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UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF CALIFORNIA

SAN DIEGO DIVISION

In re Bank of America California Unemployment Benefits Litigation,	Case No. 3-21-md-02992-GPC-MSB
This Document Relates to All Actions	

EXPERT REPORT OF

DAVID I. LEVINE

March 4, 2025

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I. Introduction

A. Qualifications

1. I am the Trefethen Professor at the Haas School of Business, University of California, Berkeley.

2. I received my Ph.D. in Economics from Harvard University, and I have been a professor at UC Berkeley since 1987. I have held visiting positions at the Sloan School, MIT, the U.S. Department of Labor and as a Senior Economist at the President's Council of Economic Advisors.

3. I have published widely in labor economics and the economics of households, with a focus on decisions and risk. I have approximately 100 refereed publications, as well as several books, chapters, and popular articles. My CV, attached as **Appendix A**, includes a list of my recent publications.

B. Summary of Assignment

4. Class Plaintiffs ("Plaintiffs") brought this proposed class action against Defendant Bank of America, N.A. ("the Bank"), *In re Bank of America California Unemployment Benefits Litigation*, Case No. 3-21-md-02992-GPC-MSB, on behalf of themselves and other similarly situated individuals whose California unemployment insurance benefits were distributed on prepaid debit cards by the Bank, and whose receipt of those benefits was adversely impacted by the Bank's policies and practices during the class period in 2020-2021.

5. I was retained by Plaintiffs' counsel to opine on two topics: (1) an appropriate methodology for determining the value of the lost opportunity costs to the class members whose access to UI benefits was delayed or denied by the Bank's challenged policies and practices, and (2) an appropriate methodology for calculating the value of the time lost by class members who telephoned the Bank's customer service number for California UI recipients during the class period and were required to wait in excess of industry-standard wait times before the Bank answered their calls.

6. I am being compensated for my work in this matter at the rate of $1,175 per hour.

7. My analysis and opinions are based on my 40 years in academia and research in the field of labor economics, which includes my experience with the common practice in my field of using a measure of aggregate harm to estimate the effects of a policy.

8. During the course of my analysis, I have relied upon documents and information produced in discovery in this case as well as publicly available documents and information. I have relied upon the materials cited in this report and those materials cited in **Appendix B**.

C. Summary of Opinions

<u>Use of a Compound Interest Rate is an Appropriate Measure of the Opportunity Cost of Delayed UI Benefits</u>

9. Using an aggregate measure of harm is common practice in the field of economics, and aggregates are an appropriate way to represent classwide harm.

10. The harm suffered by class members who were deprived of their UI benefits cannot be represented only by the principal amount of the benefits they were denied. UI recipients who were denied their benefits also suffered harm caused by the delay itself, which can be described as the "opportunity cost" faced by individuals in the absence of UI.

11. In my opinion, a compound interest rate is an appropriate way of measuring this opportunity cost. Specifically, a compound interest rate, applied to the principal amount of delayed funds and the length of time those funds were inaccessible, is an appropriate way to measure the harm caused by the Bank's policies and practices.

<u>The Credit Card Interest Rate is a Conservative Measure of the Opportunity Costs of Depriving UI Recipients of Their Benefits</u>

12. It is my opinion that the credit card interest rate is an appropriate proxy to represent the class-wide harm suffered due to delays in receiving UI payments during COVID. The credit card rate represents the cost to the typical class member of not receiving their benefits, because UI benefits are typically used for essential expenses. When UI payments disappear, most UI recipients turn to credit cards to cover those expenses.

13. Because the alternative sources of funds available to most class members are higher cost than the cost of credit-card borrowing, in my opinion the credit card interest rate is a conservative measure of the opportunity cost of lost funds to the proposed class members.

<u>The Minimum Wage is a Conservative Measure of the Value of Lost Time for the Customer Service Class</u>

14. The harm suffered by members of the Customer Service Class can be calculated using the California state minimum wage. Economists frequently use wage data to represent the value of time, and the minimum wage is a conservative estimate of the average value of time for those waiting for customer service from the Bank.

I. Use of a Compound Interest Rate is an Appropriate Measure of the Opportunity Cost of Delayed UI Benefits

15. It is my understanding that, as a result of the Bank's challenged policies and practices, class members were denied access to their UI funds in the form of either unauthorized transaction claims that should have been reimbursed within 10 business days (Claim Denial Class), rescinded permanent credits on unauthorized-transaction claims that the Bank debited from class members' accounts (Credit Rescission Class), UI funds frozen in their accounts (Account Freeze Class), or delayed payment of continuing UI benefits because EDD was unable to deposit funds into their frozen accounts (Account Freeze Class).

16. It is my opinion that an appropriate measure of damages should include not only the principal amounts of the UI funds that class members were due, but also the value of receiving those UI benefits at the time they were due. The "time value" or "opportunity cost" of money is a well-established concept in economics. In measuring an appropriate time value or opportunity cost of UI funds, it is important to consider the purpose for which UI benefits are issued and the likely consequences of deprivation. For most UI recipients entitled to benefits, a dollar of UI benefits at the time the benefit is due is far more valuable than a dollar of UI benefits one month, or six months, or a year later.

17. Based on economic studies about how recipients use UI benefits and what alternative options are available to recipients who are denied access to their funds, it is my opinion that a lower bound on the average cost of losing access to UI can be measured by a compound interest rate that calculates the ongoing harm of being denied benefits over time. The appropriateness of using this opportunity cost of delayed benefits is supported by my review of the economic literature that makes clear UI benefits are used for essential expenses, and that individuals face harm over time when their sources of funds for these expenses are abruptly cut off.

18. A compound interest rate is an appropriate proxy for the opportunity cost of losing access to UI.

19. UI is a crucial social safety net in the United States, designed to provide temporary financial assistance to workers who have lost their jobs through no fault of their own.[1] The program plays a vital role in mitigating the economic and social consequences of unemployment, which can include lower consumption, increased food insecurity, and reliance on high-cost borrowing.

20. Job loss leads to a significant decrease in household income, forcing individuals and families to cut back on essential expenses like food, transportation, and childcare.[2] Families typically prioritize fixed costs such as rent and mortgage, putting additional pressure on items such as nutrition. UI helps to mitigate this negative cycle by providing partial income replacement, helping unemployed individuals cover their essential expenses.[3]

21. One study, which estimated that consumption would fall by 22.2% in the absence of UI, demonstrates that when individuals experience a loss of income,[4] they incur a cost that is greater than just the loss of the income itself, as they are forced either to cut back on consumption and

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[1] *See generally* Pavoni, Nicola, and Giovanni L. Violante, "Optimal Welfare-to-Work Programs," *The Review of Economic Studies* 74, no. 1 (2007): 283-318 (providing an overview of UI programs and their role in social welfare systems), https://violante.economics.princeton.edu/sites/g/files/toruqf5621/files/documents/Optimal%20Welfare-to-Work%20Programs.pdf.

[2] *See, e.g.,* Gruber, Jonathan. "The Consumption Smoothing Benefits of Unemployment Insurance." *The American Economic Review* 87, no. 1 (1997): 192-205 (estimating the decline in consumption following job loss in the absence of UI); Browning, Martin, and Thomas F. Crossley, "The Life-Cycle Model of Consumption and Saving," *Journal of Economic Perspectives* 15, no. 3 (2001): 3-22 (analyzing how UI helps smooth consumption, with effects varying based on replacement rates, benefit duration, and liquidity constraints), https://www.jstor.org/stable/2950862.

