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FROM THE LAB

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Welfare and Inequality in the 21st Century
conference held October 15–16, 2021

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Director's Message

Finn Kydland

The bulk of this issue is taken up by summaries of the presentations that took place at our recent conference on "Welfare and Inequality." The program was put together by Ben Griffy, University of Albany, Nick Pretnar, our LAEF postdoc (PhD at Carnegie Mellon), and David Wiczer, Stony Brook. As always, PhD students were assigned the task of being present at, recording, and then summarizing the talks.

In their conference announcement, here's how Ben, Nick, and David summarized the intention of the conference:

Conference Topic: *Economic research has long been concerned with measuring welfare in order to characterize inequality and understand how policies may lead to more equitable outcomes. Recent research examines how economic policies impact outcomes across cross-sectional dimensions beyond income and wealth, such as race, ethnicity, age, family structure, and geographic location. Some researchers have even sought to quantity how consumers derive welfare from consumption, leisure, and home production activities. With this conference we aim to bring together a diverse group of economists who explore the many dimensions of inequality in order to come closer to understanding how policies can lead to more equitable outcomes, while also answering the question, "What is welfare?"*

A long-time tradition has been to include once a year in a FROM THE LAB issue a report on last year's international trips made for the purposes of keynote speeches, selection-committee meetings to pick winners of major awards, etcetera. These days, not many international trips, for obvious reasons. But there have been some international events of note. The three most major ones were the annual meeting in Valencia to select the winner of Premios Rei Jaime Primero, a prestigious Spanish prize, and the, also annual, meeting in Shanghai entitled World Laureate Forum, this year the fourth, WLF4. Moreover, during the year, a meeting took place at the Norwegian Consulate in New York to select the winners of the Oslo Business for Peace Award.

The Premios Rei Jaime I are awarded in five different categories, one of which is Economics. The organizers in Valencia are spectacularly successful in getting Nobel Laureates to participate in the deliberations and selection. In Economics, participating this year were Eric Maskin, Chris Pissarides, Ned

Phelps, and I. Our committee selected as the winner a great Spanish economist, Antonio Cabrales. Here's our committee's statement to justify the selection (which committee member Matilde Mas helped penning):

Antonio Cabrales has been awarded the 2021 *Rei Jaume I Prize* for his contributions in the fields of game theory, behavioral and experimental economics, and in the analysis of social networks. His first papers focused on the analysis of the dynamics in economic environments. Based on these previous works, his most recent contributions focus on adaptive dynamics or bounded rationality. However, his interests go beyond these fields of research, and extend to a wide spectrum of public policies - such as education, health, and labour - for whose analysis he uses an arsenal of techniques anchored in economic theory. To this must be added his continuous presence in the media, guiding and contributing to the discussion on the main problems of the Spanish economy.

The World Laureate Forum took place on Zoom over several days. My main activities were participation in the Opening of the conference and in the Digital Transformation Forum. This forum included eight panel members, among whom were Nobel Laureates Eric Maskin and me. Three of the participants were listed as being on the faculty of Carnegie Mellon University: Manuel and Leonore Blum (both Turing Award winners), and Takeo Kanade. They listed me as a professor at University of California, Santa Barbara, but I was quite excited to realize that a majority of the panel members either were, or had been, associated with Carnegie Mellon. That included me, as I had spent more than three decades at CMU, most of that time as a faculty member (Associate and then Full Professor at the Graduate School of Industrial Administration – GSIA), but also including my initial four years as a PhD student.

My impression is there's general agreement in the profession that the originators of the field of artificial intelligence were Allan Newell and Herbert Simon, both faculty at CMU at the time they did their main research. In my intervention at the Digital Transformation Forum I decided to talk about Herb Simon (of course I always knew about Newell, but not personally). Back in the day, let's say the late 1980s, the GSIA faculty would typically meet for lunch at Skibo, the CMU cafeteria, sometimes all assembled at the same table. We discovered that Herb Simon enjoyed it when economics professors would accompany him at his table. I was among those who did so many times.

We soon discovered also that Herb was a rather opinionated person. One of his things was to make fun of people for reading newspapers – big waste of time, he would always claim! My final statement at the forum: That's exactly how I feel about the smart phone!

For context, my all-time favorite mobile phone was the extremely compact black Nokia I owned for eight years, until the part fell out into which I would plug the charger. I have since replaced this phone with an LG flip phone.

At some point, my wife, Tonya, decided she needed a smart phone (I joke that she's wasting a lot of time!) I admit that occasionally it comes in handy. For example, for five years in a row, Tonya and I spent two months a year in Doha, Qatar, where I would teach at Carnegie Mellon's campus in Education City. Using her phone, Tonya was able to call an Uber when needed, even in Doha. (If she hadn't had that ability, I would have called a regular taxi!)

I realize some would argue I wasn't the most appropriate panel member on the Digital Transformation Forum, but at least I had fun while it lasted!

