

Karlan, Dean; Zinman, Jonathan

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growth impact of the first wave of globalization in an important industrializer. Together with similar datasets that are currently being processed by researchers around the world for China, France, Germany, Italy, Japan, Switzerland, and the U.K., a new view, or at least a greatly enhanced vision, of 19th century globalization is sure to emerge. Countries did not compete and grow based only on their factor endowments. Like today, producers and consumers gained from access to new finished and intermediate goods and higher-quality varieties of already existing goods, such that the welfare gains from trade strongly contributed to rises in living standards during the first wave of globalization.

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² J. E. López Córdova and C. M. Meissner, “Exchange Rate Regimes and International Trade: Evidence from the Classical Gold Standard Era, 1870–1913,” *American Economic Review*, 93(1), 2003, pp. 344–53.

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⁴ D. S. Jacks, C. M. Meissner, and D. Novy “Trade Booms, Trade Busts and Trade Costs,” *NBER Working Paper No. 15267*, August 2009, and *the Journal of International Economics*, 83(2), 2011, pp. 185–201.

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⁵ M. Huberman, C. M. Meissner, and K. Oosterlinck, “Technology and Geography in the Second Industrial Revolution: New Evidence from the Margins of Trade,” *NBER Working Paper No. 20851*, January 2015.

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⁶ For a comprehensive survey of the historical literature on globalization and growth see: C.M. Meissner, “Growth from Globalization? A View from the Very Long-Run,” in P. Aghion and S. N. Durlauf, eds., *Handbook of Economic Growth*, vol. 2B, Oxford, United Kingdom: Elsevier Press, 2014, pp. 1033–69.

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⁷ D. Liu and C.M. Meissner, “Market Potential and the Rise of US Productivity Leadership” *NBER Working Paper No. 18819*, February

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⁸ D. Acemoglu and J. A. Robinson, *Economic Origins of Dictatorship and Democracy*, Cambridge, United Kingdom: Cambridge University Press, 2009.

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⁹ J. A. Frankel and D. Romer, “Does Trade Cause Growth?” *American Economic Review*, 89(3), 1999, pp. 379–99, and “Trade and Growth: An Empirical Investigation,” *NBER Working Paper No. 5476*, March 1996.

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¹⁰ J.E. López Córdova and C.M. Meissner, “The Globalization of Trade and Democracy, 1870–2000,” *NBER Working Paper No. 11117*, February 2005, and *World Politics*, 60(4), 2008, pp. 539–75.

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¹¹ M. Huberman and C. M. Meissner, “Riding the Wave of Trade: Explaining the Rise of Labor Regulation in the Golden Age of Globalization,” *NBER Working Paper No. 15374*, September 2009, and *the Journal of Economic History*, 70(3), 2010, pp. 657–85.

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Pricing and Marketing Household Financial Services in Developing Countries

Dean Karlan and Jonathan Zinman

Retail financial institutions worldwide are facing greater competition and regulatory scrutiny. This makes it increasingly important for them to understand the drivers of consumer demand for basic financial services if they are to maximize profits, improve social impacts, and address public policy concerns. Researchers also need to understand these drivers in order to calibrate, shape, and test models in fields ranging from contract theory to behavioral economics to macroeconomics to basic microeconomics. Likewise, policymakers need to understand these drivers in order to sift through a plethora of potentially relevant theories and set appropriate regulations. Much of our research seeks to identify the effects of pricing and marketing on demand for short-term loan and savings products in developing countries.

Pinning down causal effects of financial institutions’ pricing and marketing strategies is complicated by at least five issues. One is the classic social science problem: Relying on observational data is fraught with the risk that changes in price or marketing are correlated with other changes — in firm strategy, in the macroeconomy, in household budget constraints — that drive selection. This is a particular concern when estimating treatment effects from expanding access to financial products such as credit, savings, or insurance. A second issue, intimately related to the first, is low statistical power due to limited variation in key policy parameters. A firm making a single change to pricing, a product, or marketing is basically generating a single data point of variation. The effects of the single change are difficult to disentangle from other contemporaneous changes affecting the firm and its constituents. This is a particular concern for savings products, as compared to loans, since one-size-fits-all pricing is more common and direct marketing is less common

with savings products. These two issues are the primary motivation for employing experimental methods.

