FROM THE LAB

IN THIS ISSUE

Workshop on Dynamic Macroeconomics
conference held July 21–23, 2021 in Vigo, Spain

FROM THE LAB

Director's Message
Finn Kydland

For a number of years, I've attended the Workshop on Dynamic Macroeconomics in Vigo, Spain. It's an especially worthy activity to support. Advanced PhD students and occasionally a beginning assistant professor (many from Europe, but also some from the U.S.), over three days of meetings are allocated one hour each to present their main research papers in front of 6–8 seasoned professors (of which I'm considered one!) Our main leader is Timothy Kehoe, University of Minnesota. The conference has run for 25 years, organized by University of Vigo, originally supported by donations they were able to raise. In the past few years, however, because of the economic situation in Spain, fundraising became more difficult, and the workshop was in danger of having to cease after its impressive run of so many years. Therefore, I decided to offer LAEF as a co-sponsor (essentially guarantor), paying for a portion of the cost, figuring the workshop provides great visibility for LAEF (our logo prominently displayed on front of the program) as well as general support for scientific activity, which is what LAEF is all about.

Travel Can Offer Nasty Surprises: To make sure Tonya and I wouldn't miss our nonstop flight to Madrid, departing from LAX at 17:45, I had reserved a car to pick us up from our home at 12:30. This timing provided way more time cushion than normally would be needed. The car trip to LAX usually takes less than two hours. The car from Executive Car Service was an SUV. While passing Carpinteria on hwy. 101 on our way to Los Angeles, our driver suddenly realized something had caused a leak in a tire. After another few hundred meters, he was forced to pull off the road, about half-way down the hill towards the Bates Road exit. As soon as we saw we had a flat, Tonya called Uber for a ride to LAX, which soon arrived, but then continued on right past us. As he did so, the Uber driver (Eddie) called and claimed it was too dangerous to pull off the freeway near our car!

Our driver frantically attempts to change to his spare tire. But it's stuck—with his wrench, he simply cannot lower the tire from underneath the SUV. The whole time, Tonya keeps calling Uber, but keeps getting the message "no cars available". We can see the Bates Road exit about 150-200 meters further down the hill, so after the experience with Eddie, Tonya and I get the idea that Uber may be more willing to pick us up at an exit rather than at the side of the freeway. We start walking down the side of 101, pulling our carry-ons, cars and trucks whizzing by three or four feet to our left (it doesn't help that the sun is

beating down on us!) We get to the exit, Tonya keeps trying Uber (I own only flip phone, so Tonya is the one with that ability), but no cars available to come there either.

After a while we give up and walk back up to the SUV (now pulling our carry-ons is harder!) The driver hasn't made any progress with his spare tire, but in the meantime decided to call roadside assistance. After perhaps an hour, assistance arrives, and after a while more we get back on the road, still hopeful we can make it. But as we get closer to LAX, it's obvious we won't.

As the return flights from Madrid involved two airlines, Iberia and American, I had purchased the tickets on Expedia. Huge mistake! We try calling both Expedia and Iberia. Expedia simply won't help and claims it's all up to Iberia. We call Iberia. By now it's clear we've missed our flight. Iberia tells us the entire ticket has been nullified due to no-show. What? They won't even let us use the return portion of it? They confirm. We're horrified. They're simply going to steal the more than $5K we paid for two roundtrip tickets and we will get absolutely nothing in return, no flight in either direction?!

At LAX, there is no Iberia agent in sight (our originally scheduled flight just then departing). We figure, as the return ticket consists of an Iberia flight Madrid-Chicago and an American Airlines flight Chicago-LAX, our only hope is to talk to an AA agent. We head from the Bradley terminal to AA's Terminal 4. We find an agent at the AA counter. This agent must be a genius. She is somehow able to re-instate our return flights that were nullified by Iberia. (I'm so incredulous I keep asking her, are you absolutely sure Iberia will let us on the flight back from Madrid? She assures me.) But having missed the flight to Madrid, how do we get there in time? It's an important workshop and we absolutely don't want to miss it. As the AA agent informs us, our only option within the next 24 hours is via JFK. From LAX to JFK we have the choice of economy or business. For JFK-MAD, there is Premium economy. After the hellish ordeal on the road to LAX, we just can't see ourselves sitting in economy on two multiple-hours-long flights, so we buy business to JFK, to depart at 7 the following morning, and put ourselves on the upgrade list for the second flight. (At JFK we find out the Premium upgrade came through.)

