Berkeley Economic Review *presents* **Issue 6**

equilibrium

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Mission Statement: In Berkeley Economic Review, we envision a platform for the recognition of quality undergraduate research and writing. Our organization exists to provide a forum for students to voice their views on current economic issues and ultimately to foster a community of aspiring economists.

FROM THE EDITORS' DESK

Dear BER Reader,

When Berkeley Economic Review began five years ago as a humble student organization at UC Berkeley, none of its ten members could have imagined the astronomical growth it would experience in only a short time. BER has since become a global phenomenon: our 90+ staff members, tens of thousands of monthly readers, and countless journal submissions come from every corner of the globe. We have also expanded from producing a peer-reviewed undergraduate journal to generating a constant stream of original articles written by our staff, some of the best of which can be found on the pages that follow.

BER has changed immensely since 2016, but the world around us has changed even more. No event in the post-war era has reshaped and challenged the global economy as rapidly as the COVID-19 pandemic. In contrast to the optimism of continued economic growth in 2016, the world today continues to experience massive unemployment and dramatic loss of human life due to the virus.

Our team of young economists has closely watched these events unfold, and has never stopped analyzing the world as it is today and debating what it could be tomorrow. From pandemic aid fraud to alternative methods of assessing economic growth, the articles before you encompass a wide array of pressing economic issues, and we hope you will find them as fascinating as they are informative.

We at Berkeley Economic Review have worked tirelessly this semester to produce an immense supply of insightful and timely content for you, dear reader. It is with great excitement that we present to you the 6th issue of our magazine, Equilibrium.

Sincerely,

Charles McMurry & Parmita Das
Editors-in-Chief
Berkeley Economic Review

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A WORLD WITHOUT COFFEE:
THE STORY BEHIND A POSSIBLE IMPENDING COFFEE CRISIS

BY EKATERINA YUDINA

Coffee's prevalence in our world cannot be overstated. In the United States alone, nearly 400 million cups of coffee are consumed daily, most of which stem from imported coffee beans. The U.S. is the second largest importer of coffee in the world, accounting for nearly 15 percent of the 175 million 60 kg bags of coffee beans exported worldwide. Yet the countries racking up the largest amount of coffee bean exports (Brazil, Colombia, and Honduras) have had a slew of issues to do with adjustments to climate change, the coronavirus pandemic, and as a result, problems such as labor shortages. With the pandemic's effects on the coffee industry still in full force and climate change projected to get worse in these exporting regions, many argue that the world is on the cusp of a coffee crisis.

A BRIEF HISTORY OF THE WORLD COFFEE INDUSTRY

The European world was only introduced to the coffee bean in the 17th century, but its immediate success and skyrocketing demand led to its planting in nearly every colonial outpost. Coffee bean growth and exportation concentrated in South American countries (at the time Spanish colonies) due to shocks in coffee production elsewhere, notably in Haiti in the form of the late 18th century Haitian Revolution (and subsequent loss of free slave labor in Haiti's coffee industry) and in Ceylon due to an appearance of the Coffee Leaf Rust Disease that decimated coffee plantations. By the early 20th century, the top three exporters of coffee were the top exporters we recognize today: Brazil, Colombia, and Costa Rica. Increased U.S. demand for coffee in the late 19th and early 20th centuries cemented the grasp of the coffee industry on these countries as well, with coffee cultivation replacing the farming of other crops such as cacao and tobacco.

Taking a closer look at Colombia's history of coffee production and impacts of the industry on its economy can help explain why the current threats of climate change and the coronavirus pandemic are and will continue to pose disastrous consequences. Colombia's initial manner of coffee cultivation followed the Spanish colonial hacienda system, which exploited native workers on large scale plantations. This system was profitable under the conditions that prices on coffee were high, which was ensured as long as demand was relatively high as well. In the 1920s, the U.S. accounted for 80 percent of the world's demand for coffee, and as demand was high, prices were high and stable as well. The bitter side of this came at the end of the decade with the onset of the Great Depression, when plummeting demand for coffee led to subsequent price drops in the crop. This bankrupted these plantation style coffee production facilities and led to the Colombian government stepping in and purchasing coffee fields from the owners. With influence and help from the newly formed Fedecafé (National Federation of Coffee Growers of Colombia), the Colombian government split the coffee fields into smaller plots to give small farmers the ability to cultivate other crops alongside coffee in order to better protect these farmers against price fluctuations.

More protection against demand fluctuations came with the 1962 International Coffee Agreement (ICA), which, when signed by the 69 participating countries (which included all major importers and exporters of coffee), set a price minimum for coffee exportation. This agreement, initially spurred on to deter Latin American countries from Marxist influences, allowed for coffee prices to recover from the Great Depression and Second World War and resulted in a thriving coffee industry in Colombia that benefited small farmers immensely. In essence, coffee supported Colombia, with some even crediting the establishment of industries such as Aerolíneas Centrales de Colombia or ACES (Colombia's brief venture into the airline industry) to the favorable economic conditions fostered by relatively high and stable coffee prices. This economic prosperity, however, was short-lived. By the end of the 1980s, the ICA collapsed and with it vanished the price minimum on coffee exports. As a result, new producers (many of them concentrated in Asia) flooded the market with cheap coffee, and smallholder farms in Colombia struggled to compete against the low prices.

The 2009 Colombian coffee crisis, caused by extreme weather and a bout of the Coffee Leaf Rust Disease, brought the struggle of small coffee farmers to the surface when Colombia's crop of coffee was decimated. Farmers and workers in the coffee industry went on strike and demanded more financial support from the government, even going so far as to demand an establishment of a price minimum. The Colombian government increased subsidies to the industry, but were unable to set a price minimum on exports, which is still unlikely to happen without another rendering of the ICA.

Now coffee prices continue to fluctuate, with current prices below what many farmers need to break even. Many Colombian farmers have thus been forced to replace their coffee cultivation with the growth of other crops like bananas and plantains in order to sustain themselves and their families. This poses a threat to the future of the coffee industry as a whole in Colombia, and could result in future coffee shortages likely to be exacerbated by climate change and consequences of the COVID-19 pandemic.

CLIMATE CHANGE'S IMPACT ON COFFEE CULTIVATION

Climate change poses a variety of issues for coffee cultivation, exacerbating the already far from ideal economic conditions for small coffee farmers. The two coffee bean species of interest to exporters (the ones that make up the majority of coffee consumed in the world), Arabica and Robusta, are particularly vulnerable to temperature variations. Arabica produces a higher quality taste than Robusta beans, but this comes at the tradeoff of being more sensitive to temperature and rain conditions. The Arabica crop is notably sensitive in its growth, requiring conditions of 18 to 21 degrees Celsius, specific amounts of rain and dry seasons, and a combination of warm days and cool nights. Looking again at Colombia's coffee industry, climate change in regions such as the coffee rich zona cafetera (also known as the "Coffee Axis") has pushed farmers to grow their crops at higher elevations in an attempt to preserve the finicky temperature range. With higher elevations come less available land to cultivate, reflected in the 7 percent fall in land use in the zona cafetera since 2013. Land available for coffee cultivation is expected to continue to fall worldwide as well; studies predict that by 2050, the amount of land usable for coffee will be half of what it is today.

The effects of climate change will weigh heavily on the 500,000 small coffee farms and their respective cultivators such as those in Colombia. Colombian coffee culture is imperiled by inabilities of farmers to adapt to climate change, due to the combination of new ecological hazards and existing economic hardships. Coffee growers have been working to find solutions to adjust to the difficulties posed by warmer temperatures, including farming more temperature and pest resistant varieties of Arabica beans, moving operations further uphill, and investing in shade trees to keep the crops cool. Though these solutions are innovative, they are temporary in nature and are costly to small farmers. Nearly 60 percent of coffee species are expected to go extinct in the next century, putting at risk the prospect of cultivating less used but more climate resistant Arabica varieties. Moving operations uphill and installing shade trees are solutions often unavailable to small farmers due to cost barriers. Along with low coffee prices due to the absence of an export price minimum, Colombian farmers are heading towards the path of no longer being able to afford to cultivate coffee at all, which could send the world into a full-blown coffee shortage crisis given Colombia is one of the largest exporters of Arabica coffee.

The story of smallholder farmers versus impending climate change effects is not just isolated to Colombia. 25 million farmers cultivating small-scale coffee plots, many of whom are living in poverty, account for 80 percent of the world's coffee production, and it is these same farmers that are at greatest risk for being negatively impacted by climate change. In order to ameliorate the effects of climate change, many have argued that governments should take action to help protect their countries' coffee industries. Collecting data and doing further research on changes in coffee cultivation and analyzing specific regional impacts would help with formally diagnosing the problems many small coffee growers currently face, and subsequently developing technology such as shade trees based on data and research in coffee-producing regions is a first step suggested by climate change experts. Subsequently making said technology and resources physically and economically available to small scale farmers is imperative in order to ensure not only the economic well being of those in the coffee industry but to continue coffee production as a whole.