Welfare and Inequality in the 21st Century

October 15–16, 2021

Pedro Amaral – California State University Fullerton
Corina Boar – New York University
Job Boerma – University of Wisconsin
Javier Birchenall – UC Santa Barbara
Juan Carlos Cordoba – Iowa State University
Julio Garin – Claremont McKenna
Benjamin Griffy – SUNY Albany
Gary Hansen – UC Los Angeles
Jonathan Heathcote – FRB Minneapolis
Roozbeh Hosseini – University of Georgia
Ayse Imrohoroglu – University of Southern California
Karen Kopecky – FRB Atlanta
Finn Kydland – UC Santa Barbara
Andre Victor Doherty Luduvice – FRB Cleveland
Nick Pretnar – UC Santa Barbara
Marla Ripoll – University of Pittsburgh
Mitchell Vanvuren – UC San Diego
Gustavo Ventura – Arizona State University
David Wiczer – Stony Brook University
Kai Zhao – University of Connecticut

Photo above: Santa Barbara Harbor. Credit: Tony Mastres. UC Santa Barbara

Homelessness

Ayse Imrohoroglu and Kai Zhao

Almost 1.5 million people in the United States were homeless in 2018, according to the Department of Housing and Urban Development. And on a given night in April 2019, more than 560,000 people lacked stable and appropriate housing.

According to the authors, data about homelessness is scarce, with few characteristic variables. Even the count is controversial. The last national survey that included many characteristics was conducted in 1996. Some audience members expressed their assumption that cities and counties counted their homeless accurately.

The definitions of homelessness and sheltered homeless vary across data sources, and diagnoses of mental diseases lack rigor. However, the authors' research yielded some important observations: many homeless are employed or were employed prior to becoming homeless; most receive government assistance, like food stamps; only 9% of homeless move from one state to another; between a fourth to a third are mentally or physically ill, implying that for the remainder the causes are economic; and the homeless receive fewer government benefits than do poor households.

These observations help motivate what is perhaps the first general equilibrium model of homelessness, calibrated to match some key moments of the current U.S. economy. The model's purpose is to quantitatively examine the impact of various policies intended to reduce the flow to homelessness.

The model consists of heterogeneous individuals that face idiosyncratic income shocks and choose between how much to consume, save, and spend in housing. There are competitive financial institutions that rent houses and a government that collects income taxes that are used to finance public expenditures and insurance programs.

Individuals have a choice to default on a lease and move to a smaller house. An individual defaulting on the smallest unit would become homeless. Subsequently a homeless individual chooses to remain homeless or not.

The model incorporates health and unemployment shocks, including schizophrenia, which is characterized by high persistence of the disease and a roughly 1% rate of occurrence.

The baseline calibrated model generates a homeless population share of 0.4%. The authors proceed to generate policy experiments, finding that providing subsidies to the smallest housing unit decreases the share of homeless to 0.23%. This subsidy also creates incentives to people to move to the smallest units. Providing housing vouchers, without restricting the size of a house, and relaxing borrowing constraints has no effect on the share of the homeless population. The subsidy to the smallest housing unit is thus the preferred policy for reducing homelessness.

An audience member pointed out that there was no notion of optimality in the policy, given that the government lacks an objective function. The author replied that one could still consider welfare and how it decreases with the rent subsidies policy.

Another audience member suggested that the model incorporate externalities generated by homelessness. The author agreed, but stated, it would be challenging and far from clear how to do this.

The Full Recession: Private Versus Social Costs of COVID-19

Juan Carlos Cordoba, **Marla Ripoll** and Siqiang Yang

Policymakers widely utilize a "value of statistical life" in economic policy to evaluate the costs and benefits of interventions to save lives.

Official COVID-19 recession figures do not incorporate the loss of human life stemming from the pandemic.

Marla Ripoll presented new research that attempted to quantify the full recession, taking the death toll into account. The authors began by proposing a new model of the value of statistical life, or VSL, that is distinct from the expected utility model. According to the authors, traditional VSL models had understated the value of life for the poor and the elderly, groups that had been disproportionately affected by COVID-19. They then calibrated this model to the data, attempted to quantify the welfare costs of the pandemic from the social planner's perspective, and computed the full cost of the pandemic, stemming from both loss of life and the economic recession.

In relatively traditional models, the VSL can be understood as the rate at which people exchange survival for consumption. One consequence of the classic expected utility model is that utility is linear in probability of survival, meaning that the effect of an increase in the probability of survival will be the same, no matter where an individual lies on an age distribution.

A second consequence is that there are income effects. If an individual's consumption is close to the minimum value of consumption, then as it approaches that minimum value, the value of life that this structure implies will be very small — much smaller than proportional to their consumption. Thus, by construction, under the classic expected utility model, the VSL will be understated for the elderly and for the poor.

An attendee asked why one could not simply sidestep the income effect issue by selecting a different minimal value of consumption at the start. The presenter made clear, however, that the specification of utility proposed in this paper did not require a minimum value of consumption at all, eliminating income effects.