A third complicating issue is that most measures of demand sensitivity — for example, demand elasticities — are not fundamental or unchanging parameters. We expect demand sensitivities to change with factors like competition, labor market conditions, and search costs. A fourth issue is that a firm’s levers are rarely perfect representations of a single parameter. For example, variations in price, in particular, may be confounded by other factors changing simultaneously and may therefore lead to deceiving results if interpreted strictly as an estimate of demand sensitivity. A fifth issue is that strategy often requires an understanding of underlying mechanisms, while identifying mechanisms requires observing off-equilibrium behavior. For example, observing loan repayment and other borrower behaviors under atypical conditions can help test theories of asymmetric information or liquidity constraints.

We address these challenges using field experiments implemented by financial institutions in the course of their day-to-day operations. The partnering financial institutions randomly assign prices, communications, or access to products, generating variation that is uncorrelated with other factors that vary endogenously over time or people. This addresses Issue One above. The financial institutions randomize policies at the individual or neighborhood level in order to generate sufficient statistical power to identify causal effects. This addresses Issue Two. In some instances, the financial institutions’ randomized policies are implemented across sufficiently different people or markets, and are in place for long enough or with varying lengths of time, that we can examine under what conditions demand varies. This addresses Issue Three.¹ In another instance,



Dean Karlan is a professor of economics at Yale University and president of Innovations for Poverty Action, a nonprofit dedicated to discovering and promoting solutions to global poverty problems. He is on the Executive Committee of the Board of Directors and program chair for finance of the MIT Jameel Poverty Action Lab. At Innovations for Poverty Action, he is academic co-chair of the Global Financial Inclusion Initiative, the Small and Medium Enterprise Initiative, and the Ultra-Poor Safety Net Graduation Initiative.

As a social entrepreneur, Karlan is co-founder of stickK.com, a website that uses lessons from behavioral economics to help people reach personal goals. Karlan received a Presidential Early Career Award for Scientists and Engineers in 2007, and was named an Alfred P. Sloan Fellow the following year. In 2011 he co-authored *More Than Good Intentions: How a New Economics is Helping to Solve Global Poverty*. His education includes a Ph.D. in economics from MIT, an M.B.A. and an M.P.P. from the University of Chicago, and a B.A. in international affairs from the University of Virginia.



Jonathan Zinman is a professor of economics at Dartmouth College, and co-founder and scientific director of the U.S. Household Finance Initiative (USHFI) of Innovations for Poverty Action.

Zinman's research focuses on household finance and behavioral economics. He has published papers in several top journals in economics, finance, and general-interest science, and his work has been featured extensively in popular and trade media as well.

Zinman applies his research by working with policymakers and practitioners around the globe. He currently serves on the inaugural Consumer Advisory Board of the Consumer Financial Protection Bureau, as a visiting scholar at the Federal Reserve Bank of Philadelphia, and as a Community Development Research Advisory Council member for the Federal Reserve Bank of Boston. He also works directly with financial service providers, ranging from startups to nonprofits to publicly-traded companies, to develop and test innovations that are beneficial to both providers and their clients.

we use variation in price and advertising content to explore how those two levers interact, addressing Issue Four.² Lastly, through two-stage experimental designs, we have tackled typically unobserved behavior on loan repayment as well as returns to capital, which pertains to Issue Five.³

In our work,⁴ and in the work of others,⁵ we learn that financial markets for credit are not meeting the needs of the poor. In Mexico, the Philippines, and South Africa, we have found that financial institutions are able to expand access to microcredit by experimenting with risk-based pricing models or building offices in new geographic areas, effectively reducing the price of financial institution credit from infinity to a market rate for certain borrowers. Others have found the same to be true in Morocco, Bosnia and Herzegovina, Mongolia, India, and Ethiopia. Indeed, every study of which we are aware that has examined the impacts of expanding credit supply has found that the expansion increased borrowing and did not merely crowd out other lenders. Similarly, financial institutions offering new-commitment savings products for 6-to-24 month savings goals have found take-up rates typically around 20–30 percent.⁶ Other financial institutions have found similar unmet demand for commitment savings.⁷