[3] *See* Ganong, Peter, and Pascal Noel. 2019. "Consumer Spending During Unemployment: Positive and Normative Implications." *American Economic Review* 109 (7): 2383–2424, at 2404 (finding that UI benefits have a significant positive effect on consumption, with each additional dollar of UI benefits leading to an increase in the total bank account outflows by 83 cents), https://www.aeaweb.org/articles?id=10.1257/aer.20170537. *See* Fang, Di, Michael R. Thomsen, Rodolfo M. Nayga, and Wei Yang. "Food Insecurity During the COVID-19 Pandemic: Evidence from a Survey of Low-Income Americans," *Food Security* (2022): 165-183 (analyzing how COVID exacerbated food insecurity among low-income Americans and how UI benefits improve food security), https://pubmed.ncbi.nlm.nih.gov/34254010/.

[4] Gruber, *supra* note 2 at 195.

other expenses or to turn to alternative sources of replacement funds, such as credit cards and other forms of consumer borrowing, that typically impose substantial interest rates. Other consequences of being denied UI can include eviction, default on mortgage, and missing payments on other bills[5] (which can result in late fees that increase overall debt and can further damage future job or housing opportunities).[6] Unemployed individuals are also more likely to forego healthcare, which is associated with increased health hardships in the future.[7]

22. UI can help to ameliorate these harms by providing a temporary source of income for the unemployed. UI helps individuals cover essential expenses, such as food, housing, and utilities, and can also help them to avoid incurring credit card debt and other higher-cost borrowing options, such as payday loans. UI also helps individuals maintain their health insurance and avoid having to forego necessary medical care.[8]

23. During the COVID-19 pandemic, the role of UI in California and elsewhere was even more important. The pandemic and ensuing economic crisis caused unprecedented job losses and financial hardship for millions of Americans.[9] In this context, the availability of UI benefits

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[5] *See* Foote, Christopher L., Kristopher S. Gerardi, and Paul S. Willen, "Negative Equity and Foreclosure: Theory and Evidence," *Journal of Urban Economics* 64, no. 2 (2008): 234-45, at 237 (finding that unemployment is a major risk factor for mortgage default), https://www.sciencedirect.com/science/article/abs/pii/S0094119008000673.

[6] Fellowes, Matt, and Mia Mabanta. “Borrowing to Get Ahead, and Behind: The Credit Boom and Bust in Lower-Income Markets,” *Brookings Institution Metropolitan Policy Program* (2007), https://www.brookings.edu/articles/borrowing-to-get-ahead-and-behind-the-credit-boom-and-bust-in-lower-income-markets/.

[7] Huang, Jin, Birkenmaier, Julie, and Kim, Youngmi, "Job Loss and Unmet Health Care Needs in the Economic Recession: Different Associations by Family Income," *American Journal of Public Health* 104, no. 11 (2014): 178-183. https://pmc.ncbi.nlm.nih.gov/articles/PMC4202960/#:~:text=Job%20loss%20was%20significantly%20associated,%2D%20and%20higher%2Dincome%20unemployed.

[8] Berkowitz, Seth A., & Basu, Sanjay, "Unemployment Insurance, Health-Related Social Needs, Health Care Access, and Mental Health During the COVID-19 Pandemic," *JAMA Internal Medicine* 181, no. 5 (2021): 699-702 (analyzing the impact of UI on health-related social needs, healthcare access, and mental health during the COVID-19 pandemic), https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2773234.

[9] *See generally* Coibion, Olivier, Gorodnichenko, Yuriy, and Weber, Michael, "Labor Markets During the COVID-19 Crisis: A Preliminary View," *National Bureau of Economic Research Working Paper No. 27017* (2020) (documenting widespread job losses and economic disruption caused by the pandemic), https://www.nber.org/papers/w27017.

became even more critical in helping mitigate the adverse impacts of the pandemic across various dimensions, including access to household necessities, payment of bills, food insecurity, high-cost borrowing, and other financial hardships.

24. To prevent widespread economic devastation during the pandemic, the federal government made UI more generous than usual.[10] From late March to July 2020, the federal government provided an extra $600 per week on top of normal state UI benefits. Pandemic Unemployment Assistance was also extended to gig workers and others not normally covered by UI.[11] A crucial goal of UI during this lockdown phase was to encourage people to stay safe at home and help them afford to pay their bills and purchase food without having to seek a job outside. For the rest of 2020 through March 2021, UI recipients received an extra $300 per week on top of normal benefits.[12]

25. UI benefits were particularly critical for low-income individuals during this time, because during the first year of the pandemic, adults aged 25 to 64 with low socioeconomic position (SEP) were less likely to have remote work opportunities and were five times more likely to die from COVID than their high-SEP counterparts.[13]

26. The pandemic exacerbated food insecurity among the unemployed.[14] Many individuals were initially forced to make difficult choices between paying for food and other essential expenses, but UI benefits provided a source of income that could be used to purchase food

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[10] Petrosky-Nadeau, Nicolas, and Robert G. Valletta, "UI Generosity and Job Acceptance: Effects of the 2020 CARES Act," *Federal Reserve Bank of San Francisco Working Paper Series* (2021) (documenting the generosity of UI during COVID and its impact on job acceptance), https://www.frbsf.org/wp-content/uploads/wp2021-13.pdf.

[11] Greig, Fiona, Daniel M. Sullivan, Samantha Anderson, Peter Ganong, Pascal Noel, and Joseph Vavra. "Lessons Learned from the Pandemic Unemployment Assistance Program during COVID-19," *JPMorgan Chase Institute* (2022). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4100569.

[12] U.S. Department of Labor, "U.S. Department of Labor Issues Guidance on Federal Pandemic Unemployment Compensation and Mixed Earner Unemployment Compensation," Jan. 5, 2021, https://www.dol.gov/newsroom/releases/eta/eta20210105.

[13] *See* Pathak, Elizabeth B., Janelle M. Menard, Rebecca B. Garcia, & Jason L. Salemi, "Joint Effects of Socioeconomic Position, Race/Ethnicity, and Gender on COVID-19 Mortality Among Working-Age Adults in the United States," *International Journal of Environmental Research and Public Health* 19, no. 9 (2022): 5479 ("During the first year of the COVID-19 pandemic in the United States, low-SEP adults aged 25–64 years old were five times as likely as high-SEP adults to die from COVID-19…"), https://pubmed.ncbi.nlm.nih.gov/35564872/.

[14] *See* Fang et al. *supra* note 3.

without forcing families to make difficult decisions between food and healthcare, food and transportation, and food and bills.[15] UI benefits reduced food insecurity for many jobless individuals, and the payments were especially helpful in reducing food insecurity among low-income households with children during the pandemic.[16]

27. The ongoing availability of UI benefits during the pandemic was also particularly valuable because those payments helped individuals maintain health insurance and afford much-needed health care.[17]

28. In many other ways, the pandemic exacerbated the financial challenges that ordinarily come with job loss, such as mortgage default and difficulty paying bills.[18] UI benefits significantly reduced the likelihood of mortgage default and provided families with vital income support to prevent falling behind on bills.[19]

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[15] *See id.* at 166 ("[o]ur results indicate that losing a job due to the pandemic was associated with the highest level of food insecurity…"); *id.* at 174 ("unemployment benefits are helping to alleviate food insecurity").

[16] *See id.* at 174 ("receipt of unemployment benefits is negatively associated with food insecurity with the strongest associations and significant associations among those who lost a job due to the pandemic, households with children, and Black households"); Raifman, J., Bor, J., Venkataramani, A. "Association Between Receipt of Unemployment Insurance and Food Insecurity Among People Who Lost Employment During the COVID-19 Pandemic in the United States," *JAMA Network Open* (2021) at 7 (investigating the association between receiving UI benefits and food insecurity among individuals who lost employment during the COVID-19 pandemic) (UI reduced food insecurity by 4.3 percentage points, a 35 percent relative decrease, among jobless individuals), https://pubmed.ncbi.nlm.nih.gov/33512519/.