COVID-19'S EFFECT ON LABOR IN THE COFFEE INDUSTRY

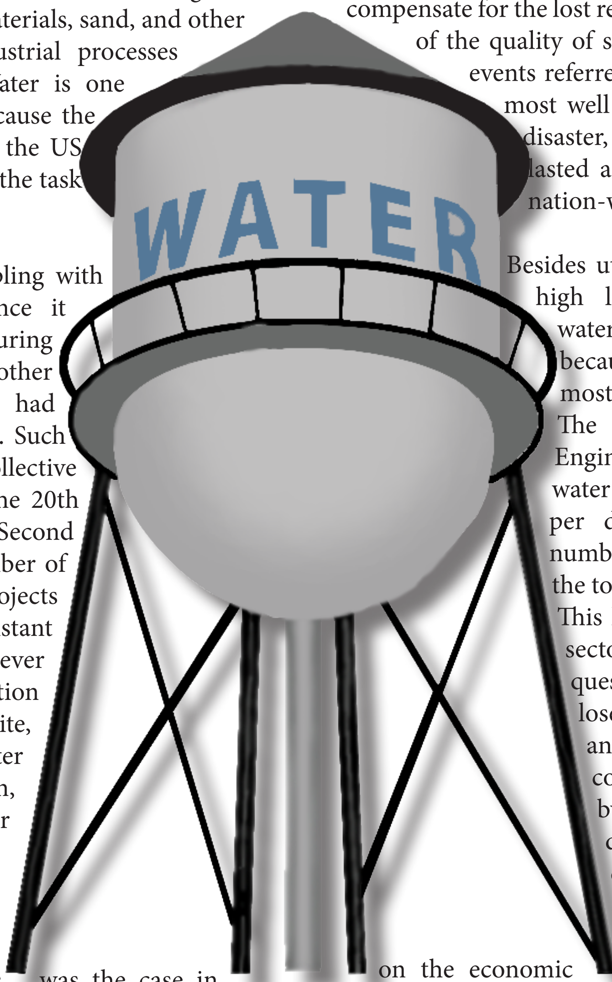
Though the effects of the coronavirus pandemic are not expected to last permanently, they have only exacerbated the current coffee crisis. The pandemic has hit larger coffee farms from the labor side, as coffee pickers have been much harder to hire and incentivizing pickers with higher wages is currently impossible due to low coffee prices. Conditions for coffee pickers are far from ideal during a pandemic, as pickers often come from various regions and not all adhere to sanitary conditions such as wearing face coverings. Despite efforts to enforce stricter sanitary conditions, the measures have failed to attract sufficient numbers of workers in countries such as Colombia, despite the unemployment rate being nearly double that of the previous year.

Labor shortages in the coffee industry are already frequent. Pickers are not afforded a fixed income, job security, or health insurance. Thus experts such as Fernando Morales de la Cruz of the Café for Change Initiative argue that labor shortages are to be expected unless a different business model is adopted in the coffee industry. The pandemic has shed light on the fragility of labor supply in the coffee industry, contributing to growing fears over a potential coffee shortage or further crisis.

Worries about an upcoming economic and/or ecological crisis in the coffee industry are not unfounded, especially in considering the industry's condition in large exporting countries such as Colombia. With prices kept low from cheap foreign competition and no plan to restore the price conditions of the ICA, both small and large coffee producers are forced to face issues such as climate change and labor shortages under crippling budget constraints. Whether the solutions to these issues lie with the governments of coffee producing countries in solutions such as subsidizing climate change battling technology to small coffee farmers or more globally with large importers and exporters of coffee potentially setting a new export price minimum, action must be taken to protect the coffee industries in large exporting countries in order to avoid devastating shortages.

AMERICA IS LEAKING:
HOW TO REPAIR THE FEDERAL WATER POLICY?

BY NICOLAS DUSSAUX



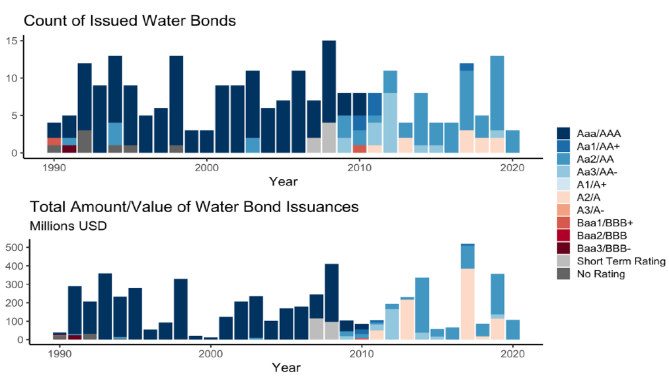
"There is nothing more useful than water: but it will purchase scarce any thing; scarce any thing can be had in exchange for it." These words, from the famous economist Adam Smith, sound like a grim prediction as we walk into the 21st century. A number of crucial goods and materials, on which the American economy relies heavily, are becoming scarce by the day, and may well become increasingly expensive. The list is long, and includes rare metals, raw earth materials, sand, and other natural resources that our industrial processes consume in large quantities. Water is one of them, and it might not be because the resource disappears, but because the US infrastructure system is not up to the task anymore.

While California has been grappling with the issue of water scarcity since it developed intensive farming during the exploration of the West, other areas in the US have always had access to reliable water resources. Such communities were part of the collective national building effort during the 20th century. Between the end of the Second World War and the 80s, the number of water public infrastructure projects shot up, based on a model of constant economic development and ever growing population. This assumption was stated clearly by Gilbert White, the director of the President's Water Resource Policy Commission, tasked with elaborating a water policy for Americans in 1950. If this assumption still held true, this would strengthen the case for continuing to build large and resilient infrastructure systems as was the case in the largest cities in the US at that time. However, despite the fact that the population of the United States keeps growing, the distribution of the population drastically changed in recent years. Researchers from Duke University showed that between the 50s and today, populations massively moved. Different regions were affected differently; large cities where middle class populations lived chose to move to suburban areas, emptying city centers. The direct consequence of this decrease in the population of city centers was a concentration of the financial burden of infrastructure maintenance, on the generally well less off population that stayed.

In face of this problem, water utilities had no other choice than to raise water bills, making their customers bear the brunt of the problem. The increase in rates was not enough to compensate for the lost revenue, leading to a degradation of the quality of service, provoking a number of events referred to as "utilities disasters." The most well known of those was the Flint disaster, a lead contamination that lasted almost five years and provoked nation-wide outrage.

Besides utility disasters, the US still has high levels of non-revenue water, water that is not billed to customers because it is lost in the network, mostly because of pipe breakages. The American Society of Civil Engineers estimates non-revenue water to amount to six billion gallons per day. The EPA estimates this number to be approximately 16% of the total treated water across utilities. This loss in production efficiency is sector-specific but should raise a question: can our utilities afford to lose so much of their output? The answer is no, especially when the cost is borne by less well-off populations. The disproportionate impact on disadvantaged populations prompted the need for a reflection on water equity and on the economic nature of water. Although it is referred to by the OECD as an economic good, developed countries tend to consider water as a public good, and in some cases, a right. From an economic standpoint, water treatment and distribution infrastructure can be understood as a merit good. This concept, introduced by economist Robert Musgrave, characterizes goods for which free-market conditions will lead to a consumption lower than the optimal social amount. Such an outcome generally arises from ignorance on the consumer's end, or from a misestimation of the value of the good. Namely, the positive externalities and spill-over effects of effective water infrastructure tend to be under-estimated. The tendency to take infrastructure for granted, and to leave large public expenditures to the next administration, led a number of water systems to wear out over time. The gap between available financing and actual utilities investment has been widening over the years, and the American Water Works Association estimates that a $1 trillion in investment will be needed over the next 25 years to maintain the current levels of service.

There is therefore a need to find new financing mechanisms that would allow utilities to rely less on the rates they charge their customers. Moreover, as a graduate student at Duke University recently outlined, it has become increasingly difficult for utilities to borrow the funds necessary to fund these capital development projects and refurbishment. Indeed, a study of the grades attributed by Standard and Poor's to the bonds emitted by local governments of 25 cities in Pennsylvania, showed that the trust of investors in the ability of utilities to refund the loans gradually has declined from 1990 to 2020. This degradation of trust is doubly bad news for utility companies: it makes the financing harder to find, and significantly raises the interest rates on the capital borrowed. This in turn forces an increase in water service rates.



Like the suburban flight, this situation puts low-income households under financial strain, who saw an inflation adjusted yearly increase of 5% in utility rates, compounding to make the burden heavier each year. In North Carolina, one of the four states where the research team of Duke University concentrated their efforts, households making the minimum wage have to work the equivalent of 4 days per month to just afford their water bill.

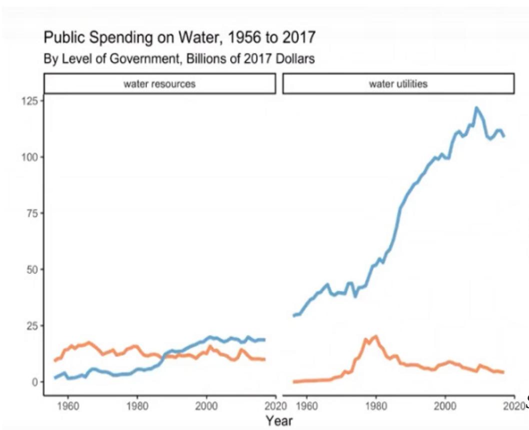
This situation is hardly sustainable and calls for more radical intervention of the Federal government. One way to solve this problem would be to take action to foster population growth and reinvest these areas. Such ideas are championed by Matthew Yglesias, the founder of Vox, in his book One Billion Americans: The Case for Thinking Bigger. Indeed, a rejuvenated and more dynamic American economy, supported by a larger population, would certainly allow utilities to support the costs of both expanding infrastructure and fixing the existing problems. However, triggering population growth is neither easy nor without consequence and is not merely an economic decision. Some cities had foresight and anticipated the shrinking of their populations, therefore carried out capital reduction projects to alleviate the operations and maintenance costs of their water grid and their sewer systems.