Another attendee asked what the authors' proposed structure adds relative to past work by Hall and Jones, in terms of making survival probability endogenous. The presenter explained that the new model attempted to tackle problems with the structure of utility, not problems with the structure of survival probability, and in fact could accommodate endogenous survival probabilities. The authors focused on properties of preferences that could generate predictions about the VSL that are more general and better capture features of behavior and the data than the typical expected utility structure. While this model could be collapsed down to the expected utility model in the aggregate, this model would add more detail for questions in which heterogeneity matters.

A key prediction of the new VSL model, and one that sets it apart from expected-utility-based models, is that, despite the fact that older people have lower continuation value, on the margin they have so little life remaining that they are willing to sacrifice a lot to live more. This is the channel through which valuations from COVID-19 are affected.

An attendee pushed back on the authors' decision to set utility in the dead state to zero, pointing out that the results from the model would change depending on the value of this utility. The presenter acknowledged that this modeling choice was an assumption.

The authors computed the price a social planner would pay to avoid the COVID-19 pandemic under this model. The planner's computation, while incredibly similar to the expected utility valuations for younger and richer people, would be dramatically different for older and poorer people.

An attendee asked whether this framework could accommodate a pandemic with different mortality probabilities, such as the Spanish flu, in which young people had the worst mortality rates. The presenter responded that this model could accommodate a different pandemic, as it would just be a matter of changing the parameter.

Another attendee pointed out that recent literature had demonstrated that the variance of log-consumption changes over the life-cycle, and that the increased dispersion of consumption over the life-cycle would have implications for the calculation of welfare. While the paper explored different cases, it did not seem to have a cohesive answer to this critique.

Another attendee expressed interest in the discount parameter, beta, particularly at the end of life. One might expect the discount factor to play a heavier role at the end of life. Unfortunately, there were data limitations that prevented the authors from computing beta parameters past age 75, and they opted to assume that from then on, beta was constant.

They presented the welfare costs of the pandemic in a world with no annuity markets. Importantly, the pandemic affected people so differently that the standard deviation across ages was very large. A 47-year-old would opt to give up 22.7 percent of a year's consumption. A 20-year-old would be willing to give up around 4.1 percent. A planner

with no aversion to inequality would be closely aligned with the 20-year-old. Increasing their aversion to inequality dramatically changes the results, aligning them with a 70-year-old individual, who would be willing to pay 72 percent of a year's consumption to avoid the pandemic.

They concluded that for an average individual, a 3.5 percent recession in a year, with half a million deaths resulting from the pandemic, was equivalent to reducing consumption by 24.2 percent.

Working, Consuming, and Dying: Quantifying the Diversity in the American Experience

Chadwick Curtis, **Julio Garin** and Rob Lester

What does the distribution of welfare in the United States look like? Instead of focusing on income alone, the challenging empirical approach presented here tries to incorporate consumption, leisure, and mortality.

Unlike a previous paper by Falcettoni and Nygaard (2020), the authors chose to avoid the details of self-selection and mobility across states.

The framework uses lifetime expected utility from the perspective of a 25 year old of a specific demographic group to avoid dealing with the decision of college attendance. The audience was curious about the impact of this choice, and the author acknowledged the limitations of the exercise.

To avoid negative utility, or decreasing welfare in some years, the model assumed a constant term in the per-period utility. Though this assumption may be debatable, the author said that the ordering in welfare between demographic groups remained unchanged compared with other modeling assumptions.

Some audience members were concerned about the role of leisure. Initially, leisure was defined as any time not spent doing work. But even after incorporating home production, as a robustness check, the findings were fundamentally the same. This modification did shrink the welfare difference between males and females. The author indicated that this provided an upper bound of the effects of home production.

Among other robustness checks, the author mentioned using the compensating variation and getting similar ordering of the welfare of the groups. At this stage, some people in the audience went back to the discussion of the structure of the utility function and expressed concern that results may be highly sensitive to different functions. The presenter agreed that it would be interesting to consider whether alternative structural forms affected the welfare ordering of groups.

The paper used its model to ask how much one would need to tax or subsidize an average American to make him indifferent between living his life and the life corresponding to a particular demographic group.

For example, living the life of a Hispanic person without college would require compensating an average American with 40% more consumption.

Driven by higher life expectancy, the model also found that women did better than men in most groups. Life expectancy and consumption explained the main welfare differences between African Americans and other groups.

These results aligned with work by Jones and Klenow (2016) that showed the biggest differences across countries were a result of consumption and mortality.

An interesting extension that the authors were trying to incorporate was the role of environmental factors. Different groups may be affected differently by pollution and other environmental changes. Preliminary results suggested that the welfare ordering among groups was not altered by the inclusion of these factors.

Audience members raised the point that family size in different demographic groups should be included in the model. Some groups might try to compensate for shorter life span by having more children, a point that the presenter agreed would be interesting to consider.