[17] *See* Kuka, Elira, "Quantifying the Benefits of Social Insurance: Unemployment Insurance and Health," *The Review of Economics and Statistics* 102, no. 3 (2020): 490-505, at 490 ("The results show that higher UI generosity increases health insurance coverage and utilization, with stronger effects during periods of high unemployment rates."), https://direct.mit.edu/rest/article-abstract/102/3/490/96788/Quantifying-the-Benefits-of-Social-Insurance?redirectedFrom=fulltext; *see generally* Shafer, Paul R., "Expanded Unemployment Benefits and Their Implications for Health During the COVID-19 Pandemic," *Health Services Research* 57, no. 1 (2021): 12 (analyzing the impact of expanded UI benefits on health care spending and social well-being), https://pmc.ncbi.nlm.nih.gov/articles/PMC8652454/.

[18] *See* Consumer Financial Protection Bureau, "Housing Insecurity and the COVID-19 Pandemic," 1-20, at 2 (2021) ("In 2020, those who have fallen behind at least three months on their mortgage increased 250 percent to over 2 million households, and is now at a level not seen since the height of the Great Recession in 2010."), https://www.consumerfinance.gov/data-research/research-reports/housing-insecurity-and-the-covid-19-pandemic/.

[19] *See* Park, JungHo, and Dongha Park, "Racial Disparities in Unemployment Benefits Among U.S. Mortgage Borrowers During COVID-19," *Journal of Housing and the Built Environment* 38, no. 3 (2023): 1619-1649, at 1619 ("UI recipients—regardless of race and ethnicity—were less likely to experience mortgage difficulties…"), https://pubmed.ncbi.nlm.nih.gov/36624828/. *See generally* Ganong, Peter, Pascal Noel, and Joseph Vavra, "US Unemployment Insurance Replacement Rates During the

29. Based on this literature, it is my opinion that the unemployed individuals who received UI benefits in California during the class periods were less likely to turn to high-cost borrowing options, less likely to forego healthcare, and less likely to experience eviction, mortgage default, and lower credit scores. UI recipients with a temporary source of income were more able to afford household necessities and prevent these harms from occurring. When these benefits were abruptly withheld, it is my opinion that class members faced an opportunity cost when they sought other funds to prevent these harms from occurring—or, alternatively, when they incurred costs related to reducing consumption.

30. A compound interest rate is an appropriate way to measure this opportunity cost because it can be applied to the principal amount of funds withheld and the length of time benefits were delayed, which represented the costs incurred over time as the affected individuals either paid to avoid or incurred these harms.

II. <u>The Credit Card Interest Rate is a Conservative Measure of the Opportunity Costs of Depriving UI Recipients of Their Benefits</u>

31. I was asked to opine on what interest rate would be appropriate to use in calculating the aggregate harm to class members whose access to UI benefit funds was delayed by the Bank's challenged actions. It is my opinion that a standard credit card interest rate is a conservative estimate of the aggregate harm caused by those delays. The credit card interest rate, applied to the principal amount of delayed funds and the length of time funds were inaccessible, is an appropriate methodology for measuring class-wide harm and is supported by commonly used tools in labor economics. This next section describes the opportunity costs faced by individuals in the absence of UI and explains why the credit card interest rate is a conservative estimate of this harm.

32. My opinion on the appropriateness of using the credit card interest rate is supported by research showing demographic and socio-economic features of the average Californian who receives UI and my analysis of how those individuals are likely to cope with delayed UI

Pandemic." *Journal of Public Economics* 191 (2020): 104273 (finding that UI benefits significantly reduced the likelihood of mortgage default during the pandemic), https://www.sciencedirect.com/science/article/pii/S0047272720301377?via%3Dihub.

payments. Economists have studied the outcomes for unemployed people during COVID. These results suggest that of those not using a credit card as the source of funds to replace UI payments, the majority would have been accessing much higher cost sources of funds than the credit card rate. As a result, it is my opinion that the credit card interest rate is a *conservative* estimate of the cost faced by these class members.

33. My review of the academic literature on UI recipients supports the conclusion that the delay or denial of UI benefits generates a cost for every individual whose benefits were denied. Because of the research cited above that shows that UI benefits during the pandemic were used to cover the cost of household necessities, bills, rent, childcare, and healthcare, and because it is unlikely that many UI recipients during this period had sufficient savings to cover several months of expenses, every class member who was denied their benefits suffered some harm.

34. It is my opinion that the typical class member was likely to have suffered at least the cost represented by the credit card interest rate during the time their benefits were denied. This conclusion is based on my research which shows that most class members would have turned to credit card borrowing to cover their essential expenses in lieu of UI, and others would have turned to even higher-cost forms of borrowing.

35. First, it is unlikely that class members could fall back on savings to cover expenses the whole time their UI benefits were denied. Pre-pandemic data shows that only about 37% of all adults had at least one month's worth of expenses in emergency savings, and for several reasons, it is my opinion that 37% undercounts the percentage of the class in this category.[20] First, UI recipients in general have lower levels of savings than those who are employed: "[t]he workers most exposed to job losses and wage cuts are some of the same workers least likely to have a buffer of savings to weather an income shortfall."[21] Second, families with uncertain delays will

[20] Caroline Ratcliffe, et al., "Emergency Savings and Financial Security: Insights from the Making Ends Meet Survey and Consumer Credit Panel" at 36, *CFPB Office of Research Data Point No. 2022-01* (2022).

[21] Washington Center for Equitable Growth. "What the U.S. Census Household Pulse Survey Reveals About the First Year of the Coronavirus Recession in Six Charts," *Washington Center for Equitable Growth* (April 1, 2021), https://equitablegrowth.org/what-the-u-s-census-household-pulse-survey-reveals-about-the-first-year-of-the-coronavirus-recession-in-six-charts/; *see also* Berman, Yonatan, "The Distributional Short-Term Impact of the COVID-19 Crisis on Wages in the United States," *City University of New York Working PAper* (2020), https://arxiv.org/pdf/2005.08763.pdf (showing impact of COVID-19 on wage cuts).

not want to deplete all of their savings—especially if they have children or other reasons to be risk averse. Because Plaintiffs' counsel has informed me that most UI payments in this class were delayed by over a month even this small proportion of adults may not have survived the length of the delay without incurring debt. This research supports my opinion that a large majority of class members were likely unable to cover the costs of their essential expenses without borrowing or incurring other costs associated with extreme deprivation.

36. To arrive at a measure of the costs that these individuals who did not rely solely on savings *did* face when their benefits were abruptly withheld, I examined the ways in which the literature shows that class members might have coped with this sudden loss of funds. It is my opinion that class members whose benefits were denied most commonly coped by borrowing funds on a credit card, while others sought even higher-cost forms of borrowing like payday loans, and others still incurred higher costs related to deprivation of food, housing, and medical care.

37. Most class members whose UI benefits were denied likely incurred credit card debt to cover their essential expenses. This conclusion is supported by research that shows that by the end of 2021, 190.6 million adults in the United States (74%) had a credit card.[22] An even higher share of households would have had a credit card at the time of that statistic, and it can be assumed that if even one line of credit is available to a household, that card will be used for essential expenses.