"FOR SOME SMALLER AND REMOTE COMMUNITIES, DECENTRALIZED WATER TREATMENT IS RECOGNIZED AS A MORE RELEVANT AND EFFICIENT SOLUTION THAN LARGE-SCALE, HARDLY ADAPTABLE CONCRETE STRUCTURES THAT CAN HANDLE HUMONGOUS INFLOWS AND OUTFLOWS."

Another way to increase the resilience of the American water grid could be to bet on technological progress, and more importantly, on a shift in the paradigm of water treatment and distribution. For some smaller and remote communities, decentralized water treatment is recognized as a more relevant and efficient solution than large-scale, hardly adaptable concrete structures that can handle humongous inflows and outflows. These decentralized, sometimes mobile, solutions are relevant in both water and wastewater treatment, and alleviate the strain on sewers in case of huge stormwater inflows. These extreme weather events, that are unfortunately increasingly common as climate change becomes a tangible reality, often overwhelm the wastewater systems and have caused utilities to pay more than $2 million in fines for Combined Sewer Overflows (CSO) over the last 30 years in New England alone.

The water industry is also not impervious to the data revolution, and a number of firms have developed digital solutions allowing utilities to model their flows and use cutting edge predictive analytics to optimize the water treatment asset management. Such innovations, when correctly implemented, can allow utilities to save money on operations and maintenance ("O&M") and schedule their capital expenditures in a manner that reduces risk and uncertainty. However, models are only as good as the data they use, and even if these innovations change the face of the water treatment and distribution industry and dramatically lower water rates, they still require heavy investments to implement the advanced metering infrastructure that will be able to feed models with relevant information. Indeed, old water transmission systems were not designed to measure flows and utilities need to invest in new meters and pumps to be able to collect the data and transmit it.

The increasing share of water supply that is handled by private utilities makes little difference when it comes to addressing crumbling infrastructure. Free-market outcomes might not be optimal when it comes to infrastructure provisioning, and the government must often intervene on these markets to make sure the right quantity of these merit goods is supplied. Looking at the distribution of the investments in water and sewer systems across the different levels of government, we see that the cost of capital is mainly borne by local governments and states. Although the Federal State contributes 25% of the total infrastructure spending in the US, its share of investments in water utilities are approximately equal to 3.5%. Additionally, the lawsuits and consent decrees, resulting from the utilities failures such as Flint or the PFAS crisis in North Carolina, have worsened the finances of local governments which are sometimes overwhelmed by compliance costs and lawsuit liabilities.



Source: *Congressional Budget Office*

In the short-term, it becomes clear that the Federal Government must either get more involved to help water utilities support their operations and maintenance costs or directly subsidize consumers' increasing water bills. The policy to support consumers' water consumption would work in the same way the government does with food through the SNAP program. Giving vouchers to low-income households to help them afford their water bills could help utilities to maintain their level of revenue without directly penalizing less well-off individuals. This redistributive policy could not only lead to greater equity, but could also help water utilities to recover more than their cost and carry out renovation projects.

However, the core problem is the obsolescence of the American water grid, and that need must be addressed. The idea that infrastructure is a "bipartisan issue," for which politics are not an obstacle, proved to be a misconception under the Trump administration. The error the Trump administration made was to think about the Federal government as a planner that merely needed to raise money to build and own infrastructure. The true role of the federal government is the one of a grant-maker, and the specifics of the project are often better determined at the local scale, far away from Washington D.C. The primary role of local authorities proved to be an obstacle for Trump, as some of his openly anti-immigration declarations have drawn hostility from local officials, alienating him from several key partners. The need for better infrastructure was a theme during the 2020 Presidential race, but the failure of the Trump administration to realize there was a need to shift the role of the federal government to implement a top-down approach sets the challenge for the Biden administration. Currently owning only about 6% of the national infrastructure (BEA estimate), the federal government will have to transition from a grant-maker role to a real infrastructure planner mission to rely less on states and local governments. The challenge facing the Biden administration will be both political and technical: coordinating the forces at all government levels and come up with clever and economically sound public-private partnerships to finally rejuvenate the American water infrastructure.

THE MACROECONOMICS OF HAPPINESS: A CASE STUDY OF BHUTAN

BY CHAZEL HAKIM

Situated deep in the eastern Himalayan mountains, Bhutan is often overshadowed by its more prominent neighbors: China and India. But, despite its quiet status, the country has constantly made headlines for a variety of socioeconomic achievements. Bhutan remains, for example, the first and only carbon-negative country in the world, and they have also recently prevented the COVID-19 pandemic from overwhelming its population, with only one Bhutanese citizen passing away from the virus to date.

Nevertheless, it is the Gross National Happiness Index (GNH), Bhutan's main macroeconomic indicator, that stands as the country's most radical achievement to date. The GNH's construction is simple: rather than measuring the aggregate spending from a country's population, Bhutan's GNH seeks to measure their total happiness. The "happiness" in this case is obviously a subjective concept, but the indicators for GNH are based on tangible statistics of measures ranging from economic development to environmental protection levels.

Bhutan is also not the only country to have shifted macroeconomic analysis towards more holistic social indicators, as several other countries such as the United Kingdom and New Zealand have incorporated wellness goals into their policies. However, no country has put the ideas of happiness as central to their public policy decisions as Bhutan does through their GNH. Particularly with the country's recent success during the pandemic, it then might be worthwhile to ask: has GNH actually played a significant role in helping Bhutan thrive?

BHUTAN'S GROSS NATIONAL HAPPINESS INDEX

The idea of a GNH index stretches back to 1972, when one of the founders of the European Union, Sicco Mansholt, first came up with the idea as a critical response to the world's traditional budget reliance on Gross Domestic Product (GDP). For those unfamiliar with GDP, it is simply a measure of the monetary value of a country's spending on goods and services, but its real worth lies in its use as an quantitative indicator of a country's growth and national income. Policymakers rely on GDP to make informed decisions about policy, but over the years, many have criticized how GDP calculations ignore crucial aspects of people's lives, including life-satisfaction and environmental degradation metrics (read this BER article for a detailed explanation of criticisms of GDP).

Compared to GDP's technical measures of spending and output, Bhutan's own GNH index takes a more holistic approach to measuring a country's growth. One of its most striking differences comes down to its equal weighting of economic and non-economic aspects of the country, as exemplified by the four pillars that the GNH index encompasses: sustainable and equitable development, conservation of the environment, preservation and promotion of culture, and good governance. One can break down the index even further into nine domains, which range from living standards to time usage (Figure 1).

Pillars	Domains	Indicators		
Sustainable and Equitable Social and Economic Development	- Living Standards - Education - Health	- Per capita income - Assets - Housing	- Literacy - Schooling - Knowledge - Value	- Self reported health - Healthy days - Disability - Mental Health
Preservation and Promotion of Culture	- Cultural Diversity and Resilience - Community Vitality - Time Use - Psychological well-being	- Zoring Chusum Skills - Cultural Participation - Speaking native language	- Donation - Safety - Community Relationship - Family	- Life satisfaction - Positive emotions - Negative emotions - Spirituality
Conservation of Environment	Ecological Diversity	-Wildlife damage	-Urban Issues - Responsibility towards environment	-Ecological issues
Good Governance	Good governance	- Political participation services	- Fundamental Rights	- Governance performance

Figure 1: Pillars, Domains, and Indicators of GNH 2016
Source: Centre for Bhutan Studies, Columbia University (2016)

In terms of the actual logistics, the GNH index consists of a decile numbered range from 0 to 1, calculated from a cross-sectional survey sent out to a random sample of the Bhutanese people once every five years, including 2008 (the pilot survey year), 2010, and 2015. The survey itself is structured in terms of the nine domains and contains around 148 variables—both qualitative and quantitative. Its data analysis specifically relies on poverty-measuring methods developed by Oxford University researchers Sabina Alkrie and James Foster. In short, however, The 2015 GNH report explains the GNH's final tally quite nicely by defining the following equation:

$GNH = H^H + (H^U * A_{suff}^U)$

where H^H is the rate or headcount of "happy" people, H^u is the rate of "not-yet-happy" people (i.e. the complement of H^H), and A_{suff}^U is the average percentage of domains in which the not-yet happy-people have sufficient achievements. In other words, the GNH is the total rate of happy people plus the extent that not-yet-happy people "enjoy" their lives.

DOES THE GNH INDEX WORK?

Consequently, legislation that now passes through the Bhutanese government must be filtered through a "GNH policy lens," so, since 2008, every policy decision has operated under the pretense of raising GNH rather than GDP. Based on this criteria alone, one might conclude that Bhutan's public policy has moved towards effectively interpreting and addressing information from the GNH index. Indeed, GNH has increased from 0.743 in 2008 to 0.756 in 2015, a "statistically significant increase" by the 2015 GNH report (Figure 2). However, this conclusion is analytically insufficient, and more concrete evidence might be helpful.