The conference organizer at University of Vigo had bought in

advance our tickets Madrid-Vigo-Madrid. Just as we had allowed a generous time cushion to get from our home to LAX (but not long enough to guard against flat tire!), in Madrid we had enough cushion time that we made the reserved flight Madrid-Vigo.

In the end, we didn't miss any part of the workshop! Tim Kehoe was extremely pleased with how it went (so was I!) We listened to and gave feedback to a number of presenters who, we both agreed, are likely to be future stars in the profession (for example Maria Feldman, Lidia Cruces, and my postdoc, Nick Pretnar, just to mention three). Nick, along with our 2nd-year (now 3rd-year) PhD student, Sarah Papich, made notes and recorded the presentations. You can read their presentation summaries in this issue of FROM THE LAB.

Professors in Attendance ("grilling" the speakers!) Antonia Diaz, Universidad Carlos III (who also did the traditional ceremony late one night to scare away the witches); Arpad Abraham, University of Bristol; Finn Kydland, UCSB; Jaime Alonso, Universidade de Vigo; Víctor Ríos, Penn; Juan Carlos Conesa, Stony Brook; Pedro Amaral, California State University – Fullerton; and Timothy Kehoe, University of Minnesota.

Travel Health: After the discovery of an ascending aortic aneurysm, I was told it could be dangerous to lift anything, which is almost impossible to avoid if you're traveling by yourself. The aneurysm, I'm told by my cardiologist, almost surely resulted from being born with a bicuspid, rather than the normal tricuspid, aortic valve. By 2015, that valve had got so worn that on July 20, in open-heart surgery at Cedars-Sinai in L.A., my valve was replaced by a cow valve. (As Norwegians are very private, I never told anyone, so none of my colleagues knew. Indeed, I was back in the office July 27, exactly one week after the day of surgery.) But the aneurysm is still there (remaining stable, according to my cardiologist, who's keeping an eye on it). Bringing Tonya on major trips I consider a medical necessity. That doesn't mean I expect UCSB always to pay for her travel with me. But to the extent, on this trip, we ended up with a couple of flights in business class, clearly much less stressful than economy, especially after the hellish road trip to LAX, those flights were absolutely a welcome relief! I was grateful both our Chair and our Dean were supportive of having done so.

Workshop on Dynamic Macroeconomics

July 21–23, 2021

Annika Bacher – European University Institute
Antonia Diaz – Universidad Carlos lll de Madrid
Arpad Abraham – University of Bristol
Finn Kydland – UC Santa Barbara
Guarav Mehta – Universitat de Barcelona
Jaime Alonso Carrera – Universidade de Vigo
Johannes Goensch – University of Mannheim
Johannes Wacks – University of Mannheim
José-Victor Ríos-Rull – University of Pennsylvania
Juan Carlos Conesa – Stony Brook University
Lidia Cruces de Sousa – Universidad Carlos lll de Madrid
Luigi Maria Briglia – CEMFI

Maria Feldman – University of Wuerzburg
María Jesús Freire Serén – Universidade de Vigo
María-Jose Carreras-Valle – University of Minnesota
Marta Garcia Rodriguez – Universitat Autonoma de Barcelona
Nicholas Pretnar – UC Santa Barbara
Pedro Amaral – California State University-Fullerton
Sarah Papich – UC Santa Barbara
Sergio Feijoo Moreira – Universidad Carlos lll Madrid
Tim Kehoe – University of Minnesota
Tobey Kass – University of Minnesota

Photo above: Castelo de Soutomaior. Credit: Xoan Anton Castro Barreiro. Wikimedia Commons

Home Production with Time to Consume

William Bednar and **Nicholas Pretnar**

Households in this paper's model can choose to allocate their off-market time across different types of household products, with a separate time-use decision for consumption of each good. Pretnar allows households to adjust both their time and consumption allocations in response to changes in market wages and prices. The paper uses the structural shift in consumption from goods to services since the mid-20th century to explore changes in the distribution of welfare using a non-utilitarian mechanism.

Upon hearing Pretnar's introduction, conference participants raised concerns about how this paper could contribute to the literature. Past papers had explored how innovations in home production, such as the introduction of the dishwasher, changed other time-use decisions, as well as welfare. Participants suggested that Pretnar's paper was not sufficiently distinct from this existing literature. Pretnar responded that he would generate income and substitution effects, illustrating new properties of his chosen model.