A second finding from the studies above is that the marginal consumers of basic financial services derive a variety of financial benefits from them. This is an important reality check, given concerns that various biases in household decision-making can lead to counterproductive borrowing.⁸ Beyond the basic reality check, the several studies that follow random assignment to loan or savings product availability with extensive household and microenterprise surveys have yielded surprising findings. On the credit side, the results have yielded little support for microcredit's great promise of poverty alleviation and social transformation. Rather, the benefits have been modest, and concentrated more in household risk management and flexibility than in profitable microenterprise growth.⁹ On the savings side, the first wave of impact evaluations has

produced evidence of some important impacts, tested typically with some aspect of commitment to the product,¹⁰ with several studies pursuing further work to unpack mechanisms underlying the impacts.¹¹

A third finding from our work is that information asymmetries complicate lenders' pricing strategies. Our work in the South Africa "cash loan" market and an individual-liability microloan market in the Philippines finds evidence of substantial moral hazard.¹² These papers also suggest that this problem

additional information that lenders could use to screen or price ex-ante and thereby mitigate adverse selection.

A fourth finding is that household demand for commitment savings balances is not sensitive to price, at least within the range of market rates found in the Philippines.¹⁴ This is somewhat puzzling in light of our next set of findings—substantial price sensitivity to consumer credit interest rates—although we emphasize that whether this finding applies to other types

sensitivity; more recently, we worked with a large microlender in Mexico to randomize interest rates at the level of 80 geographical regions across the country, with experimental rates in place for 30 months.¹⁶ This design allows us to estimate elasticities over different time horizons that internalize any spillovers (e.g., information transmission) within regions. We find that loan demand is more or less unit elastic (-1) in year one, with price sensitivity increasing over time to around -3 in year three. This degree of price sensitivity is much larger than anything else found in the literature to date, with the exception of our finding on price increases in South Africa.¹⁷ We attribute this to our design's ability to capture a long-run equilibrium, as opposed, for example, to a temporary and isolated promotion.

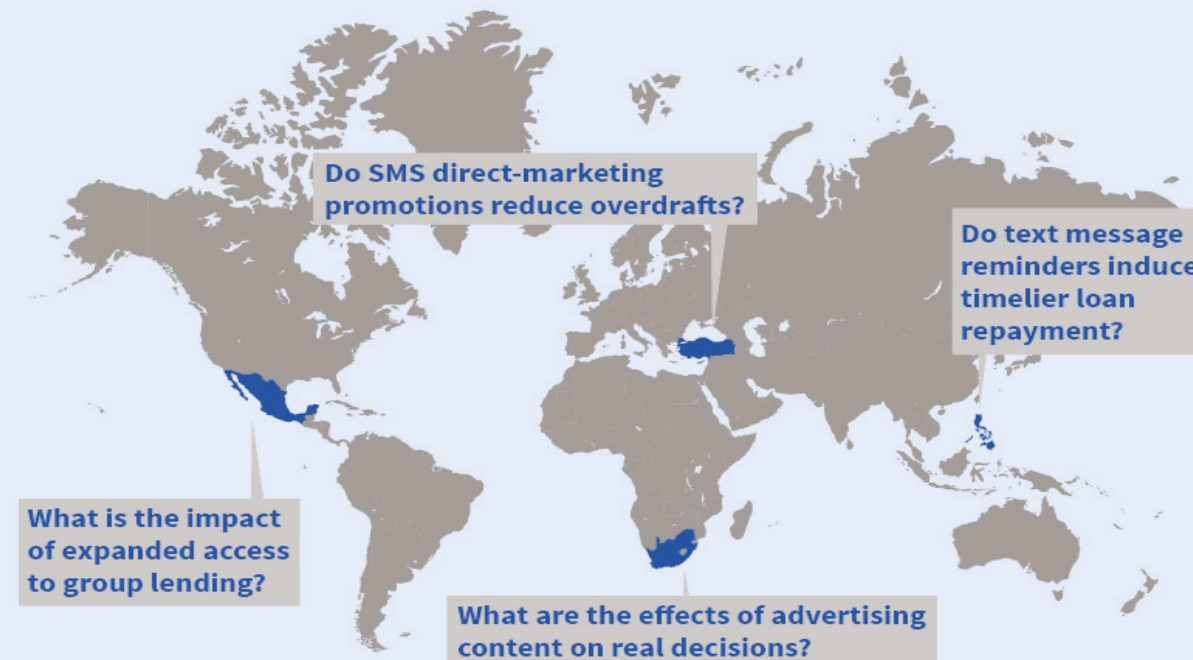
But our most surprising finding on price sensitivity comes from a new paper on a large Turkish bank's experiment with direct-marketing of an overdraft line of credit.¹⁸ Messages mentioning the cost of overdrafting reduce overdraft usage, even though those messages offer a 50 percent rebate on overdraft interest: Substantially reducing the price of the commodity reduces demand for it. This finding is consistent with models of shrouded equilibria in which firms lack incentives to draw attention to add-on prices;¹⁹ this and other findings in the paper, discussed below, are consistent with a model of limited attention and memory.²⁰