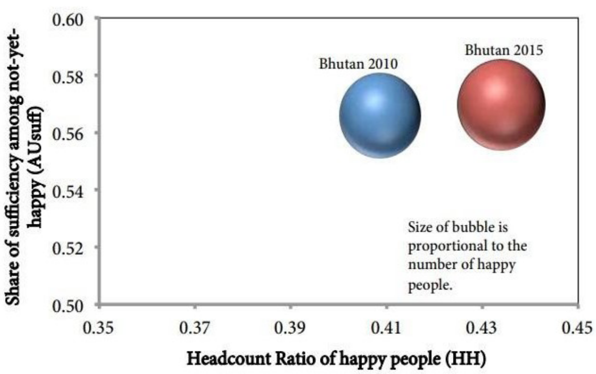


Figure 2: Changes in the GNH Index
Source: 2015 GNH Survey Report, Center for Bhutan & GNH Studies (2015)

A better method to analyze GNH might be to observe how different variables in Bhutan have changed since the "GNH policy lens" became a guiding force of public policy. One of the most striking facts in this vein is that Bhutan, according to a World Bank report, has been able to cut poverty from 36 to 12 percent between the years 2007 and 2017: the steepest decline in poverty of any of its neighboring South Asian countries over that time. Furthermore, enrollment in both primary and secondary education has significantly increased, with the former jumping up by 30 percentage points between 2007 and 2017. And in terms of infrastructure, 91 percent of the Bhutanese population now lives within a one hour distance to a health facility compared to just 73 percent in 2007, while increased public investment has led to farm road networks to jump from 1700 km to 11200 km between 2008 and 2017.

However, this is still not conclusive as to whether the GNH caused all these changes for Bhutan. One of the most obvious criticisms of these numbers may be that these trends started before the implementation of GNH in 2008. For example, while educational attainment certainly increased over the past decade in Bhutan, it is easy to see that the trend extends back to the 1990s when comparing the education levels of 50-64 and 30-49 year-olds (Figure 3). Many of the World Bank report statistics, in fact, show positive trends that already follow from before the GNH index arrived. Perhaps Bhutan's public policy didn't line up with GNH, but rather GNH was just a product of good public policy.

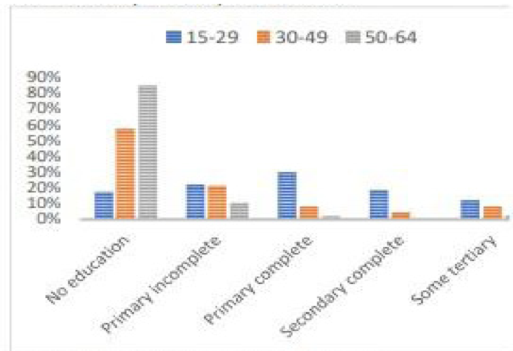


Figure 3: Educational attainment improved dramatically over the past decades.
Source: Bhutan Systematic Country Diagnosis, World Bank Group (2017)

A POSSIBLE ANSWER IN BUDDHISM

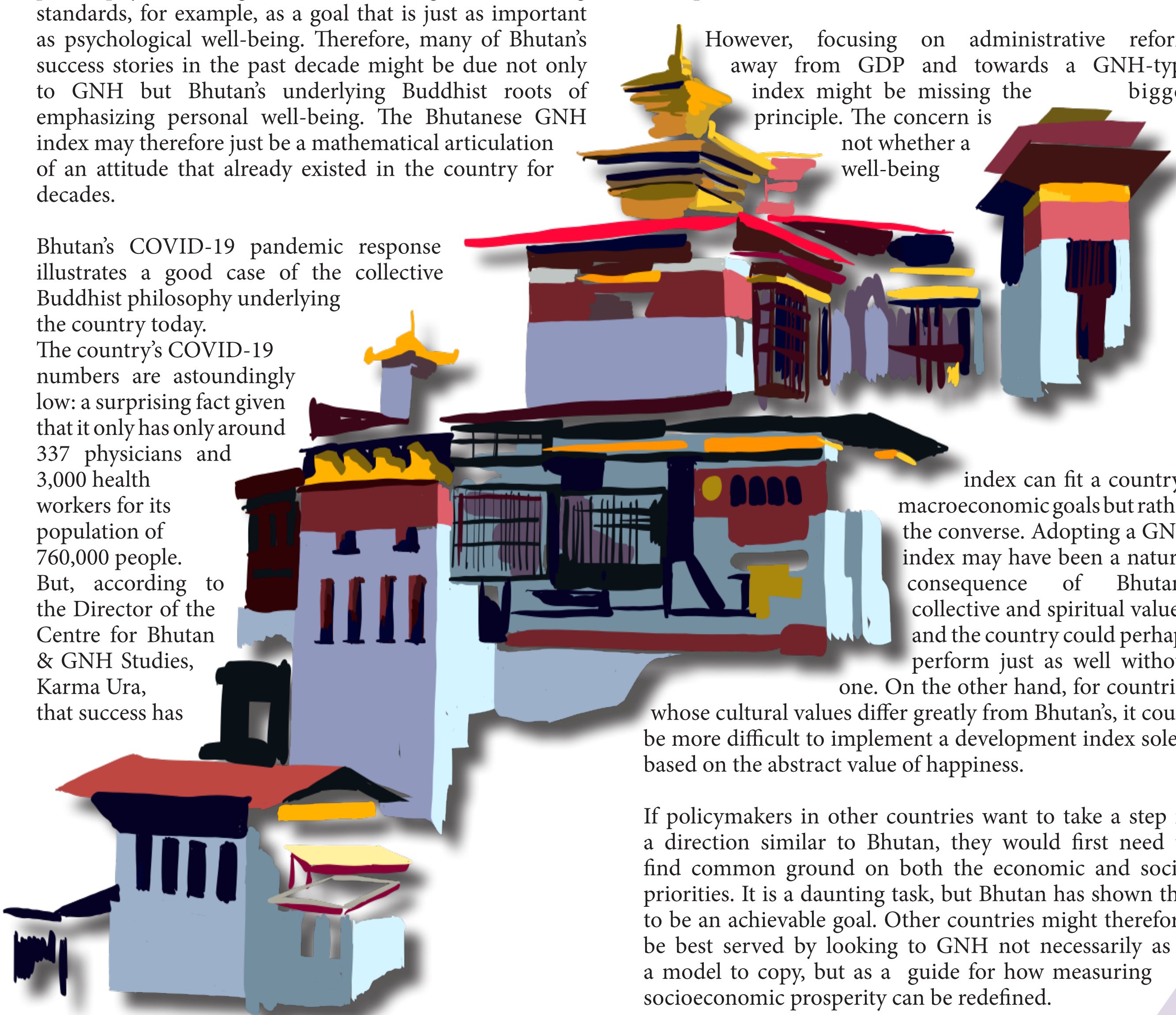
A lack of an evident and significant difference from GNH may not actually be that surprising for Bhutan. Besides the fact that the positive trends might just be a result of sustained economic growth for the low-income country, one crucial aspect that might help make sense of GNH's passiveness comes from Bhutan's influence by Buddhist teachings. In fact, Buddhism is the state religion of the country, and about three fourths of the population are considered to be followers. Buddhist notions of collective harmony, both with others and the environment, have played an important role in the policy decisions made by the Bhutanese government.

The country's GNH is no different in this case. The whole definition of the "happiness" Bhutanese policymakers attempt to maximize in GNH has its roots in the Buddhist idea of cultivating the inner self, which Buddhist monk Khenpo Phunshok Tashi articulates in this paper on Bhutan's GNH index: "Buddhist philosophy states that relying on such external factors as the source of happiness will only lead to unhappiness. The Buddha advised his followers that if they desired true happiness, they should concentrate on cultivating inner contentment."

Implicitly, GNH focuses

on the material and spiritual well-being of the Bhutanese people for the sake of helping them achieve happiness. The nine domains of GNH even exemplify this Buddhist philosophy: balancing the conventional growth of living standards, for example, as a goal that is just as important as psychological well-being. Therefore, many of Bhutan's success stories in the past decade might be due not only to GNH but Bhutan's underlying Buddhist roots of emphasizing personal well-being. The Bhutanese GNH index may therefore just be a mathematical articulation of an attitude that already existed in the country for decades.

Bhutan's COVID-19 pandemic response illustrates a good case of the collective Buddhist philosophy underlying the country today. The country's COVID-19 numbers are astoundingly low: a surprising fact given that it only has only around 337 physicians and 3,000 health workers for its population of 760,000 people. But, according to the Director of the Centre for Bhutan & GNH Studies, Karma Ura, that success has depended on the country's holistic response to the pandemic. The unemployed, for example, have received grants from the country's king to cover a year's worth of income, but private sector banks have also decided to forgive interest rates for six months. As Ura promptly puts, "this could only happen in a Buddhist country."



CONCLUSION

Even if it is difficult to pinpoint whether many of Bhutan's success stories have originated from GNH, it might be natural to ask whether other countries should adopt a similar, more holistic approach to economic development. In fact, there have already been attempts in smaller regions around the world to replicate the GNH index measurement, including the cities of Victoria, São Paulo, and Seattle. In 2011, the United Nations even published a resolution urging other countries to readjust their economic goals in terms of happiness, with Bhutan's GNH included as an example.

However, focusing on administrative reform away from GDP and towards a GNH-type index might be missing the bigger principle. The concern is not whether a well-being index can fit a country's macroeconomic goals but rather the converse. Adopting a GNH index may have been a natural consequence of Bhutan's collective and spiritual values, and the country could perhaps perform just as well without one. On the other hand, for countries whose cultural values differ greatly from Bhutan's, it could be more difficult to implement a development index solely based on the abstract value of happiness.

If policymakers in other countries want to take a step in a direction similar to Bhutan, they would first need to find common ground on both the economic and social priorities. It is a daunting task, but Bhutan has shown this to be an achievable goal. Other countries might therefore be best served by looking to GNH not necessarily as a model to copy, but as a guide for how measuring socioeconomic prosperity can be redefined.