Reparations & Persistent Racial Wealth Gaps

Job Boerma and Loukas Karabarbounis

The average White household in the U.S. has more than $700,000 in wealth, while the average Black household has $100,000. Given this, Boerma and Karabarbounis examine the impact of reparations on the racial wealth gap. The authors draw upon a growing body of work on wealth inequality. This body of work shows that entrepreneurs are at the top of the wealth distribution owing to large returns from risky investments. It also explains the intergenerational persistence of wealth through bequests. Boerma and Karabarbounis contribute to this literature by introducing a dynamic long-run model comprising heterogeneous dynasties with an endogenous distribution of beliefs about risky returns. Black dynasties have more pessimistic beliefs compared with White dynasties stemming from their different investment experiences, which are themselves a result of historical exclusion from labor and capital markets.

The two heterogeneous dynasties in the model allocate time between a safe technology that produces labor income and returns from saving in a risk-free asset, and a risky technology that generates capital income from entrepreneurship. The latter depends on the realization of idiosyncratic events. Each dynasty begins with a prior belief of the chance the risky activity is successful, which then determines the choice to become an entrepreneur or not. Beliefs are updated given experiences using Bayes' rule. These posterior beliefs are transmitted to the children of capital owners, whereas workers never update their priors. Each generation maximizes utility over consumption and bequests to children, subject to their budget constraint. Solving the dynamic optimization problem for dynasties yields a threshold level for the choice to become an entrepreneur or worker, which depends on the relative returns to each.

The authors incorporate the history of enslavement into their model: Black dynasties were forced into labor, consumed at subsistence levels, and could not offer financial resources to their children. Post-emancipation, Black dynasties were still excluded from capital and labor markets due to Jim Crow laws, redlining, and other forms of discrimination that prevented them from becoming entrepreneurs. The authors use an illustrative example that tracks the evolution of occupational choice and wealth for different types of dynasties in partial and general equilibrium. The general equilibrium model illustrates the case in which returns to assets, such as land, were higher during slavery, when Black dynasties could not invest. These returns decayed over time and generated pessimistic beliefs about investment among Black dynasties.

The model can account for wealth concentration up to the fifth percentile, which is relevant for the target population of a reparations policy. It can also match the racial wealth and income gaps observed in the data. In the Survey of Consumer Finances, the ratio of average wealth for Black to White households is 0.15 and average income is 0.45, similar to the model. The portfolio weight of risky assets in household wealth and the entrepreneurial gap also match. The historical data show a slow convergence of Black wealth from 4 cents to the dollar in 1900 to 15 cents in 2020, replicated closely by the model. The intergenerational mobility gap is estimated as 28 percent in the data and 32 percent in the model. The authors are also able to use the Michigan Survey of Consumers to measure beliefs about returns to risky investment. The model perfectly matches the dispersion of beliefs among White households, but underestimates it among Black households.

Given these structural parameters, the authors analyze the effect of reparations: transfers for Black dynasties financed by a one-time unanticipated tax on White dynasties. They estimate that eliminating the present racial gap would cost $12 trillion. However, even in the absence of future discrimination, direct transfers that bridge the present wealth gap would not lead to convergence in the long run. Even with equalization of mean wages and current wealth, lower expected returns would lead Black dynasties to forego risky investments and to continue as laborers. Over time, the economy would converge to the same outcome as observed in the absence of reparations. The authors instead propose investment subsidies for Black dynasties as an alternate policy that would be far more effective for achieving racial wealth convergence and equal representation for Black dynasties in the wealth distribution.

Aggregate and Distributional Effects of `Free' Secondary Schooling in the Developing World

Junichi Fujimoto, David Lagakos and **Mitchell Vanvuren**

In many developing countries, poor households face credit constraints that limit investment in human capital. Relaxing financial constraints for secondary schooling for high-ability children, who would have high returns from such investment, could reduce the misallocation of talent in the labor market leading to higher productivity and per-capita economic growth in the long run.

Mitchell Vanvuren explored this topic by considering the macroeconomic effects of free secondary schooling in Ghana, in joint work with Junichi Fujimoto and David Lagakos.

The authors found that public funding of secondary schooling led to an increase in per-capita economic growth. Low-income households benefitted irrespective of whether their children attended school as relative wages for low-skilled workers rose. But if schooling was publicly financed, high-income households would face an increase in taxes and skilled workers would experience a fall in their relative wages.

A general equilibrium framework allowed examination of aggregate and distributional effects of the policy, implemented at scale. The model consisted of overlapping generations of households that were heterogeneous in their parental human capital, household income and child ability. Ability was a function of inherited capabilities and parental inputs, and hence correlated intergenerationally. Parents chose to invest in a child's education based on household income and the child's ability, observed through their performance in the secondary school qualifying exam. Also, family size endogenously depended on education, as more education resulted in lower fertility.