38. Studies also show that during the pandemic, recipients of extra government funds most commonly used those funds to pay off credit card debt. Data from the U.S. Census Bureau's Household Pulse Survey indicates that 66% of respondent households at the end of January 2021 who indicated that they were "laid off due to coronavirus pandemic" or whose "employer went out of business due to the coronavirus pandemic" used their COVID-19 stimulus payment primarily to pay off debt.[23] Indeed, when stimulus relief was delayed in late 2020, many

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[22] *See* Consumer Financial Protection Bureau. *The Consumer Credit Card Market*, (October 2023) at 15, https://www.consumerfinance.gov/data-research/research-reports/the-consumer-credit-card-market/.

[23] *See* "Household Pulse Survey Public Use File: January 20 – February 1, 2021," U.S. Census Bureau, https://www2.census.gov/programs-surveys/demo/datasets/hhp/2021/wk23/HPS_Week23_PUF_CSV.zip, accessed October 7, 2024. Of the 5,207,469 respondents to the Census Bureau who indicated they were "laid off due to coronavirus pandemic" or did not work in the past seven days because their employer "went out of business," "experienced a reduction in business (including furlough)," or "closed

households resorted to credit, then used the eventual stimulus checks to pay down that debt.[24] For families in this category, who would have used a government transfer to pay off credit card debt, the opportunity cost of not receiving that transfer is the credit card interest rate.

39. Other class members—especially those who did not have access to credit—would have turned to even higher cost forms of borrowing. It is well-established that 26% of American adults had no credit card in their names as of the end of 2021.[25] This group includes only 0.2% of all superprime consumers, 40% of deep subprime, and 95% of those with a thin or stale credit file.[26] I expect the unemployed to be over-represented among this group, and it is my opinion that individuals in this category would have incurred costs even higher than the cost of credit card debt.

40. Because UI recipients rely on these benefits to cover essential expenses, the loss of those benefits can push individuals without access to credit towards high-cost borrowing options, such as payday loans or pawn shops, to make ends meet.[27] These types of loans often come with high interest rates and fees, which can trap borrowers in a cycle of debt.[28] The average payday loan has an annual percentage rate (APR) of 339% according to a report by the Consumer Financial Protection Bureau (CFPB) in 2013, which is far higher than the average credit card interest rate.[29] Class members who were unbanked may have even turned to high-cost forms of credit, such as pawn loans, etc. In California, a $1000 pawn loan for 3 months compounds to an annual

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temporarily" due to the coronavirus pandemic and received a COVID-19 stimulus payment, 3,417,137 respondents mostly used their payment to pay down debt, and 633,287 respondents mostly used their payment to increase savings. Responses are weighted by the Census Bureau to reflect differences between the survey sample and the general population of households.

[24] *Id.*

[25] *See* Consumer Financial Protection Bureau (2023), *supra* note 22, at 15.

[26] *Id.* at 16.

[27] *See e.g.,* Bhutta, Neil, Jacob Goldin, and Tatiana Homonoff, "Consumer Borrowing After Payday Loan Bans," *The Journal of Law and Economics* 59, no. 1 (2016): 225-59 (examining the use of payday loans by unemployed individuals, and other high-interest rate borrowing options used by the same consumer population), https://www.journals.uchicago.edu/doi/10.1086/686033.

[28] *Id.* at 226.

[29] Consumer Financial Protection Bureau, "Payday Loans and Deposit Advance Products" at 17 (2013), https://files.consumerfinance.gov/f/201304_cfpb_payday-dap-whitepaper.pdf.

interest rate of around 50%.[30] The opportunity cost of delayed UI funds for these individuals far exceeded the credit card interest rate.

41. Other individuals without access to credit may have been forced to cut back on high-value spending, and that, too, has extreme opportunity costs. This group includes individuals who were unable to borrow and those who chose not to borrow because the only options had extremely high costs or they were not willing to deplete their assets to zero. The latter group is impacted by the fact that class members here did not know if or when they would receive their UI payments, so they may have chosen to forego food or incur other high costs to prevent spending their last dollar.[31]

42. Individuals who cut back on essential expenses paid costs measured by late fees on unpaid bills, damage to housing opportunities and credit scores, and human hardship measured in skipped meals and foregone healthcare.

43. A conservative way to quantify these harms is to use the deep subprime effective interest rate on credit cards (21%). To arrive at this estimate, I examined research that shows that a payday loan is likely to be beneficial if (1) the individual has a short-term need for cash and (2) the individual knows they will be able to repay the loan in a few weeks. In these circumstances, borrowing $265 (e.g., to be able to buy food or pay rent) and repaying $300 in a few weeks can

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[30] CAPA - Notice to the Public – Pawn Loan Charges (2016), https://gemsnloans.com/wp-content/uploads/2021/04/CAPA-Notice-to-Public-2020.pdf.

[31] We see the value of precautionary savings in a related context; many families have revolving credit card debt even when they have savings in the bank, even though credit cards charge much higher interest rates than banks pay on savings deposits. The Consumer Finance Protection Board reports that 65% of those with positive savings, but less than a month's income worth, had positive credit balances after making their last payment. This share is lower, but still 28%, for those with savings over one month's income. Ratcliffe, *supra* note 20 at 36. Academic studies agree that holding liquid assets does not imply lack of credit card debt, and those studies also find that a large fraction of households "co-hold" credit card debt and liquid savings simultaneously. Telyukova emphasizes that precautionary motives (fear of losing income, unexpected expenses) and liquidity needs can help explain why people don't simply pay down high-interest debt with their savings. Telyukova, Irina A., "Household Need for Liquidity and the Credit Card Debt Puzzle," *Review of Economic Studies* 80, no. 3 (2013): 1148-1177, https://academic.oup.com/restud/article/80/3/1148/1571542; *see also* Gross, D. B., & Souleles, N. S., "Do Liquidity Constraints and Interest Rates Matter for Consumer Behavior? Evidence from Credit Card Data," *The Quarterly Journal of Economics*, 117(1), 149–185 (2002), https://academic.oup.com/qje/article-abstract/117/1/149/1851757; Gorbachev, O., & Luengo-Prado, M. J., "The Credit Card Debt Puzzle: The Role of Preferences, Credit Access Risk, and Financial Literacy," *Review of Economics of the Household*, 17(4), 1301–1328 (2019), https://direct.mit.edu/rest/article-abstract/101/2/294/58511/The-Credit-Card-Debt-Puzzle-The-Role-of?redirectedFrom=fulltext.

be beneficial.[32] If the second factor (prompt ability to repay) does not occur, payday loans can cause more harm than good. If class members did not borrow and were instead forced into extreme deprivation, my assumption is that the uncertainty they faced about if and when their UI would arrive was so great as to reduce their incentive to use payday lending (the alternative they would have chosen had they been secure in the knowledge that their UI benefits would soon arrive to help repay that high-interest loan). As a result, these individuals sacrificed high-value consumption (such as missing meals or medical care) or failed to pay bills (potentially running up late fees and harming their credit scores), even when the consequences of these actions were worse than borrowing for a month at 13% interest (that is, with an annual interest rate greater than 350%). This supports my conclusion that the deep subprime effective interest rate on credit cards, 21%, is an extremely conservative measure of the cost faced by this group. The costs they faced were often much higher—in suffering, instability, and missed meals, in addition to late fees and damage to credit scores from delinquencies on bills and rent.

44. This research supports my opinion that the credit card interest rate would be a conservative measure of the average opportunity cost faced by members of the impacted classes. Those who were denied their UI benefits incurred costs *at least* as great as the cost of incurring credit card debt, and the harm to many was far higher. Using the credit card interest rate as a measure of the average opportunity cost of an impacted class member is extremely conservative because it undervalues the damage caused to class members who were forced to take out a payday loan, pawn loan, or other high-cost forms of borrowing, and it also undervalues the downstream costs of extreme deprivations in food, medical care, and other necessities.