RETIREMENT ACCOUNTS AND OVERWORKED DRIVERS: THE POTENTIAL OF NUDGE THEORY

BY VAIDEHI BULUSU

Achieving behavioral change is a puzzle that economists, environmentalists, psychologists, politicians, and public health professionals alike are trying to crack. The topic of understanding and influencing human behavior has received considerable academic attention over the past few years, facilitating the development of a field of study called behavioral economics. In keeping with the popularity of behavioral economics, the 2017 Nobel Prize in Economics went to an idea that is simple yet powerful for driving large-scale behavioral change: nudge theory. Although this concept was formulated back in the 1990s, it was popularized by economist Richard Thaler and legal scholar Cass Sunstein in their 2008 book, Nudge: Improving Decisions About Health, Wealth, and Happiness.

The central argument of nudge theory is that indirect suggestion and positive reinforcement can be used to steer people's behavior, potentially towards creating long-lasting habits. Rather than relying on traditional, coercive strategies like regulation, nudge theory involves using subtle tactics to get people to make the 'right' decisions.

However, many have expressed concern that subliminally influencing people into making predetermined decisions could become deceptive. While it's true that nudges can be used to achieve long-term behavioral change that is beneficial in various contexts (such as public health), they can also be exploited by malicious actors. For example, they may be employed by politicians seeking to manipulate voters and private companies seeking to use the psychology of consumers against them for profit.

WHAT IS NUDGE THEORY?

Under traditional economic theory, individual actors are characterized as 'homo economicus:' consistently rational and self-interested individuals who make optimal decisions. Unaffected by the sway of emotions, they calmly evaluate each possible option and choose the one that provides the highest payoff. Consumers therefore make decisions to maximize their utility and producers make decisions to maximize their profits. This framework, called rational choice theory, is a popular model of economic behavior.

However, this model has been heavily criticized by economists, academics, and the informed public. A principle criticism of rational choice theory is that it doesn't acknowledge the role that psychological factors such as cognitive biases and emotions play in decision-making. For example, research conducted by Daniel Kahneman and Amos Tversky demonstrated how cognitive biases and heuristics skew our thought process, leading us to make decisions that are not in our best interests. Insights like these led to the development of an area at the intersection of psychology and economics: behavioral economics. Building on this research on cognitive biases, nudge theory is one of the biggest breakthroughs in the field of behavioral economics.

Nudge theory is based on the idea that a person's environment can be altered such that it encourages them to change their behavior in a desired manner. These alterations to the environment are called nudges. In their book, Thaler and Sunstein refer to this strategy for influencing behavior as libertarian paternalism and the environment or context in which the person is making decisions (e.g. a cafeteria in which a person makes decisions about what to eat) as the choice architecture. They define nudges as the following:

"A nudge, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid."

According to Thaler and Sunstein, people don't always act in line with their self-interest. For example, an employee may be aware of the benefits of a retirement plan, yet they may not opt for one because of short-term thinking. This difference between a person's intentions and actions is called the value-action gap.

In his book Thinking Fast and Slow, Daniel Kahneman talks about two systems our brain uses for processing information which provides an explanation for the value-action gap. The first system, which he refers to as System One, is quick, runs on autopilot and is easily influenced by environmental factors. The second system, called System Two, is slow, deliberate and considers intentions and goals. System One takes over whenever we are faced with pressures, like a tight time constraint or a complex challenge that taxes our cognitive capacity. This system uses heuristics to make quick judgements, which also makes it highly susceptible to poor decision-making.

"NUDGES RELY ON THE IDEA THAT THIS SYSTEM CAN BE INFLUENCED BY ENVIRONMENTAL TRIGGERS. HENCE, A NUDGE ALTERS THE ENVIRONMENT SUCH THAT THE SYSTEM ONE DEFAULTS TO MAKING THE DESIRED DECISION"

Nudges rely on the idea that this system can be influenced by environmental triggers. Hence, a nudge alters the environment such that the System One defaults to making the desired decision. For example, a school cafeteria can be designed in a way that makes healthy food options much more easily accessible than junk food.

NUDGING FOR GOOD

One of the most significant contributions of nudge theory is in the area of retirement savings. In 2004, Thaler and fellow economist Shlomo Benartzi co-authored the paper, Save for Tomorrow: Using Behavioral Economics to Increase Employment Savings, in which they discuss the use of nudges to get employees to save more. Companies offered employees a type of retirement plan called defined-contribution (DC) plan, to which employees have to manually contribute on a regular basis. Getting them to enroll in this plan is a challenge, especially when the desirability of stashing away their hard-earned money instead of spending it on consumption goods is not immediately obvious.

Thaler and Benartzi took an interest in this problem, realizing that the key to solving it was to make the process of enrolling in the DC plan simple and painless. To this end, they came up with a behavioral intervention called Save More Tomorrow™, which consisted of three components. First, employees committed in advance to saving a portion of their future salary. Second, increases in saving rates were linked with increases in pay rises. Third, employees stayed enrolled in this program unless they manually opted out. These components were engineered to circumvent people's cognitive biases. For example, enrolling new employees by default raised the 'cost' (in terms of effort) of leaving the plan, making it more likely that they would stay. Evidence shows that this worked—around 80% of the people enrolled in the program by default remained.

An analysis of the results of the intervention 40 months after it was first implemented indicates that it was a success. About 15 million more Americans are saving for their retirement because of this program, and the average saving rate for those in the program increased considerably from 3.5% to 13.6%. This was one of the first studies to illustrate the potential of behavioral nudges to help people make better decisions.

Over the past few years, nudge theory has also been widely adopted by governments and private companies in an effort to improve outcomes. The UK government, for example, has set up 'Nudge Units' to facilitate behavioral economics research and apply its insights to public policy.

UBER: A CASE STUDY IN UNETHICAL NUDGING

However, nudges also have the potential to be misused to further political and corporate ends. For example, Uber was thrust into controversy in 2017 when it was revealed to be using behavioral science to get drivers to work longer hours.

It is difficult for a business model like Uber's, dependent on the gig economy, to encourage employee compliance. This is because the company cannot compel its workers to show up and work for certain periods of time. Uber therefore resorted to behavioral economics to address this problem. According to an article published on the New York Times, the company hired a team of behavioral scientists to devise techniques—nudges—that could be incorporated into the Uber app to encourage drivers to extend their working hours. The goal was to strike a balance between meeting consumer demand and minimizing costs.

The engineers experimented with various gamification techniques, graphics, and incentives. One nudge leverages the science of goal-setting: if a driver has set an earning goal that they haven't yet met, the app would alert them saying that they are close to hitting their target every time they try to log off: encouraging them to keep driving. These alerts were also sent to drivers who didn't even set a goal, notifying them that they were some amount of dollars away from hitting an arbitrary income target. Another nudge was the app's default that doesn't let drivers see where passengers are going before they accept the ride request, preventing them from judging whether or not the ride would be lucrative. Expenses such as fuel and maintenance charges often offset the additional income they earned. Drivers are therefore constantly nudged to keep driving even if it's not profitable for them.

"JUST AS IT IS HARD TO RESIST WATCHING JUST ONE MORE EPISODE OF FRIENDS IF IT'S ALREADY PLAYING, IT'S EASIER FOR DRIVERS TO FULFIL THE NEWLY-DISPATCHED RIDE RATHER THAN DECLINE IT (ESPECIALLY WHEN THEY ARE IN THE MIDDLE OF DRIVING).

Netflix users may be familiar with nudging in the form of an autoplay feature that automatically loads the next program episode, making it easy for viewers to binge-watch. Uber used a similar algorithm—called forward dispatch—which dispatched a new ride to drivers even before their current one was complete. Just as it is hard to resist watching just one more episode of Friends if it's already playing, it's easier for drivers to fulfil the newly-dispatched ride rather than decline it (especially when they are in the middle of driving). This is the problem with forward dispatch: while drivers still have the freedom to not choose the default option, the algorithm makes it less likely that they do. As a result, they are kept on the road longer, allowing Uber to meet more consumer demand potentially at the expense of the welfare of the drivers.

CONCLUSION

A key aspect of a nudge is the altering of people's behavior in a predictable manner. With the growth of big data, machine learning, and behavioral economics, companies are only going to get better at designing behavioral prediction models and, therefore, nudging in service of their profit maximization motive.

Richard Thaler acknowledges that his theory can be potentially misused. He wrote in an article for the New York Times that nudging should be guided by three principles: it should be transparent, easy to opt out, and should improve the welfare of the people being nudged. He advised that consumers should be attentive to and resist nudges that violate these principles. For now, the best we can do is follow his advice.

THE GOOD, THE BAD, AND THE UGLY PRODUCE MOVEMENT

BY RIA BHANDARKAR

The seemingly niche "ugly produce" industry exists at the intersection between environmental activism and agricultural economics. In the 2010s, new statistics about global food waste (for example, some experts estimated that about a third of food produced every year went in the dump) forced the most socially conscious to reconsider their relationship with groceries. While previous generations dealt with oversimplified rhetoric about third-world starvation, modern families are more aware of the complexity behind food inequality.

The contemporary obsession with food waste led to a new spotlight on misshapen and discolored fruits and vegetables, which grocery chains avoid selling. Farmers spoke about how much revenue they lost every year because a portion of their crops was considered difficult to sell. Psychologists argued that the lack of public interest in ugly food was connected to self-esteem. But the general consensus seemed to be that making use of these abnormal items would be a step in the right direction to minimizing waste. All of a sudden there was a new market for produce that looked strange, tasted fine, and made people feel like they were performing a public service.

