: absent social protection, 236–40; hope and, 154–55; reflections on, 174–75; with unanticipated social protection, 240–44

poverty-trap models: with endogenous capabilities, 6–11; multiple-equilibrium, with endogenous capabilities, 11–15

poverty traps, 3, 57, 265–66; defined, 5, 226; depression, 138; empirical evidence on, 58; essence of, 5; financial frictions and, 208–10; integrative theory of, 4–6; literature reviews of, 5n4; mechanisms of, 5; model of, with endogenous capabilities, 6–11; multiple-equilibrium model of, with endogenous capabilities, 11–15; research on, 153; single-equilibrium, 5

poverty-traps hypothesis, policy implications of, 3–4

preferences, 132, 138–39

procrastination, memory and, 91

productivity, 86; self-control and, 89

Progressive (Raven’s) Matrices Test, 73

psychology, positive, 155–56

Psychomotor Vigilance Task (PVT), 64, 97t

quantile autoregressive (QAR) model, 299

quantitative theory of microfinancial interventions, 205–17

quasi-hyperbolic discounting theory, 87–88

Ramadan, nutrition deprivation during, 26

Raven’s (Progressive) Matrices Test, 73, 93, 94, 99t

Ray, D., 157–58

regression discontinuity (RD) analysis: of cash transfer programs, 367–72; results from, for cash transfer programs, 372–75
rehearsal, 90
reminders: healthful behaviors and, 91; savings and, 91–92
resilience, 94
resilient firms/households, 3
Rotating Savings and Credit Associations (ROSCAs), 89
salience, theory of, 84–85
savings: reminders and, 91–92; self-control and, 88–89
selective attention, theory of, 85
self-control: consumption choices and, 89; empirical evidence of, 88–89; potential pathways for studying, 89–90; productivity and, 89; reviews of studies on, 87; savings and, 88–89; theories of, 87–88
self-efficacy, 156
Self-Ordered Pointing Task, 70, 99t
sequencing, defined, 61
shocks. See asset shocks, ex post and ex ante effects of; early life shocks, human capital in later life and; financial shocks; wealth shocks, depression and short-term memory, 68
shrouded attention, 86
Simon effect, 66n1
Simon task, 66n1
simple attention, vs. complex, 63
single-equilibrium poverty trap, 5
Skinner, B. F., 140
sleep deprivation, impact of poverty on, 78–79
smooth transition autoregressive (STAR) models, 299
social interaction effects: on human capital investments, 337–38, 339–41t, 342–44; on per capital expenditures, expectations, and aspirations, 344, 345–46t, 347–51
social protections: poverty dynamics absent of, 236–40; poverty dynamics with unanticipated, 240–44; using index insurance and copays to implement, 249–51
socioeconomic environment, depression and, 148–49
somatic symptoms, of depression, 132
sparsity, model of, 84
Spatial Stroop Test, 67, 98t
STAR (smooth transition autoregressive) models, 299
state of the world contingent cash transfers (SWCTs), 225
stochastic dynamics, econometric analysis of, 298–300
stress, 82–83
Stroop Test, 67; Classic, 67; Spatial, 67
SWCTs (state of the world contingent cash transfers), 225
tasks, cost of keeping track, 90–91
technology adoption, 85–86, 94
threshold quantile autoregressive (TQAR) model, 292, 300
Tower of London Task, 74, 99t
traffic accidents, 86–87
transitory poverty, 3n3
ultrapoor: asset grants to, 195–99; studies of grants to, 196t. See also poverty
ultrapoverty, 2–3
unemployment, depression and, 146–47
wealth shocks, depression and, 146–47. See also financial shocks
Wechsler Adult Intelligence Scale (WAIS), 73
Wechsler Intelligence Test, 94, 99t
wheat productivity, dynamics of, 300–301; discussion of results, 309–11; implications, 304–9; preliminary econometric analysis of, 301–3; quantile dynamics of, 303–4
Wisconsin Card Sorting Task, 72–73, 99t
working memory, 68–69
workplace accidents, 86–87