Innate ability was assumed to affect human capital only for those attending high school or college. As high- and low-skilled workers would be imperfect substitutes in production, relative wages would depend on supply of each type of labor input in equilibrium. The aggregate production function of the representative firm depends on the aggregate efficiency of each type of labor input, which is a function of human capital. Some audience members asked about the types of occupations available to those with secondary schooling in Ghana and whether higher education could also make individuals more productive in agriculture instead of being hired for industrial jobs. The model abstracts away from this distinction, but it might be relevant for understanding the process of structural transformation in developing countries.

The decision to invest in secondary schooling entailed solving a dynamic optimization problem, in which the value function with given parental ability, schooling and assets was subject to the intertemporal budget constraint. The cost of children's schooling and other consumption expenditures must be accounted for by household assets and income net of taxes, and the evolution of the aggregate state variables resulting from the distribution of households across individual states and the aggregate population level.

Model parameters were estimated using simulated method of moments, which minimizes the deviation between the chosen moments in the data and those in the model. The aggregate moments were taken from other research papers or from large-sample surveys. An uncommon feature of this paper was the use of credibly identified estimates of returns to education from a randomized controlled trial of secondary school scholarships in Ghana by Duflo et al (2019). As noted by the presenter, this followed in the tradition of Kaboski and Townsend (2011), which combined structural and experimental methods to study the effect of microcredit in Thailand.

High school completion rates in the treatment arm were found to be about 30 percentage points higher across all ability quartiles in the model and data. None of the poorest children attended high school despite high labor market returns. But all children from the highest percentiles of ability attended school, as these children came from households that could afford it. The misallocation of talent was largely among students in the middle of the ability distribution. In response to a question about fertility reduction, Vanvuren noted that the reduction in fertility persisted years after completion of secondary school.

A deeper analysis suggested that scholarships increased high school completion across the test score distribution. Since test scores were correlated with ability, the high goods cost of schooling prevented many high ability students from attending school despite large returns.

The model suggested the policy would pay for itself, as a 7.6 percent increase in GDP per capita contrasted with a 2 percent increase in taxes. Estimates suggested 23.4 percent increase in lifetime consumption equivalents, due in part to the fact that the poorest households benefited more.

How Important is Health Inequality for Lifetime Earnings Inequality?

Roozbeh Hosseini, **Karen Kopecky** and Kai Zhao

Individuals in poor health have lower earnings and a lower labor supply than their healthier counterparts, but the reasons for this relationship are not always clear. Karen Kopecky and her coauthors attempt to disentangle and measure these reasons. First, they construct an objective metric for health, which they term a "frailty index." Next, they perform an empirical analysis of the effect of health on earnings on various margins, including wages, hours and participation. Lastly, they build a structural model and test its consistency with the empirical findings.

An attendee asked how the authors accounted for the feedback effect of income on health, in that richer people can afford gym memberships and healthier food, for example. The response was that the model intentionally does not include such a feedback effect because, once controlling for education, there was no empirical evidence that changes in earnings impact health.

The "frailty index" represented the sum of all adverse health events. Examples of health deficits included difficulties with activities of daily living, particular diagnoses, and body measurement thresholds, like BMI above 30. These indicators were summed and normalized to be between 0 and 1, with each factor equally weighted. Other weighting schemes did not change things in an important way. Each moment that an individual was observed, a frailty index was recalculated for them.

The researchers, to find the effect of an additional health deficit, used the Blondell-Bond System Estimator to estimate a linear regression of exogenous controls, person fixed effects and lagged earnings variables on a log of current-period earnings. The person-fixed effects were included to control for unobserved heterogeneity, and the lagged earnings variables attempted to account for the simultaneity of the earnings/frailty relationship.

An attendee questioned the inclusion of individuals with no earnings in a regression on logged earnings. While the authors did attempt to reconcile the math by assigning those individuals earnings of $1, the resulting logged earnings would still be a very negative number, and, as a result, those observations would be weighted disproportionately highly. The authors agreed that the "$1 workaround" was not ideal. They said that they shared this analysis primarily to demonstrate the extent to which the effect took place on the participation margin and that they would not know how to conduct this dynamic panel estimation in a probit or logit analysis. Not having come across such a thing in the literature, they said they were open to suggestions to better tackle this issue.

They estimated that one additional deficit to frailty was associated with a decline of 19.9 percent in earnings and 14.4 percent in work hours. The effect was primarily driven by the extensive margin (employment overall) and was concentrated in less educated and less healthy individuals.

An attendee suggested that perhaps there were medical conditions that would restrict an individual from working at all, but that conditional on ability to become employed and work, the jobs to which individuals matched may be less strenuous and suitable for full employment. If this were the case, we would expect to see little to no effect on hours or wages to workers. Another attendee wondered whether workers might change jobs, but the authors had not explored that possibility.

They then reversed the regression and evaluated the effects of earnings on frailty. Consistent with the empirical literature, they did not find any, suggesting that health inequality may in fact contribute to lifetime earnings inequality, and that social insurance could play a role in alleviating this disparity.