A sixth finding is that communications of various types can greatly affect demand. Our direct-marketing experiment in South Africa randomized mailer content alongside price and found the advertising content had large effects.²¹ We find some evidence that content designed to trigger automatic responses was more effective than content designed to trigger deliberative responses, but overall it was difficult to predict exactly which types of ad content would affect

demand based on prior work on behavioral economics. Our experiment in Turkey varied messaging content and intensity as well as overdraft pricing, and we found evidence that both of these levers mattered greatly. In contrast to the core finding on price—that mentioning it reduces demand for overdrafts—simply mentioning overdraft availability substantially increases demand. And more intense messaging—sending the same message more often—amplifies both the demand-increasing effects of advertising overdraft availability and the demand-decreasing effects of advertising an overdraft price reduction. On the savings side, we have found, across three different banks in three different countries, that sending reminders to new commitment savings account customers increases commitment attainment.²² Messages that mention both savings goals and financial incentives are particularly effective, while other content variations such as gain versus loss framing do not have significantly different effects. This set of studies speaks to the importance of limited and malleable consumer attention to household finances.²³

The findings reviewed here, taken together with the work of many other researchers, are initial steps toward unpacking the nature and implications of household demand for financial services. Our recent review articles highlight many opportunities for future work.²⁴

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Sources: NBER Working Papers 17592, 19119, 20956 and *Quarterly Journal of Economics* (2010)

can be addressed with stronger dynamic incentives and repayment reminders from loan officers. Another paper develops an experimental design to test for an interaction between ex-ante and ex-post asymmetric information problems—in our setting, selection on malleability to repayment incentives—and does not rule out an empirically important interaction, although the estimates are imprecise.¹³ That paper also tests a remedy—incited peer referrals—and finds evidence that referring peers are very helpful in pressuring friends to repay ex-post (thereby mitigating moral hazard). It does not find evidence that peers have

of savings instruments and settings is an open question.

A fifth finding from our work is that household demand for consumer credit is price sensitive, and sometimes in surprising ways. Our early work in this area consisted of direct-mail experiments with a small-dollar lender in South Africa.¹⁵ Potential borrowers were price sensitive, but not elastic, with respect to price cuts [$0 > \text{elasticity} > -1$] and were extremely elastic with respect to price increases. Direct-mail promotional experiments have the drawback of identifying short-run rather than steady-state price

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² S. Alan, M. Cemalçilar, D. Karlan, J. Zinman, "Unshrouding Effects on Demand for a Costly Add-on: Evidence from Bank Overdrafts in Turkey," NBER Working Paper No. 20956, February 2015.