45. I estimate that class members paid an effective interest rate of at least 15.9%. Credit card rates vary, but I arrived at this conclusion after estimating the effects of two known forces: First, people with lower credit scores on average pay higher credit card rates than those with higher credit scores, and those who were unemployed during COVID tended to have lower education, which predicts lower credit scores; and second, Californians have slightly higher credit scores

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[32] These figures are merely illustrative. They imply a 13% monthly interest rate, which compounds to 360% per year, approximately matching the California average rate on payday loans. *See* California Department of Financial Protection and Innovation, "Annual Report of Payday Lending Activity Under the California Deferred Deposit Transaction Law," at 7, Table 2, *Department of Financial Protection and Innovation*, https://dfpi.ca.gov/wp-content/uploads/2024/09/DFPI-Annual-Report-CDDTL-2023.pdf.

than the rest of the nation. Due to data limitations, I neglect all other disadvantages the unemployed had which would have tended to further reduce their credit scores and increase their cost of borrowing. For the many reasons listed above, this is a conservative lower bound on the average opportunity cost funds for UI recipients in California during the COVID pandemic.

III. The Minimum Wage is an Appropriate Measure of the Value of Lost Time for the Customer Service Class

46. In my opinion, the minimum wage is an appropriate measure of the value of time Customer Service class members spent waiting on hold in pursuit of customer service.

47. I understand that the Customer Service Class is seeking damages for time spent on hold with the Bank's Claims call center, waiting for the Bank to answer their calls.

48. Economists frequently measure the value of time, and several studies have found that the typical value of time is close to the median wage. Economists using very different methodologies have arrived at this same conclusion.

49. Importantly, the value of time is frequently measured using this methodology even when the time is not spent at work. For example, the National Academies of Sciences, Engineering, and Medicine reports that leisure travelers' value of waiting in an airport lounge is about the median wage (even when those travelers can accomplish other leisure tasks during that time, like reading a book or chatting with friends).[33] The U.S. Department of Transportation also measures the average value of time for infrastructure projects as a percentage of the wage rate (50%).[34] Another study examined how much individuals would pay for a rapid pick-up on Lyft, the ride-share app.[35] Again, this study found that the value of time was near the median wage.

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[33] National Academies of Sciences, Engineering, and Medicine, "Passenger Value of Time, Benefit-Cost Analysis and Airport Capital Investment Decisions, Volume 2: Final Report" at 64 (2015), https://doi.org/10.17226/22161 ("[T]he median individual income for leisure travelers fell in the $50,000 to $74,999 category.").

[34] U.S. Department of Transportation, "Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis" at 9-10 (2016), https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-valuation-travel-time-economic.

[35] *See* Goldszmidt, Ariel, John A. List, Robert D. Metcalfe, Ian Muir, V. Kerry Smith, and Jenny Wang, "The Value of Time in the United States: Estimates from Nationwide Natural Field Experiments," *National Bureau of Economic Research* (2020), https://www.nber.org/papers/w28208 (Researchers used

50. Other studies show that time spent unproductively is of an even higher value to people, reflecting the frustration with wasted time. A study from the United Kingdom found that people valued time spent commuting at about $15 per hour, and time spent stuck in traffic at about twice as much ($31).[36] This value of time spent stuck in traffic was substantially above the median hourly wage (roughly $22/ hour).[37]

51. A separate body of literature also confirms the unsurprising conclusion that people do not like waiting on hold for customer service.[38] Dissatisfaction with long hold time increases when the eventual response the caller receives is not informative.[39] My understanding is that the Bank systematically provided unhelpful and/or false information to members of the Customer Service Class, which would magnify the disutility of the phone call and increase the value of time spent on hold.

52. Academics have also noted that increased stress can also raise the value of time. For example, the survey by the National Academies found that the value of an unexpected flight delay is about *five times* the median wage.[40]

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data from ridesharing company Lyft, analyzing random variations in wait times and prices across millions of observations to estimate consumers' value of time.).

[36] Krekel, Christian, and George MacKerron, "Back to Edgeworth? Estimating the Value of Time Using Hedonic Experiences" at 5, *CEP Discussion Paper No. 1932*, Centre for Economic Performance, London School of Economics and Political Science (2024), https://cep.lse.ac.uk/pubs/download/dp1932.pdf.

[37] Office for National Statistics, "Employee Earnings in the UK: 2024," last modified Oct. 29, 2024, https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/annualsurveyofhoursandearnings/2024 (reporting median hourly earnings, excluding overtime, for full-time employees to be £17.52 in April 2023, which roughly corresponds to $22).

[38] *See* Taylor, S., "Waiting for Service: The Relationship Between Delays and Evaluations of Service," *Journal of Marketing*, 58(2), 56-69, (1994), https://www.jstor.org/stable/1252269?seq=1. In this peer-reviewed study, Taylor explores how waiting times affect customers' evaluations of service quality. The research demonstrates that longer waits significantly decrease customer satisfaction. The findings highlight that even brief delays can have a notable impact on perceptions of service. *See also* Chatterjee, S., "Wait for Service and Customer Specific Service Outcomes: A Meta-Analysis," *Indian Institute of Management: Bangalore*, (2013), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2259403. This meta-analysis examines the relationship between service wait times and customer-related outcomes. The author concludes that service delay has a significant negative impact on customer satisfaction.

[39] Garcia, Danilo, Trevor Archer, Saleh Moradi, and Bibinaz Ghiabi. "Waiting in Vain: Managing Time and Customer Satisfaction at Call Centers," *Psychology* vol. 3, no. 2 (2012): 213-216 at 215. https://www.scirp.org/pdf/psych20120200012_35892130.pdf.

[40] National Academies of Sciences, Engineering, and Medicine at 80 *supra* note 33.

53. In all of these instances, the median wage (or higher) is used to represent the value of time. To err on the side of a conservative estimate, it is my opinion that the minimum wage is an appropriate measure of the value of time UI beneficiaries in the Customer Service Class spent waiting on hold for the Bank's assistance.

54. The fact that leisure travelers value their time is an important reminder that time is money, but time is also time with friends and family, housework, childcare, hobbies, and so forth. Thus, even unemployed people value their time, and any suggestion to the contrary defies this widespread research.

55. As a result, my expert opinion is that the minimum wage is a reasonable lower bound on the average value of the time the Customer Service Class members spent on hold waiting for the Bank's Claims call center to answer their calls.

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Dated: March 4, 2025

David Levine

David I. Levine
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Appendices

Appendix A: CV

DAVID I. LEVINE

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EDUCATION

- 1987 Ph.D. Harvard University: Economics
- 1985 A.M. Harvard University: Economics
- 1982 B.A. University of California, Berkeley: Economics and Computer Science

EMPLOYMENT

- Haas School of Business, University of California, Berkeley: Eugene E. and Catherine M. Trefethen Professor of Business Administration, 2006-present
    - Previously Professor 2002-06, Associate Professor 1993-2002, and Assistant Professor 1987-1993
- Council of Economic Advisers: Senior Economist, 1994-1995
- Office of the American Workplace, U.S. Department of Labor: Senior Research Economist, 1994
- Sloan School, MIT: Visiting Scholar, Industrial Relations Group, 1991
- Harvard University: Teaching Fellow, 1983-86
- NBER: Research assistant for Professor Lawrence Summers, 1984
- Programmer for Intermetrics (1982), Apple Computer (1979-81) and Intel (1978)