Lastly, the researchers built a structural model (overlapping generations and general equilibrium). As described above, health was considered an exogenous shock, due to the fact that the feedback effects between earnings and health are so elusive in the data. Whether an individual exercises, how they eat, whether they access healthcare, and other health behaviors seemed to be more or less set in stone by adulthood.

An attendee made the point that while the frailty index might be unaffected by income, it was still probably affected by health policy. The authors conceded that this may be a compelling reason to endogenize health in the model.

They considered a counterfactual economy, in which all individuals have the same frailty profile, and found that health inequality accounted for 29 percent of lifetime earnings inequality by age 75. A substantial role is played by disability insurance during times of poor health. The researchers do not recommend eliminating such programs, given their net welfare-increasing effects. Further research is needed on how changing or limiting these programs could affect incomes.

The Effect of Unemployment Insurance Eligibility in Equilibrium

Ying H. Chao, Ben Griffy and **David Wiczer**

Unemployment insurance is a common labor market policy around the world, one with complicated effects that are difficult to estimate. A particular challenge is endogeneity.

The authors tried to overcome this challenge by estimating the effects of unemployment insurance, or UI, for people just above and below an earnings eligibility threshold. To be eligible for UI, a worker must meet a minimum earnings requirement in her last job. Workers just above and below this threshold are likely to be similar in other relevant variables and thus comparable. The use of such thresholds is common in contemporary economics, and estimates are formed using a technique called regression discontinuity design. More specifically, a local linear regression specification was used for the regression discontinuity design in this study.

The authors' reliance on the minimum earnings requirement contrasts with many past discontinuity studies that use a discontinuity generated by the length of time one is eligible to receive benefits. By doing this, the authors argue that they avoid confounding the value of benefits with the duration of the unemployment spell and provide a better estimate for treatment effect than by using eligibility length. Most workers do not receive benefits long enough to see them expire. In contrast, 1 in 5 people that separate from employment are below the earnings threshold.

Past methods left the value of unemployment insurance unclear, potentially positive or negative. But the new method has disadvantages, as pointed out by the audience, since it is applicable only to workers near the minimum earnings requirement. It is not necessarily generalizable to workers elsewhere in the income distribution. It could be argued that the estimates at least provide an upper bound on the value of UI, given that one would expect higher welfare effects on workers with lower incomes.

The data used was self-reported by unemployed workers upon seeking benefits. Some of it was checked against what employers reported. In their paper, the authors used a sample of workers constituting 2% of the population in 17 states, or approximately 0.7% of the U.S. labor force. As is common in discontinuity designs, other relevant characteristics were checked for balance above and below the threshold. However, this was done mostly on demographics and tenure, leading to questions by the audience on whether the duration of the unemployment spell was also balanced.

The causal effect identified was 300 to 900 in 2013 dollars, corresponding to a third of their next quarter earnings. To address the question of what was driving this effect, a search and matching job market model was calibrated. The model assumes two possible channels. The first is reservation strategy, meaning that, with UI, a worker's outside option is now higher, resulting in a larger share of production due to a stronger negotiating position. The results indicated that negotiating positions tended to be weak without UI. The second channel is match quality, meaning that, with UI, a worker can wait longer to obtain a job in which she will be more productive.

In the previous literature, which identified these effects from employment duration, match quality seemed to be the main channel. This paper finds that reservation strategy is driving the value of UI. In other words, higher rents, and not productivity, are driving the results.

Rethinking the Welfare State

Nezih Guner, Remzi Kaygusuz and **Gustavo Ventura**

Approximately 2.5% of the U.S. GDP is redistributed through welfare programs and tax-credit provisions, not taking into account health transfers. This is lower than the redistribution carried out by some European and Latin American countries but is still meaningful, especially considering the size of the American GDP. Transfers critically depend on marital status, gender and the presence of children.

This system currently depends on the complex, and likely inefficient, interplay of multiple means-tested programs that transfer to poor and middle-income households. Gustavo Ventura asks if simpler alternatives, such as universal basic income, or UBI, could perform better. His work also explores if households value current redistributive programs in the U.S., as well as the macroeconomic and welfare effects of policy reforms.

According to the author, the potential interplay between two-earner households, non-linear taxation and the welfare system is largely unexplored. To study such a complex framework, the author develops a life-cycle economy model with uninsurable shocks, two-earner households, costly children and a detailed representation of taxes and transfers in order to match the system observed in practice in the U.S.

It is possible, but not easy, to improve on the current system. Revenue neutral changes to the system tend to lead to large welfare losses, even if they are usually supported by a majority of newborn households. Moreover, universal basic income does not seem to be a good idea. It is too expensive for the redistribution it generates.

These conclusions are based on a life-cycle model including gender, skilled and unskilled workers, exogenous marital status (set from birth), retiring age and death, but no longevity risk. In essence, everyone dies at the same age and this age is known. Moreover, the model also includes uninsurable productivity shocks, labor supply decisions at intensive and extensive margins, skill depreciation for females choosing nonparticipation (to model for mothers who leave the labor force for some period), which allows for endogenous evolution of female's labor market productivity, and costly children that are born when parents have some predetermined ages depending on parents' types. If both adults in a household decide to work, there are additional welfare costs for it. The model has social security, but no educational system like public schools.