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³ See D. Karlan and J. Zinman, “Observing Unobservables: Identifying Information Asymmetries with a Consumer Credit Field Experiment,” *Econometrica*, 77(6), 2009, pp.1993–2008; G. Bryan, D. Karlan, and J. Zinman, “Referrals: Peer Screening and Enforcement in a Consumer Credit Field Experiment,” NBER Working Paper No. 17883, March 2012, and *American Economic Journal: Microeconomics*, forthcoming; and L. Beaman, D. Karlan, B. Thuysbaert, C. Udry, “Self-Selection into Credit Markets: Evidence from Agriculture in Mali,” NBER Working Paper No. 20387, August 2014. [Return to text.](#)

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⁶ See D. Karlan and J. Zinman, “Price and Control Elasticities of Demand for Savings,” *Yale Working Paper*, 2014. http://karlan.yale.edu/p/SavingsElasticities_2014_01_v9.pdf; D. Karlan, M. McConnell, S. Mullainathan, and J. Zinman, “Getting to the Top of Mind: How Reminders Increase Saving,” NBER Working Paper No. 16205, July 2010, and *Management Science*, forthcoming; and N. Ashraf, D. Karlan, and W. Yin, “Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines,” *Quarterly Journal of Economics*, 121(2), 2006, pp.635–72. [Return to text.](#)

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⁹ See endnotes 4 and 5 for the relevant citations.

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¹³ G. Bryan, D. Karlan, and J. Zinman, “Referrals: Peer Screening and Enforcement in a Consumer Credit Field

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¹⁴ D. Karlan and J. Zinman, “Price and Control Elasticities of Demand for Savings,” *Yale Working Paper*, 2014. http://karlan.yale.edu/p/SavingsElasticities_2014_01_v9.pdf. [Return to text.](#)

¹⁵ D. Karlan and J. Zinman, “Credit Elasticities in Less-Developed Economies: Implications for Microfinance.” *The American Economic Review*, 98(3), 2008, 1040–68. [Return to text.](#)

¹⁶ D. Karlan and J. Zinman, “Long-Run Price Elasticities of Demand for Credit: Evidence from a Countrywide Field Experiment in Mexico,” NBER Working Paper No. 19106, June 2013. [Return to text.](#)

¹⁷ For a review of literatures on loan pricing and price sensitivity, as well as several of the other literatures referenced here, see J. Zinman, “Household Debt: Facts, Puzzles, Theories, and Policies,” NBER Working Paper 20496, September 2014, and *Annual Review of Economics*, 7, forthcoming. [Return to text.](#)

¹⁸ S. Alan, M. Cemalcilar, D. Karlan,

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¹⁹ See, e.g., X. Gabaix and D. Laibson, “Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets,” NBER Working Paper No. 11755, November 2005 and *Quarterly Journal of Economics* 121(2), 2006, 505–40. [Return to text.](#)

²⁰ P. Bordalo, N. Gennaioli, and A. Shleifer, “Memory, Attention, and Choice,” *Royal Holloway University of London February 2015 Working Paper*, http://scholar.harvard.edu/files/shleifer/files/evokedsets_march2_0.pdf. [Return to text.](#)

²¹ M. Bertrand, D. Karlan, S. Mullainathan, E. Shafir and J. Zinman, “What’s Advertising Content Worth? Evidence from a Consumer Credit Marketing Field Experiment,” *Quarterly Journal of Economics*, 12(1), 2010, pp.263–305. [Return to text.](#)

²² D. Karlan, M. McConnell, S. Mullainathan, and J. Zinman, “Getting to the Top of Mind: How Reminders Increase Saving,” NBER Working

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²³ See also our work on priming (non-) effects on demand for (microcredit) microinsurance: A. Zwane, J. Zinman, E. Van Dusen, W. Pariente, C. Null, E. Miguel, M. Kremer, D. S. Karlan, R. Hornbeck, X. Giné, E. Duflo, F. Devoto, B. Crépon, and A. Banerjee, “Being Surveyed Can Change Later Behavior and Related Parameter Estimates,” *Proceedings of the National Academy of Sciences*, 108(5), 2011, pp.1821–26; and V. Stango and J. Zinman, “Limited and Varying Consumer Attention: Evidence from Shocks to the Saliency of Bank Overdraft Fees,” NBER Working Paper No. 17028, May 2011, and *Review of Financial Studies*, 27(4), 2014, pp.990–1030. [Return to text.](#)

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