Enter ugly produce distributors. With cute names like Misfit Juicery and Perfectly Imperfect Produce, these companies promise to take the most unattractive crops directly from farms and to their customers' doorsteps in colorful boxes. Their marketing combines shocking information about food wastage with a depiction of ugly food as social pariahs.

While these businesses may have been successful in combating excess, their detractors argue that they're an example of capitalist co-option. In 2018, non-profit Phat Beets Produce asserted that corporations such as Imperfect Produce were undermining food banks by taking ugly produce for profit instead of giving it to organizations which could help local communities. The Imperfect Foods company fired back, insisting that they only sold products that were left over after possible donations were made.

Which side of this debate should a consumer believe and how should they respond with their shopping habits? The answer isn't that black and white. Ultimately, the ugly produce movement is a good example of why dogmatism isn't useful to find solutions to multi-faceted problems. Consumers must look more closely at new industries and avoid being too idealistic.

"IN 2018, NON-PROFIT PHAT BEETS PRODUCE ASSERTED THAT CORPORATIONS SUCH AS IMPERFECT PRODUCE WERE UNDERMINING FOOD BANKS BY TAKING UGLY PRODUCE FOR PROFIT INSTEAD OF GIVING IT TO ORGANIZATIONS WHICH WOULD HELP LOCAL COMMUNITIES."

UGLY PRODUCE AND FOOD WASTE

First, it's important to understand the issue of food waste on a global scale. 1.3 billion tons of food goes uneaten globally every year. Of that amount, 10 million pounds of cosmetically imperfect waste is thrown away.

Besides the obvious tragedy of food being misused while millions go hungry every day, that phenomenon has a major impact on the global climate. According to the UN, if food waste was a country, it would be the third-largest global emitter of greenhouse gases. Redistributing ugly food may be a step forward.

On an individual firm basis, there is definitely potential for businesses to have a meaningful effect on the food waste problem. Companies like Full Harvest, which sell produce directly to other businesses, have saved over 15 million pounds of food to date.

But there has still been plenty of discussion around whether or not ugly produce truly contributes to the food waste problem. Non-profits have argued that the food that goes into farm-to-door boxes don't actually go into a landfill. They're used to make applesauce and shredded carrots: products which don't need well-shaped crops to be sold.

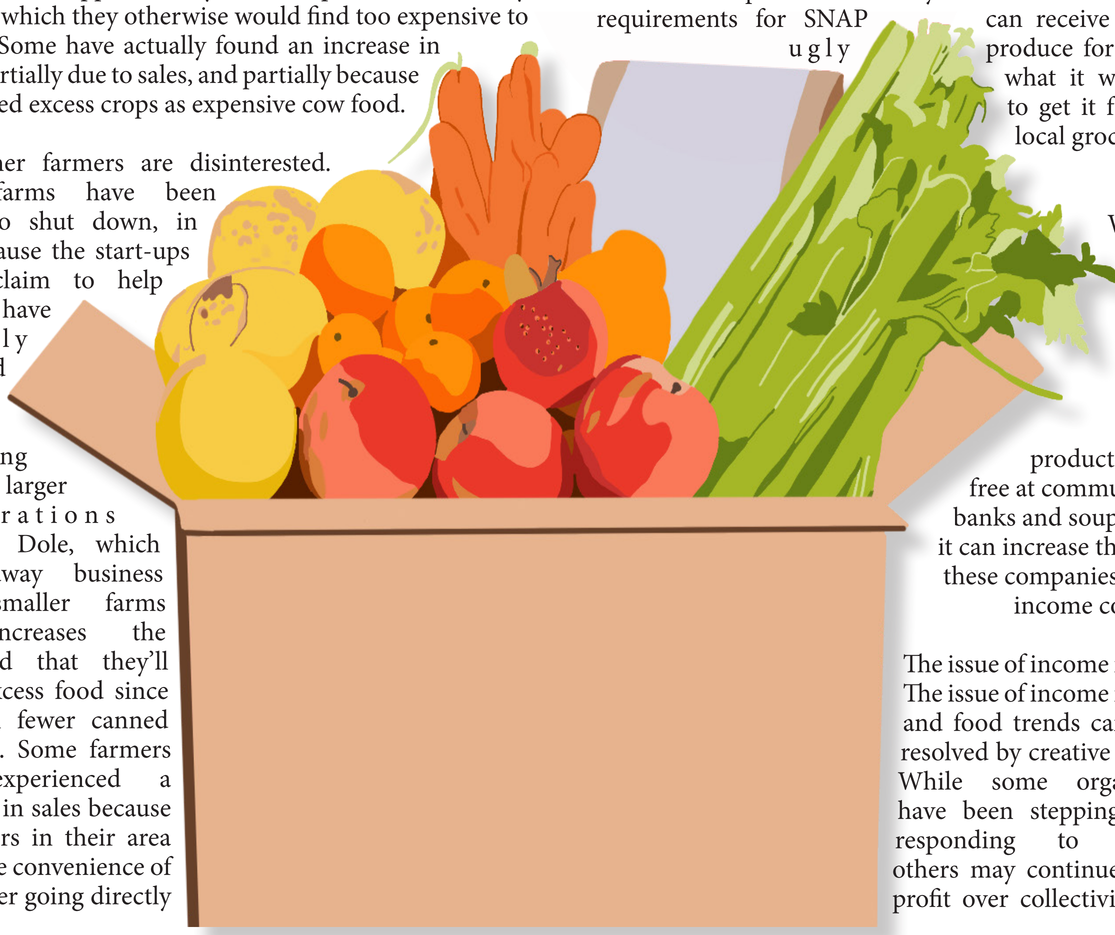
Those sentiments were corroborated by crop scientist Sarah Taber, who argued in a Twitter thread that packinghouses would only ever throw away fruit if it was inedible and that the ugliest products were usually sent to grocery stores in lower-income neighborhoods, where they can be sold at a lower price. She instead forwards labor shortage as the real problem, since it prevents crops from being harvested in time. That can be pinned on restrictive immigration policy and poor business models, not food beauty standards.

WHAT FARMERS THINK

To really understand the heart of the controversy, it may be useful to listen to farmers. While different farmers have different opinions, all of them seem to agree that the market determines beauty, not them.

Take for example Amy Moreno-Stills, who runs the Four Elements Farm, who thinks that quality is “market-place driven.” Grocery stores and restaurants use Department of Agriculture standards, or their own stricter ones, to determine what degrees of spoilage are acceptable. According to agricultural business manager David Earle, 20 percent of produce harvested from his organization doesn’t meet these rigid requirements.

Many farmers support wonky food companies because they sell food which they otherwise would find too expensive to harvest. Some have actually found an increase in profit, partially due to sales, and partially because they’d used excess crops as expensive cow food.



Still, other farmers are disinterested. Some farms have been forced to shut down, in part because the start-ups which claim to help them have actually admitted to partnering with larger corporations such as Dole, which takes away business from smaller farms and increases the likelihood that they’ll dump excess food since they sell fewer canned products. Some farmers have experienced a decrease in sales because consumers in their area prefer the convenience of boxes over going directly to farms. How can these small companies help independent farmers if they work for the systems that are destroying them?

WHO SHOULD UGLY PRODUCE GO TO?

Besides their role in propping up big businesses in the agricultural industry, ugly produce startups have also been accused of stealing from non-profits which aim to reduce food insecurity. Most ugly produce consumers are higher income because of the larger costs of delivery and buying in bulk. Although they may feel that they are helping the environment, they may be raising the prices on goods which could otherwise be free.

As previously stated, the non-profits Food First and Phat Beets Produce have publicly called out ugly produce companies for encouraging farmers to lower donations since they have more lucrative alternatives. Besides Imperfect Produce’s claim that 20 billion pounds of food waste are still left over after donations, other organizations such as Feeding America have come to these corporations’ defense.

Luckily, the issue doesn’t have to be about donating or selling for farms. Organizations such as Imperfect Produce have promised that anyone who meets the income requirements for SNAP can receive a box of ugly produce for less than what it would cost to get it from their local grocery store.

While that may not have the same effect as giving products away for free at community food banks and soup kitchens, it can increase the reach of these companies to lower-income consumers.

The issue of income inequality
The issue of income inequality
and food trends can only be resolved by creative solutions. While some organizations have been stepping up and responding to criticism, others may continue to value profit over collectivism. Food

startups rely on venture capitalists for funding, with some such companies raising as much as $100 million from investors. For many, being overambitious is key to secure the funds necessary to stay afloat in a competitive market.

ALTERNATIVES TO UGLY PRODUCE

But what can consumers and farmers with surplus crops turn to if not trendy food companies? While some possible solutions to food waste may be too large in scale for an individual, there are still plenty of other ways to have a similar effect on the environment.

"INVESTING IN MORE GREENHOUSES COULD HELP PRODUCE MORE MARKETABLE CROPS WHICH AREN'T EXPOSED TO THE HEAVY RAIN AND WIND WHICH PRODUCES SERIOUS BLEMISHES. TO ENCOURAGE THE TRANSITION, CONSUMERS SHOULD SUPPORT EXISTING FARMS WHICH OPERATE GREENHOUSES."

One solution is to prioritize greenhouses over open-field farming. Since open-field horticulture is seasonal, it's easier for food to go bad faster. Investing in more greenhouses could help produce more marketable crops which aren't exposed to the heavy rain and wind which produces serious blemishes. To encourage the transition, consumers should support existing farms which operate greenhouses.