The benchmark economy, meant to reflect the current American system, includes welfare programs, child-related transfers and earned income tax credits. The comparison to UBI involves substituting all the aforementioned programs for a single unconditional transfer while leaving the tax burden unchanged. This would amount to a $2,400 yearly transfer per person.

Welfare losses under the veil of ignorance (to newborns) in a shift to no welfare state would be 2.8 percent, but would be supported by the 62.1 percent of households that gain from such changes. This effect could be further decomposed: welfare losses of 0.9, 0.2 and 0.7 percent from ending the welfare transfers, earned income tax credits and child-related programs, respectively.

The introduction of UBI would lead to welfare losses of 1.4 percent. But it appeared to benefit a majority of households. This did not surprise some members of the audience, who claimed that UBI not working is expected since it is not correcting any externalities in the economy like uninsurable shocks. However, the author pointed out that he was not trying to evaluate optimal policy. In this context, UBI would provide redistribution, and not insurance on life-cycle shocks.

A negative income tax could improve upon the status quo, estimated as a 0.03 percent welfare increase, while being supported by a majority of households. The magnitude of transfers would be much higher as a share of output than under the UBI, amounting to transfers of $3,600.

Looking forward, the author said that he intended to evaluate additional reform options, as well as the transition paths under such reforms.

The Macroeconomic Effects of Universal Basic Income Programs

André Victor Doherty Luduvice

Universal basic income, or UBI, involves unconditional transfers to any person in a given geographical unit. It is an idea that has been attempted in several places, among them Brazil; Finland; Kenya; the Netherlands; Ontario, Canada; Scotland; Uganda; and, arguably, in the United States. Its appeal is, in part, its simplicity. By eliminating means-testing brackets, it leads to highly effective marginal tax rates. However, it both decreases the labor supply and costs government budgets dearly.

Using an overlapping generations model with heterogeneous agents and incomplete markets, the authors attempt to describe the economic consequences of introducing a UBI. Responses over the life cycle, budget trade-offs, transitional dynamics, welfare and distributional effects, as well as general equilibrium effects, are among the consequences studied. Data is used to calibrate the model, which then reproduces the top of the income distribution reasonably well. This is important, as these households are assuming much of the increase in tax burdens.

The authors also calibrate their model using work from Jones and Marinescu, which takes a close look at an example of UBI, the Alaska Permanent Fund dividend. The authors found this choice suitable given that low migration rates to Alaska allow it to be approximated as a closed economy, where general equilibrium effects like the ones predicted in the model would occur cleanly. An audience member pointed out that Jones and Marinescu found an increased number of children, while Luduvice's paper takes fertility as exogenous, or as given.

The main exercise in the paper is to compare the status quo to an expenditure-neutral reform implementing a UBI of $1,000 monthly. In a second approach, an endogenous consumption tax pays the cost of the UBI. A consumption tax was chosen as the adjusting mechanism because it distorts supply, but not asset accumulation, and is similar to a proposal by politician Andrew Yang. An audience member suggested that perhaps the policy could be financed with debt, a variation the presenter said he was planning to explore.

The first scenario with UBI leads to an increase in aggregate capital. This is driven by higher savings by individuals that, under the status quo of means-tested programs, would consume more earlier instead of accumulating assets and risk exceeding thresholds for participation in welfare programs. Under UBI, households increase the number of hours worked, no longer avoiding earnings that would cost them benefits. Ultimately, labour force participation declines.

In the second scenario, consumption taxes increase 18 percentage points to keep the government budget balanced. Output, aggregate capital, hours worked and labor force participation decline. Pre-tax inequality rises, as only high productivity agents remain in the labor force. But disposable income inequality falls as expected, given the large transfers.

The first reform leads to a decrease in welfare of 0.12%, while the second reform with the consumption taxes increases welfare by 0.29%. In the first scenario, households with children stop receiving as many transfers as before. The second reform has transitional dynamics in which all generations face welfare gains. The positive welfare results are driven by increased redistribution and not by output, which is lower.

Occupational Choice and the Intergenerational Mobility of Welfare

Corina Boar and Danial Lashkari

Who is more likely to enjoy their job: an artist, a scientist, an office worker, or a manual laborer? Who among these people is more likely to come from a rich family? Intuitively, most people feel that growing up rich allows one to choose more enjoyable jobs, even if they pay less than other options. The extent to which this is true and, if true, its consequences for intergenerational mobility remains an open question.

The author evaluates the tradeoff between earnings and a measure of intrinsic job quality that is created from aspects of occupations other than income. The seven that are considered come from the psychology and sociology literature: treatment with respect, little hand movement, little heavy lifting, learning new things, doing numerous different things, opportunity to develop abilities, and no requirement to work fast. Using this metric seems reasonable. It correlates positively with job satisfaction and characteristics of desired occupations. However, it also correlates positively with feeling stressed. The highest ranking jobs according to this measure are secondary teachers, librarians/archivists/curators, and architects. The lowest ranking ones are freight stock material handlers, motor vehicle operators, and mail distribution workers.