OTHER AFFILIATIONS

- Educate Girls Globally, Board member 2022-present
- Development Engineering Graduate Group, University of California, Berkeley: Executive Committee, 2013-present
- Graduate Group in Health Services, University of California, Berkeley: Executive Committee, 2008-present
- Economic Analysis and Policy Group, Haas School of Business, University of California, Berkeley: chair, 2008-2011 and 2019-2023
- Haas Undergraduate Program Committee, chair, 2013-15, 2018-19, and 2021-2022.
- Haas Policy and Planning Committee, 2010-12 and 2020-22 (chair, 2021-22)
- WE CARE Solar: Scientific Advisory Board, 2008-2012
- University of California, Berkeley, Campus Undergraduate Committee, 2019-2020
- Panel of Counselors (Faculty committee), University of California, Berkeley, 2017-18
- Goodguide: Scientific Advisory Board, 2007-2012

- Ombudsman Committee, UC Berkeley, 2008-12
- Center for Effective Global Action (CEGA), University of California: Founding chair of the Advisory Board, 2006-2011
- Center for Responsible Business, Haas School of Business, University of California, Berkeley: Faculty Advisory Board, 2003-2009. Research Director, 2004-2006
- Center for Health Research, University of California, Berkeley: Chair, 2005-2008
- NERA Economic Consulting: Special consultant, 2005-2008
- *Industrial Relations*: Editor, 1993-2005
- Institute of Industrial Relations, U.C. Berkeley: Associate Director, 1997-2005
- Center for Labor Research and Education, U.C. Berkeley: Executive Committee and Advisory Board, 1995-2005
- Institute for Labor and the Economy, University of California: Research Committee, 2001-2003
- Center for Organization and Human Resource Effectiveness: Founding Director of Research, 1996-2000
- *Labor Center Reporter*: Faculty Mentor, U.C. Berkeley, 1998-1992
- *Dollars and Sense*: Editorial Associate, 1985-1990

BOOKS AND MONOGRAPHS

Global Challenges in Responsible Business, editor, with CB Bhattacharya, Craig Smith and David Vogel, Cambridge University Press, 2010

Carve-outs in Workers' Compensation Programs in California Construction, with Cristian Echeverria, Frank Neuhauser, Richard Reuben, and Jeffrey S Petersen, Upjohn Institute, Kalamazoo MI, 2003

How New is the "New" Employment Contract? with Dale Belman, Gary Charness, Erica Groshen, and KC O'Shaughnessy, Upjohn Institute, Kalamazoo MI, 2002 (Listed as "Noteworthy" by the Princeton Industrial Relations Section)

The American Workplace: Skills, Pay, and Employee Involvement, editor, with Casey Ichniowski, Craig Olson, and George Strauss, Cambridge University Press, 2000

Working in the 21st Century: Government Policies to Promote Opportunity, Learning and Productivity in the New Economy, ME Sharpe, Armonk NY, 1998

Reinventing the Workplace: How Business and Employees Can Both Win, Brookings Institution, Washington DC, 1995

REFEREED ARTICLES (Most articles are on my web site)

"Vaccination as personal public-good provision," with J. Lucas Reddinger and Gary Charness. *Journal of Economic Behavior & Organization* 224 (2024): 481-499. https://www.sciencedirect.com/science/article/pii/S0167268124002336

"Evaluating India's Intensified Diarrhea Control Fortnight: an analysis of the National Family Health Survey 2015-2016." With Xinyu Ren. *Journal of Global Health Reports*. 2023. 7: e2023012. doi:10.29392/001c.75428

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"Improving Regulatory Effectiveness Through Better Targeting: Evidence from OSHA," with Matthew Johnson and Michael Toffel. *American Economic Journal: Applied Economics*, 15(4), 30-67. https://paperssrncom/sol3/paperscfm?abstract_id=3443052 (SSRN Top Ten list, Oct 4, 2019, ORG: Regulations, PSN: Bureaucratic behavior, PSN: Labor)

"Can targeted messages reduce COVID-19 vaccination hesitancy? A randomized trial," with Jonathan Lucas Reddinger and Gary Charness, *Preventive Medicine Reports*. 29, 2022.. https://www.sciencedirect.com/science/article/pii/S2211335522002108

"Optimal Arrangements for Distribution in Developing Markets: Theory and Evidence" With William Fuchs and Brett Green. *American Economic Journal: Microeconomics*, 14 (1), Feb 2022: 411-50

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"The Refill Gap: Clean Cooking Fuel Adoption in Rural India" With Bodie Cabiyo and Isha Ray *Environmental Research Letters* 16, 1, 2020

"Incentivizing elimination of biomass cooking fuels with a reversible commitment and a spare LPG cylinder" With Stephen Harrell, Ajay Pillarisetti, Sudipto Roy, Sanjay Juvekar, Rutuja Patil, and Kirk RSmith *Environmental Science and Technology*, 2020

"A Marriage-based Pilot Clean Household Fuel Intervention in India for Improved Pregnancy Outcomes" With Ajay Pillarisetti, Sudipto Roy, Nadia Diamond-Smith, Makarand Ghorpade, Arun Dhongade, Kalpana Balakrishnan, Sambandam Sankar, Rutuja Patil, Sanjay Juvekar, Kirk R Smith *BMJ Open* 10, 10, Oct 2020 https://bmjopenbmjcom/content/10/10/e044127full

"Encouraging fertilizer adoption through risk free sample purchase: A randomized control trial in Uganda" With Annet Adong, James Tinker, Swaibu Mbowa, and Tony Odokonyero *World Development Perspectives* 19 (2020): 100230

"When financial incentives backfire: evidence from a community health worker experiment in Uganda," with Zachary Wagner and John Bosco Asiimwe *Journal of Development Economics* Volume 144, May 2020 https://authorselseviercom/a/1aPm915DRFs0CP (https://doiorg/101016/jjdeveco2019102437)

"Effectiveness of a community-based water, sanitation, and hygiene (WASH) intervention in reduction of diarrhoea among under-five children: Evidence from a repeated cross-sectional study (2007–2015) in rural Bangladesh" with Nepal C Dey, Mahmood Parvez, Mir Raihanul Islam, Sabuj K Mistry *International Journal of Hygiene and Environmental Health* 20 August 2019 https://doiorg/101016/jijheh201908006

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"Fairness and the employment contract: North American regions versus Germany," with Knut Gerlach, Gesine Stephan, and Olaf Struck *Cambridge Journal of Economics* 32, 3, May 2008: 421-439.

"Intention and Stochastic Outcomes: An Experimental Study," with Gary Charness *Economic Journal*, 117 July 2007: 1051–1072

"The Growing Importance of Family and Community: An Analysis of Changes in the Sibling Correlation in Earnings," with Bhashkar Mazumder *Industrial Relations*, 46, 1, January 2007: 7-21

"Growth, Industrialization, and the Intergenerational Correlation of Advantage," with Jon R Jellema *Industrial Relations*, 46, 1, January 2007: 130-170

"Is Social Capital the Capital of the Poor? The Role of Family and Community in Helping Insure Living Standards Against Health Shocks," with Paul Gertler and Enrico Moretti *CESifo Economic Studies*, no 52, September 2006: 455 - 499

"The Effect of Diversity on Turnover: A Large Case Study," with Jonathan S Leonard *Industrial and Labor Relations Review*, 39, 4, July 2006: 457-572

"Does Trade Affect Health?" with Dov Rothman *Journal of Health Economics* 25, 2006: 538–554

"Breaking Down The Wall Of Codes: Evaluating Non-Financial Performance Measurement," with Aaron Chatterji, *California Management Review*, 48, 2, winter 2006: 29-51

"Did Industrialization Destroy Social Capital in Indonesia?" with Paul Gertler and Ted Miguel *Economic Development and Cultural Change*, 54, 2, winter 2006: 287-318

"Does Social Capital Promote Industrialization? Evidence from a Rapid Industrializer," with Ted Miguel and Paul Gertler, *Review of Economics and Statistics*, 87, 4, November 2005: 754-762