It would also be helpful if farmers took better advantage of the resources available to them. Building co-ops and making use of government grants can ensure that farmers are more aware of what the endgame is for their products, which can help minimize waste. Grant loan resources can be used to help farmers build packinghouses and salsa kitchens to handle their ugly produce.

Even if the food system remains as is, consumers can still donate to nonprofits, send their excess food to food banks, and be more conscious of how much they're producing. Native American food programs, such as the Lakota Nation's Tanka Bar for buffalo meat or the Yakama Nation's produce, grow food sustainably and support the people that grow them.

CONCLUSION

Whether or not the ugly produce problem is overstated, there are clearly still unused products that farmers are willing to give farm-to-door companies. Consumers don't necessarily have to boycott companies like Misshaped Misfits and Imperfect Produce, but they shouldn't label them as messiahs either.

The ugly produce movement exemplifies the twenty-first century consumer's reliance on social media to navigate lifestyle changes. Food waste isn't a simple problem; it's an example of the broken agricultural system's inability to distribute resources in a way that benefits all consumers. If individuals really want to be part of the solution, they have to look beyond the glitzy marketing of 'socially responsible' firms and become more vigilant of companies that claim to have an answer for everything.

Besides buying ugly food, Americans should advocate for government policies that support farmers and donate to organizations that prioritize sustainability and reorganizing farms' supply chains. They should prevent food waste in their households and make sure that they aren't negatively impacting the food insecure. Being an environmental activist means more than doing what's trendy; it means looking to the future and being critical of the consequences of individual actions.

"WATER FINDS THE LEAK": HOW FEDERAL AND STATE GOVERNMENTS LOST BILLIONS TO PANDEMIC AID FRAUD

BY JAIDE LIN

INTRODUCTION

When the $2.2 trillion coronavirus stimulus package was greenlit through bipartisan compromise in late March, the $260 billion in emergency unemployment insurance promised some reprieve to workers adversely impacted by the COVID-19 lockdown. The aid influx emerged in a time when unemployment had skyrocketed from 3.6 to 4.5 percent, the largest over-the-month increase since 1975. A weekly benefit increase of $600 for four months would prove vital for individuals who found themselves out of a job during the pandemic.

Under the CARES Act, over $600 billion flooded state workforce agencies through a new initiative known as the Pandemic Unemployment Assistance program, leaving state programs hurrying to release funds into the workforce. The speedy, rushed dispersion of aid offered a golden opportunity to scammers, con artists and criminal groups.

"Water is going to find the leak. The criminals are going to find the weakest link," the U.S. Digital Response's unemployment team lead, Alyssa Levitz, had warned during proposals of emergency aid and relief. And now, workforce agencies, small businesses, and workers who have lost their jobs to the pandemic are paying the price for this oversight.

UNCOVERING THE LEAK

In December of 2020, Orange County prosecutors uncovered an unemployment fraud scheme where suspects formed a falsified aid agency, Nguyen Social Services, to file over 1,000 invalid unemployment claims through California's Employment Development Department (EDD). However, criminal activity extended far beyond this one scheme in particular. In total, Labor Secretary Julie Su estimates that California has paid out $11 billion in fake jobless claims, with billions of dollars undergoing investigation for potential fraud.

However, the issue extends far beyond Orange County and California's statewide aid dispersion strategy. "This isn't just an Orange County problem. It isn't just a California problem. This is a breakdown of catastrophic proportions that has failed the American taxpayer," says Orange County District Attorney Tom Spitzer.

States including Arizona, Maryland, Ohio, Washington, Colorado, and New York have collectively reported a loss of billions of dollars to criminal activity in COVID relief aid distribution. This enticing opportunity for criminal syndicates not only means that less money will be available to unemployed individuals impacted by the pandemic, but also that rising employer taxes could put states and governments in a heavier budget deficit. Even while officials work to review and collect a full account of the fraudulent activity diverting billions of U.S. taxpayer dollars, the majority of America's 50 statewide agencies have reported they have yet to assess the full extent of loss.

To make matters worse, the "cyber pandemic" is far from over as additional organized crime rings and opportunists enter the cash grab for federal dollars. Individual fraudulent claims slipping through the cracks in government pandemic aid provisions has quickly evolved to become a much more formidable foe.

IDENTITY THEFT, POULTRY FARMS, AND THE "SCATTERED CANARY"

Catalyzed by the veritable flood of legitimized claims entering federal aid agencies and state programs, fraudulent activity skyrocketed as state governments were pressured to disperse aid as quickly as possible. Ranging from identity theft to impersonating deceased individuals to explosive usage of the "dark web" for accruing personal information, various channels of criminal activity have experienced a resurgence, continuing practically unchecked until Congress required the verification of claimant identities in December of 2020. In fact, hundreds of residential areas are recorded by the Small Business Administration to be "commercial hubs" of fabricated small businesses.

IN THE CHICAGO AREA ITSELF, OVER 81,000 GRANTS WERE APPROVED EVEN WHEN THERE WERE ONLY 19,000 VERIFIED SMALL BUSINESSES, A TOTAL OF $600 MILLION IN FUNDS BEING DIVERTED TO PHANTOM COMPANIES.

South Hermitage Avenue, a suburban residential street occupying Chicago's South Side, emerged on SBA records as a bustling center of 18 businesses each containing at least 10 workers. According to Chicago Business, all 18 were promptly approved for $10,000 pandemic relief grants in the summer of 2020. Under the $214 billion Economic Injury Disaster Loan program intended to prop up small businesses across the country, officials have reported aid disbursements to "statistically impossible numbers" of claimants. In the Chicago area itself, over 81,000 grants were approved even when there were only 19,000 verified small businesses, a total of $600 million in funds being diverted to phantom companies. Criminals have even taken advantage of specific industries that were provided a fast-tracked government aid application process, most noticeably for agricultural producers. Investigations of applicants in May and early June uncovered thousands of unconfirmed farms in heavily urbanized areas such as San Francisco and Brooklyn. One Chicago resident even reported having his identity stolen under the guise of owning two poultry farms in Greenwich Village and was later informed of the subsequent loan approvals.

"Would it be too much to ask for the government to figure out it shouldn't be making loans to poultry farmers in New York City?" the Chicago resident had remarked during an interview with Bloomberg News. "How hard is that to screen?"

Outside more typical criminal activities such as ineligible claimants filing for unemployment benefits and small business grants, more organized crime groups have also gained further traction in the form of fabricated businesses, account takeovers and SSN-selling dark web sites. One cybersecurity company, Agari, has been collaborating with federal security groups in the tracking of an active Nigerian cybercrime ring known as the "Scattered Canary." The group, along with other similar criminal networks, has already been linked to the diversion of hundreds of millions of dollars in unemployment benefits from 11 U.S. States including California, Massachusetts, and Hawaii.

The group's process is systematic, with dozens of employees disseminating feelers into statewide networks, testing for various weak links while procuring falsified identities or otherwise collecting personal information from the dark web. According to Agari's cybersecurity reports, the criminal organization frequently utilizes Gmail's free account service to mass-email applications to state aid websites and CARES Act providers. Using personal information likely purchased from the dark web, members are also able to direct mail-in funds to properties where the original owners have long since moved out, or even "hired" fabricated "employees" using these identities to apply for benefits under their name as part of a fake small business.

Large-scale, organized criminal activity in the vein of government aid and pandemic relief presents several threatening implications for government agencies, businesses, and taxpayers alike. Quantifying the extent of losses is difficult, but investigators within Pondera Solutions Inc., a defrauding firm, have uncovered cases of groups such as the Scattered Canary using shared bank accounts involving "hundreds or thousands of claimants, as well as shared phone numbers and addresses."

Right now, investigators and cybersecurity organizations are attempting to stem the flow of misused government aid packages while also working to answer another pressing question: how much of the federal aid was lost to fraud, and what does this mean for future business and economic activity?

CALCULATING THE COSTS

According to the Federal Trade Commission, in the summer of 2020, American taxpayers had lost more than $77 million to fraud related to COVID pandemic aid. However, investigators at the National Consumers League, a consumer advocacy group, claim that the number is a gross underestimate that only accounts for "the tip of the iceberg" as additional scams and criminal activity continue to surface.

Now, an NBC article published in February puts the calculated loss at somewhere around $100 billion due to the COVID-relief program, critiquing "weak internal controls" and lack of regulation during the "high-risk" aid dispersion program as a staggering amount of taxpayer funds were misspent by government and state agencies.

While the data and evidence points accusingly at opportunists, scammers, and criminal syndicates for exacerbating the deficit of funds available to small businesses and workers out of a job due to the pandemic, others argue that this fraudulent activity is a mere symptom of the ongoing desperation fueled by pandemic-related anxiety, lack of public confidence in government response, and overall limited opportunities for welfare and benefits provision.

EVEN WHILE FEDERAL INVESTIGATORS ATTEMPT TO TALLY THE LOSSES FOR LEGITIMATE BUSINESSES AND UNEMPLOYED INDIVIDUALS, EVIDENCE ALSO SUGGESTS THAT THE BLAME FOR SUCH EXPLOSIVE CRIMINAL ACTIVITY RESTS WITH THE GOVERNMENT.

The Small Business Association (SBA), while referring suspicious loans for criminal investigation, has reported that many of the places that were hotspots for fraudulent unemployment claimings were, in fact, in low-income neighborhoods that were disproportionately impacted by the COVID pandemic. Even while federal investigators attempt to tally the losses for legitimate businesses and unemployed individuals, evidence also suggests that the blame for such explosive criminal activity rests with the government.