As expected, children of richer backgrounds do indeed choose occupations with higher intrinsic quality, even when controlling for potential earnings in all other occupations. Children of wealth receive large transfers from their parents and will require higher compensation in order to work on low intrinsic quality occupations.

Accounting for the welfare obtained by a worker through the intrinsic quality of her job results in a new estimate of intergenerational mobility that is even lower than previous estimates. The prior literature would only take income into account for estimating welfare. Once you account for intrinsic quality, intergenerational mobility falls by 16%. If, on top of that, we also account for the fact that children of richer parents can choose occupations that better reflect their tastes, intergenerational mobility falls by an additional 14%. Moreover, the model delivers 70-100% of the intergenerational persistence seen in the data.

There are two channels generating intergenerational persistence. The first is occupation-specific ability, meaning that richer parents invest more in their children's human capital, or education, and endow them with other skills and advantages, like social capital. The second is occupational choice: individuals not only sort into occupations with higher average earnings, but also with higher returns in other dimensions. The author estimates how much income individuals are willing to sacrifice to keep the quality of their occupations. Among the very rich ($500,000 or more of parental endowment) this may reach 30% of income.

The overall model relies on some simplifications. For instance, children of different backgrounds are assumed to value occupations the same, and intergenerational transmission of tastes for occupations is dealt with in a robustness check. The simplifications led to various suggestions by the audience. One attendee suggested that the model should incorporate that children from richer families change occupations more frequently, given that they expect wealth transfers in case it does not turn out well. Another mentioned a relationship between the second moment of parental incomes and one's occupation choice. For example, children of poorer parents who faced unemployment multiple times may choose jobs with a lower probability of being fired. One proposal was to include a signal, observable to the parent, of the talent of a child, such that the parent can act on it.

Tax and Transfer Progressivity at the US State Level

Johannes Fleck, **Jonathan Heathcote**, Kjetil Storesletten and Gianluca Violante

Although the American federal income tax and transfers system has been consistently shown to be progressive, there is less evidence on the progressivity or regressivity of it at the state and local level. This lack of knowledge is not due to state and local tax and transfer systems being unimportant. State and local tax revenue corresponds to 7% of GDP, while federal income and social security taxes correspond, respectively, to 8% and 6% of GDP. In order to investigate this question, the author asks how state and local taxes and transfers contribute to redistribution across American households?

The fact that sales and property taxes form a large share of state and local taxes suggests potential regressivity. However, most states also raise income taxes and provide meaningful transfers to their residents, which suggests progressivity. Such heterogeneity in state and local tax and transfer systems motivates the second set of questions in the paper: How much does progressivity vary across states? What accounts for this heterogeneity?

Careful analysis and accounting leads the author to conclude that, on average, local and state tax-transfer systems are close to proportional. In other words, they are neither regressive nor progressive. Nevertheless, this result masks significant heterogeneity among states driven by some states depending more on income taxes versus property and consumption taxes. The author shows that some factors may be associated with progressivity: (i) politics that lean Democrat (ii) higher ethnic diversity (iii) lower median income (iv) lower top income, and (v) lower poverty share.

Using data from a selection of years starting 2005, the paper reports average tax rates (including federal taxes) varied from 30–40% of GDP, depending on the state. State average tax rates amounted to 2–12% of GDP, without considering transfers. If one considers transfers, some states, such as Alaska, would have a negative average state tax. Interestingly, sales taxes do not contribute much to the regressivity of the tax system because of their small relative size. And though there is a positive correlation between state level taxes and the progressivity of the tax-transfers system, this relationship is not systematic.

The author uses two measures of transfers: a narrow and a broad one. The broad measure excludes some transfers, most importantly Medicaid. Neither measure considers public schooling. An audience member suggested that adding public schooling would be important for getting more meaningful results. When considering narrow transfers, a third of states appear regressive. However, with the broad measure, nearly all states could be labelled progresisve. In both cases, Alaska is the most progressive state. California is moderately progressive with the narrow measure, but more so under the broad measure.

Looking forward, the authors want to expand their research to account for strategic interactions between the state and the federal government that determine who is to be responsible for progressive transfers. States may prefer that the federal government handle the role so they can appear as a low tax, or less progressive and more industry friendly, place to do business. The audience recommended considering taxes coming from airports, highways and businesses, which, if large, might mean the existing results are biased.

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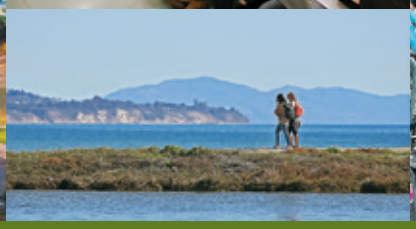

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