"The Effect of Industrialization on School Enrollment: Evidence from Indonesia," with Maya Federman, *Contributions to Macroeconomics*, BE Journals in Macroeconomics, 5, 1, Article 1, 2005

"Size, Skill and Sorting," with Dale Belman *Labour*, 18, 4, Dec 2004: 515-561

"Do Birds of a Feather Shop Together? The Effects of Employees' Similarity with each Other and With Customers on Performance," with Jonathan Leonard and Aparna Joshi, *Journal of Organizational Behavior*, 25, 6, August 2004: 731-754

"Daddies, Devotion, and Dollars: How Do They Matter for Youth?" With Gary Painter, *American Journal of Economics and Sociology*, 63, 4, October 2004: 813 - 850

"Schooling and Parental Death," with Paul Gertler and Minnie Ames *Review of Economics and Statistics*, 86, 1, Feb 2004: 211-225

"The Costs of Teenage Out-of-Wedlock Childbearing: Analysis with a Within-School Propensity Score Matching Estimator," with Gary Painter, *Review of Economics and Statistics*, 85, 4, Nov 2003: 884-900

"The Effects of Diversity on Business Performance: Report of a Feasibility Study of the Diversity Research Network," with Thomas Kochan, and others *Human Resource Management*, 42, 1, Spring 2003: 3-23 Winner of the *Ulrich & Lake Award for Excellence in HRM Scholarship*, 2004

"Are Investments in Daughters Lower When Daughters Move Away? Evidence from Indonesia," with Michael Kevane *World Development*, 31, 6, June 2003 (SSRN Top Ten download list for "Other East Asian Studies eJournal- Forthcoming")

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"Employee Involvement and Pay at American Auto Suppliers," with Susan Helper and Elliot Bendoly *Journal of Economic Management and Strategy*, 11, 2, Summer 2002: 329-377

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"Changes in Managerial Pay Structures 1986-1992: Tests of Human Capital and Other Explanations," with KC O'Shaughnessy and Peter Cappelli *Oxford Economics Papers*, 3 (2001), 482-507

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"Do Multinational Corporations Exploit Their Workers?" with Emma Aisbett, Ann E Harrison, Jason Scorse, and Jed Silver in *Global Goliaths: Multinational Corporations in a Changing Global Economy*, edited by James Hines and David Wessel, Brookings, 2021.

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PATENT

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"The OECD's Role in Measuring Human Capital," background paper for the OECD, DEELSA/CERI//HCI (96) 6, 1996

"A Deficit of Clear Thinking," with Brad DeLong, *CalBusiness*, Fall 1996, p 6

"Dole Tax Cuts Ignore Deficits, Investment, Education, Future," with Brad DeLong, *San Jose Mercury News*, August 26, 1996, p 5E

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"The Quality Movement," *Dollars and Sense*, September 1992, pp 20-22 A short version appeared in *Cal Business*, June 1992

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"Participation, Productivity, and the Firm's Environment," *California Management Review*, Summer 1990, pp 86-100

"Japan's Other Export," *Dollars and Sense*, September 1990, pp 18-21

"No Voice For Workers," with Laura D'Andrea Tyson, *Dollars and Sense*, no 152, December 1989, pp 20-22 Reprinted in *Microeconomics 91/92*, Don Cole, ed, Dushkin Publishing Group, Guilford CN, 1990; *Real World Macro*, seventh and eighth editions, and *Real World Micro*, third edition Economic Affairs Bureau, Somerville MA, 1990, 1991, and 1992

"Sweden: Full Employment in a Free Market Economy," *Labor Center Reporter*, no 251, November 1988

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"Why Comparable Worth Won't Upset the Marketplace," *San Francisco Chronicle*, March 7, 1988, p C6

EDUCATIONAL MATERIALS ABOUT HEALTH

(Materials available at http://hygieneheroesberkeleyedu)

Curriculum

- Unit 1: Handwashing curriculum and teacher training
- Unit 2: Safe Water curriculum and teacher training
- Unit 3: Sanitation curriculum
- Unit 4: Preventing colds and flu curriculum
- Unit 5: Avoiding malaria curriculum
- Unit 6: Dental Hygiene curriculum and teacher training
- Unit 7: Preventing COVID

Each unit contain vivid demonstrations, experiments, class participation stories, games, and activities for students to engage and educate their families

Stories, games, scripts and videos

- Preventing COVID
  - *Cory the Coronavirus*: Illustrated book
    Connie the COVID, Participation Story for Younger Children
  - "How leaders can reopen schools safely," editorial
  - COVID prevention curriculum and teacher training
- Handwashing
  - *Gerry the Germ goes to School*: Class participation story
  - *Baby is Happy*: Early reader
  - *Gerry the Germ goes to School*: Comic book
  - *The Bully* and *Why did T Rex go Extinct?*: Comics
  - *Chhota Bheem meets the Robot* and *The Robot*: Comics and script
  - *Tenali Rama gets in Trouble*, illustrated by Jacqueline Zhou: Illustrated story
  - *The Winning Sports Team*: Online game
  - *Uncle Silly Washes Hands* Video
  - Handwashing curriculum and teacher training
- Safe water
  - *Little Monkey*, with Echo Yupan Lu, illustrated by Nazia Rahman: Story
  - *Little Monkey* Puppet show video

  - *Gerry the Germ gets Wet*, with Benji Levine, illustrated by Jennifer Kotler Story
  - *The Disgusting Box* (with Kaniz Janat): Video
  - Safe water curriculum and teacher training
- Sanitation
  - *Gerry the Germ*, with Benji Levine, illustrated by Jennifer Kotler: Illustrated story
  - *Grandma wants you to eat cookies,* illustrated by Bernadette Justine McVerry: Board game
  - *The Germ Race* Board game
  - Sanitation curriculum and teacher training
- Preventing cold and flu
  - *The Returns of Gerry the Germ*, with Echo Yupan Lu, illustrated by Charlotte Passot: Illustrated story
  - *The Cold & Flu Germ Race* Board game
  - *The New Bride*: Soap opera illustrated story about safe cookstoves
- Preventing malaria
  - *General Trouble gets Sprayed:* Script about indoor residual spraying
  - *Baby Sleeps:* An early reader about anti-mosquito bed nets
- Dental hygiene
  - *The Sad Tooth*: Early reader
  - *Will Chhota Bheem miss his own party*? Illustrations by Divya Lagisetti
- Nutrition
  - *The Race* Story about anemia, with Dan Besilu Illustrations by Kaavya Venkat
- Safety
  - *Monster Maruti*: Class participation story about traffic safety
  - *Munching Maruti*, with Padma Priya: Story about traffic safety
  - *Street smarts for teens* Handout
- Women's health
  - *The Red Fairy*, with Rawan AbuShaban: Story about menstrual hygiene management
  - *Womb with a View:* 3-panel comics about antenatal care

HONORS

- Earl Cheit Outstanding Teaching Award, Haas School of Business, 1990, 2022 (undergraduate), 2000 (Evening MBA)
- Listed in *Who's Who in Economics*, a selection based on citation count
- Listed in *Who's Who of Professionals*
- Member Haas School "60" Teaching Honor Society (for mean or median, depending on the year,of 6 out of 7) several dozen times since 1988
- Phi Beta Kappa
- Omicron Delta Epsilon Economics Honor Society
- University of California Alumni Scholar