From this perspective, the issue of fraudulent behavior during the disbursement of government aid appears not as a one-time spike in criminal activity given the volatility of federal relief provisions, but as a result of various factors: a lack of understanding concerning aid applications from would-be recipients, limited alternatives to accrue workplace benefits and loans, and ongoing pandemic-related fears

fueling public anxiety and erratic consumer behaviors.

"Water is going to find the leak," Levitz had said. But it remains to be seen how the government plans to patch the weakest link.

UNDERGRAD ESSAY CONTEST:

AFTER THE COVID-19 PANDEMIC, MANY COMPANIES WILL CONTINUE TO ALLOW EMPLOYEES TO WORK REMOTELY. WILL SUCH WORK-FROM-HOME POLICIES HAVE LONG-RUN ECONOMIC IMPACTS?

BY ARMAN MARCHIEL

With a death toll of over 560,000 people, the U.S. will never be the same even after the pandemic comes to an end. Since the quarantine started in March 2020, Americans have had to stay in their homes more than ever before. Eating, exercising, and other daily activities had to be done from the confines of people's homes. During the pandemic, the way people worked has changed forever as zoom and other video chat platforms substituted for in-person communication. This change is not bad for everyone; a recent University of Chicago study found that 37% of jobs in the U.S. can be done entirely from home. However, it should be noted that this only benefits skilled laborers, as working class/manual labor jobs require employees to work in-person. Since many employees do not need to live close to work, the demand for living in a megalopolitan area will decrease. Instead of spending an additional 87% in price per square foot for urban housing, I predict more people will choose to opt for the suburban lifestyle.

For the past 40 years, office skyscrapers have been the traditional workspace for the skilled workforce. One of the largest is One World Trade Center, with 3.5 million square feet of space and a capacity to hold over 8,000 employees. Massive skyscrapers have continued to be built because they have incredibly efficient floorplans, fitting many workers into a building with a small footprint. As cities deal with the aftermath of the COVID pandemic, skyscrapers will be seen as less safe due to the inability to social distance.

The demand for skyscrapers will also decrease for usage as residential buildings. High rise condominiums are pricier than homes for one main reason: location. With the downfall of traditional city offices, the demand to live near them will decrease. Due to the lack of physical presence in urban centers, Stanford economist Nicolas Bloom predicts that spending at city center restaurants, bars and shops will be cut by more than half.

As we shift away from cities, Bloom believes that COVID-19 will dramatically shift the trend to industrial parks with low-rise buildings. Because industrial parks are often situated in suburbs, suburban towns will become an appealing option for many working Americans looking to avoid commuting into and out of cities. In fact, a similar trend took place two decades ago in Silicon Valley. Major tech companies were amongst the first employers to allow employees to work from home. Because coding, web design, and other technical specialties could be done remotely, policies were put in place to allow employees to split their time between their office and their house. When tech companies began building sprawling low-rise complexes, such as the Google and Facebook campuses, the median home price in Palo Alto jumped from $700,000 in 1998 to a jaw-dropping $4 million in 2018.

This shift away from cities will have long-term economic consequences. For developed suburbs, the influx of new prospective residents will cause price spikes in the housing market. With a limited amount of undeveloped land, there will be an inelastic supply of suburban homes. This will result in an increased amount of competition for a limited supply of homes, and suburban buyers will ultimately pay over asking price on their home post-pandemic. These high prices will only allow wealthier residents to live in the suburbs, bringing a new wave of socioeconomic gentrification.

On a positive note, these booming suburbs will be great for small businesses. These small businesses, such as local restaurants and brick-and-mortar stores, are a crucial segment of a consumerist economy, creating 1.5 million new jobs annually and accounting for 50% of the U.S. GDP. Although small businesses have suffered in the short-run, I expect small businesses to experience a long-run surge post-pandemic. With increased spending from a larger suburban population, small businesses should be more financially stable than pre-pandemic.

Finally, the COVID-19 pandemic is on the decline and it is estimated that every American adult will be vaccinated by June 2021. As we prepare for the world to move on, the term "normal" has been redefined. Employees now have more flexibility, and the freedom to choose where they work. However, the ability to work from home will severely impact the U.S. housing market. I predict cities around the country will experience a mass exodus of skilled workers, and the migration into suburbs will have long-term economic consequences.

HIGH SCHOOL CONTEST:

AFTER THE COVID-19 PANDEMIC, MANY COMPANIES WILL CONTINUE TO ALLOW EMPLOYEES TO WORK REMOTELY. WILL SUCH WORK-FROM-HOME POLICIES HAVE LONG-RUN ECONOMIC IMPACTS?

BY ADAM HOSEIN

The coronavirus pandemic has created a paradigm shift in the way that the world operates. Due to the challenges imposed by this crisis, billions across the world have adapted their lifestyles, resulting in changes to the way the global economy functions. One of the key changes due to the pandemic has been the substantial increase in the amount of people remotely working. Many companies have started considering allowing their employees to work remotely full-time even after the pandemic. These changes will inevitably result in long-run economic impacts due to the money that companies and employees will be able to save, changes in employee productivity, and the potential increase in income inequality.

Primarily, the prospect of employees continuing to work from home may be a result of a strategic decision that companies make to reduce their long-term costs. For example, companies will no longer need to spend money on providing a physical workplace. This poses a threat to big-city centers that have traditionally relied on the traffic of workers entering their cities (Siripurapu). If this continues in the post-COVID world, this can lead to less tax revenue for city budgets. For example, before the pandemic, New York City was the largest commuter hub largely due to people commuting to their offices. Now, the majority of these workers are working remotely, leading to less spending within New York because of the reduced foot traffic. The reduced spending has led to the city losing $2.5 billion in tax revenue (Cagnassola). This is noteworthy because if cities continue losing tax revenue because of reduced foot traffic, this could harm local governments' ability to provide services necessary for assisting the poor.

Another ramification of remote work is the prospect that less money would be spent on transportation. For example, businesses will no longer need to spend money to send their employees to events like business conferences. This could harm economic sectors including the airline and hospitality industries. According to Brian Olsavsky, the CFO of Amazon.com, the company was able to save $1 billion in transportation costs due to remote work (Tanzi). Evidently, the reduced demand for hotels, airplanes, and restaurants due to reduced travel will have the potential of increasing profits by cutting spending for companies in the long-term. It is also important to consider the impact of the change in the demand for oil. After all, as less people buy gasoline due to remote work, gasoline will not be needed as frequently as it was before the pandemic. This suggests that the fossil fuel industry will suffer due to reduced demand for gasoline.

Additionally, the change in employee productivity resulting from remote work will have a distinct global economic impact. According to a survey, 32% of managers reported an increase in employee productivity with remote work during COVID lockdowns (Ozimek 4). If companies continue to observe an increase in productivity, this will likely lead to more companies providing remote work opportunities. Also, an increase in productivity indicates that companies will become more efficient, thus maximizing profits. However, it is possible that remote work may have an adverse effect on productivity. For example, a study by Dr. Jena Lee finds that due to social disconnection through video-conferencing, people feel burnt out and fatigued with work more easily (Lee). This burnout can be harmful for long-term productivity, and may reduce profits for companies in the long-run. In an interview with the New York Times, Satya Nadella, the chief executive of Microsoft, stated he desired to reopen office spaces to prevent this burnout that could harm productivity.

It is also important to note that there are disparities between the poor and rich that could be exacerbated by remote work. According to a study by Stanford University, only 51% of survey respondents (mainly high-earning white-collar workers) report being able to efficiently work remotely. The study also finds that 65% of Americans have fast enough Internet to adequately use video conferencing (Wong). If industries continue to provide remote work opportunities, higher income people would gain more access to opportunities that lower income people would struggle to take advantage of due to disparities in Internet access.

Therefore, it is evident that expanded remote work opportunities have mixed long-term economic effects for companies and employees. In a post-COVID economy with widespread remote work, companies and employees will save more money while potentially improving their efficiency. However, the benefits of remote work may be counteracted by the harms including resulting mental health issues that eventually harm productivity and income disparities.

PROFESSOR INTERVIEW PREVIEWS

Every semester, Berkeley Economic Review's Research & Editorial team interviews economics professors and researchers from UC Berkeley and around the world to publish in our journal. Below are highlights from interviews we have published in the Spring 2021 cycle. Read the full journal at econreview.berkeley.edu.

INTERVIEW WITH GRADUATE INSTRUCTOR NICHOLAS OTIS

BY CHAZEL HAKIM

"How could forecasts come into play here? Let's suppose you have a bunch of experts who say, "I think this intervention is going to be very effective." But after, the results show that the intervention is not effective. All of the sudden, what might feel like no information in a null result could become exciting to people, as it's something that's actually providing a lot of information relative to the priors of academics in the field."

INTERVIEW WITH PROFESSOR ELLORA DERENONCOURT

BY RIA BHANDARKAR

"The vast majority of people don't have a lot of power in their workplace and that actually feeds into wages, benefits and the quality of jobs people have. If you just study economics in the Econ 101 sense of supply and demand you might miss that because there, the wage is just set based on supply and demand and there isn't any room for power. But now we see more and more that labor economics recognizes that role that employers can have in wage setting power over their workers."

INTERVIEW WITH PROFESSOR DON MOORE

BY PETER ZHANG

"The simple prescription there is to ask yourself why you might be wrong. There are a lot of ways to do that. One of the easiest is to accept the gift offered by our rivals, critics, and enemies. Listen to their critiques."

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