GRANTS

- "An intervention to improve sexual and reproductive health among Indian self-help group members." Center for Growth Markets, 2022-2023.
- "Selling health-related goods in smalls shops in Kenya," MasterCard Foundation, 2018-19
- "Replication grant" BITSS, 2015 ($3000)
- CEGA EASST, "Working with Village Health Teams to Increase ORS Use in Uganda: A Randomized Controlled Trial," with Will Dow; John BoscoAsiimwe; Zachary Wagner, University of Makere, Uganda, EASST Collaborative, 2014-2017 ($49,000)
- "Randomized control trial of a risk-free sample purchase for inorganic fertilizer in Uganda" with Annet Adong, EPRC, Uganda, EASST Collaborative, 2014-2017 ($49,000)
- "Distribution to the Rural Poor," co-PI with Joseph Arineitwe Ndemere, EASST Collaborative, CEGA, 2012-13 ($25,000)
- Travel grant, CEGA, 2012 ($3000)
- "Cookstoves in Uganda", CEGA, 2012 ($8000)
- "Behavior Change Interventions to Improve the Acquisition and Correct Use of Improved Cookstoves," (co-PI, with Impact Carbon), USAID TRAction, 2011-2013
- "Piloting Novel Sales Contracts," Goggio Family Foundation, 2009-11
- "Courting Safe Behaviors: Testing Courtyard-based Safe Water and Hygiene Interventions in Urban Bangladesh" (with ICDDR,B), International Initiative for Impact Evaluation (3ie), 2010-2012
- "Improved Cookstoves in the Tumu Region of Ghana" (with CSIR and Plan-Ghana), International Initiative for Impact Evaluation (3ie), 2009-2011
- "Preferences for Point-of-Use Water Treatment" (with ICDDR,B), Swedish International Development Agency (SIDA), 2008-9
- "Evaluating a Telecommunications Intervention to Promote Literacy and Fight Poverty in Senegal" (with TOSTAN), UNICEF, 2009-10
- "Identification of Appropriate Postharvest Technologies for Improving Market Access and Incomes for Small Farmers in Sub-Saharan Africa and South Asia," (with UC Davis and the World Food and Logistics Organization), Bill and Melinda Gates Foundation, 2009-10
- "Roundtable on safe stoves," Berkeley Institute on the Environment, UC Berkeley, 2008-9
- "A Randomized Controlled Trial of Solar Ovens in Senegal," Sustainable Products and Services, UC Berkeley, 2008-9

- "A Randomized Controlled Trial of Micro-Health Insurance in Cambodia," grants from BASIS Assets and Market Access Collaborative Research Support (USAID) 2007-2010; AFD (Agence français pour development) 2007-2010, and the Coleman Fung Foundation 2007-2009
- "Choosing and Using Safe Water Products," (with Jeff Alert of Aquayaorg), The P&G Fund of The Greater Cincinnati Foundation and The Blum Center for Developing Economies, 2007-8
- "Evaluating The Hunger Project's Scaling-up of Epicenter Strategy in Ghana," (with Chris Udry, Dean Karlan and John Anarfi), Robertson Foundation, 2007-2015
- "How Industrialization in China has affected the Elderly," Center on the Economics and Demography of Aging, University of California at Berkeley, 2003-2004
- "Measuring Corporate Responsibility," Haas Family Fund, 2004-6
- "The Effects of Age Diversity in the Workplace," Center on the Economics and Demography of Aging, University of California at Berkeley, 2003-2004
- "Diversity at Work: Effects on Workers, Customers and Employers," Russell Sage Foundation, 2003-4
- "Diversity and Performance," Sloan Foundation and BOLD, with Jonathan Leonard, 2001
- "A Follow-up Evaluation of the *Progresa* Child Welfare Program," National Institute of Child Health and Human Development (NICHD), 2001-2006, with Paul Gertler and others
- "The Effects of Industrialization on Children," Center on the Economics and Demography of Aging, University of California at Berkeley, 2001-2002
- "Financial and Social Capital as Protection Against Health Shocks in Indonesia," Center for Health Research, UC Berkeley, 2001-02
- "Investments in Children in Indonesia: Lessons to be Learned from the Economic Crisis," Research Bridging Grant from the Committee on Research, UC Berkeley, 1999-2000
- Subcontractor on *Mortgage Lending Discrimination: What Do We Know?* Urban Institute grant from the US Department of Housing and Urban Development, 1998
- COHRE, "Causes and Consequences of Employee Turnover," with Jonathan Leonard, 1998-99Sage Foundation, "Perceptions of the Fair Employment Contract: Evidence from a Quasi-Experiment," with Gary Charness, 1998-99
- Upjohn Institute, "Changes in Careers, Compensation and Internal Labor Markets at Large American Employers," with Dale Belman and KC O'Shaughnessy, 1998-99
- California Commission on Health and Safety and Workers' Compensation, "Evaluation of Workers' Compensation Programs Established Pursuant to Labor-Management Agreements in the Construction Industry," 1997-8

- Committee On Teaching, Office of Educational Development, UC Berkeley, Classroom Technologies Grant: 1995-1996
- Sloan Foundation, "What Works at Work," with the National Center for the Workplace, 1993-5
- Sloan Foundation, "Employee Involvement and Total Quality Management in the 1990's," with Edward E Lawler III, Gerald Ledford, and Susan Mohrman, 1992-4
- Consortium on Competition and Cooperation, "Human Resource Policies and Corporate Performance in the United States and Japan," 1991-92
- Consortium on Competition and Cooperation, "Cooperative Supplier Relations: An Exit-Voice Approach," 1990-91

COURSES TAUGHT

- Design, Evaluate and Scale Development Technologies (MBA, joint with Engineering & Alice Agogino – new course)
- Macroeconomics in the Global Economy (Undergraduate, MBA, and executive MBA)
- Business Strategies for Emerging Markets (MBA – new course)
- Freshman seminars (new courses):
  - Behavior change in global public health: Can games and stories help?
  - The New Employment Contract
  - Films about Work
- Bargaining and Negotiation (Undergraduate)
- Human Resource Strategies (MBA – new course)
- Industrial Relations (Undergraduate and PhD)
- Research Methods (PhD)

CONSULTANT

- Government
  - US Dept of Labor
    - Mathematica (subcontract from US Dept of Labor)
    - Summit Consulting (subcontracts from US Dept of Labor)
    - Abt Associates (subcontract from US Dept of Labor)
  - World Bank
  - Berkeley Planning Associates (subcontract from US Dept of Health and Human Services)
  - Urban Institute (subcontract from US Dept of Housing and Urban Development)
  - CalTrans

    - OECD
- Nonprofit sector
    - Workers Compensation Insurance Rating Board (WCIRB)
    - Emerson College
    - RAND (subcontract to USAID on "Increasing uptake and use of safe water filters at scale")
    - Aquaya
    - Bill and Melinda Gates Foundation
    - UNICEF
    - Filene Research Institute
    - American Automobile Association
- Private sector
    - UBS
    - Conoco
    - San Francisco Electrical Contractors Association
    - NERA
    - BPI
    - Korean Human Resources Study Group
- Legal consultant
    - Goldman and Goldman
    - Morgenstein & Jubelirer LLP
- Expert / Expert Witness
    - Leonard Carder, LLP (Roberts, et al, v Best Buy Co, Inc)
    - Gradstein, Luskin & Van Dalsem (Adams v Home Depot USA, Inc)
    - Quisenberry Law Firm (Daniel Sepulveda, Anita Perez and Antonio Prangner v Wal-Mart Stores, Inc)
    - Keker & Van Nest LLP (Tjian v Westamerica Bancorporation)

Appendix B: Materials Considered

Case Materials

Expert Report of Greg Regan dated August 29, 2024

Expert Report of Victor Stango dated October 24, 2024

Expert Report of Greg Regan dated November 21, 2024

Research

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