As motivation, Pretnar provided evidence that services had increased as a share of American expenditure since 1948 and that wages had risen, while hours worked per day had decreased. Audience members raised concerns about the economic importance of the distinction between goods and services, as well as the lack of disutility from home production in the model. Pretnar responded that the distinction came from the difference in labor input required to derive utility from each type of good. Audience members suggested that he be more specific in future presentations. Although Pretnar argued that agents in his model engaged in home production because they gained utility from doing so, a participant pointed out that agents preferred to minimize the time they spent on home production and that the model did not account for that preference.

Pretnar's model gave home production a Cobb-Douglas functional form with exponents that varied by good. He used the model to show that a change in the time intensity of production generated income effects. A participant pressed Pretnar to shift his focus from comparative statics to highlighting a particular feature of history his model could explain. Another asked how the model accounted for shifts from goods to services that did not affect time use, such as using Uber rather than buying a car. Pretnar clarified that he only modeled shifts that affected time use. Another participant requested more evidence on how time use had changed during the period studied.

Next, Pretnar presented a likelihood-based method around the stochastic processes for three shocks, targeting three equilibrium conditions: the household's marginal rate of substitution, the marginal product of labor for goods production, and the marginal product of labor for services production. Using data from the American Time Use Survey from 2003–2019, Pretnar formed priors, used a Hamiltonian Monte Carlo to estimate the posterior distribution of structural parameters, and tested the posterior predictive fit using a non-targeted data series. A participant raised the concern that an economist could obtain a model with the same features as Pretnar's by simply assuming that agents in the model require a minimum amount of goods to avoid starvation.

Pretnar's paper concluded that consumption and the intensive margin of labor reacted in complex, previously undocumented ways to relative price and wage changes, and that these changes were driven by changes in home production and total factor productivity. Conference participants concluded their feedback by encouraging Pretnar to be less vague and nonparametric and to communicate his research question more clearly.

Increasing Inventories: The Role of Sourcing Inputs from China

María-Jose Carreras-Valle

Carreras Valle studies the extent to which reliance on imported inputs from China, which increases delivery time risk, can explain the rise in American firms' inventories. She is then able to estimate the net benefits of integrating supply chains. Although using inputs from China enables firms to exploit comparative advantage and access low-cost suppliers, it makes delivery times less predictable, causing firms to stock up on inventory to insure against this risk.

One participant asked if the current chip shortage was an example of the risk involved in sourcing inputs from China. Carreras Valle clarified that the chip shortage was a tail risk, unlike the more common risks she had been studying.

Carreras Valle provided descriptive evidence that inventories had increased with import intensity. While she had data on the risk that arose from ocean transportation, participants encouraged her to consider other sources of risk and to incorporate those into her model as well. Participants pointed out that factors other than delivery risk, such as unreliable manufacturers, could increase inventories. They suggested demonstrating that inventories had increased more at firms that imported more.

Next, Carreras Valle introduced her general equilibrium model, which centered on a firm's decision to source domestic and foreign inputs and the corresponding inventory decisions. Participants questioned the need for a general equilibrium model, arguing that Carreras Valle should also simulate a partial equilibrium model for comparison. Carreras Valle presented the finding that 47.2% of the increase in U.S. manufacturing inventories could be explained by insurance needs coming from supply chain risk. Participants were unsure this was a large number. They suggested that Carreras Valle discuss how the intermediate goods inventory had increased much more than inventories of finished goods.

When Carreras Valle provided more detail on her model, in which inventory was the only state variable, participants raised questions about whether shocks should be introduced as another state variable and requested data at the daily level, rather than the monthly level. Carreras Valle responded that data were only available at the monthly level. Participants also asked whether firms that selected into using inputs from China differed from firms that used domestically produced inputs. She responded that, although the intensity varied, all sectors in her data set increased their reliance on imported inputs from China in the period that she studied. One participant questioned the economic significance of the sectors and urged Carreras Valle to focus on her ability to estimate the variance of demand shocks.

When asked what was unique about her model, Carreras Valle responded that the delivery time parameter was a key innovation, as many models like hers used only one period. She presented her evaluation of the net benefit of integrating supply chains: a 1% increase in gross output. Participants requested a comparison between domestic and foreign inventory changes for robustness, as well as price data from previous periods to estimate the variance of demand prior to the increase in reliance on foreign inventory. Carreras Valle agreed to try to implement these changes. Participants were curious about how varying the variance of demand would affect the results. Carreras Valle reported that she had tried this strategy and found that inventory went up slightly in partial equilibrium.

Expectations and the Option Implied-Variance

Guarav Mehta

The presenter proposed a new theory of option pricing that could explain key empirical facts about options by modeling buyers' belief formation. An options price could depend on buyer and seller beliefs about future prices. Mehta examined how those beliefs are formed and how options are priced as a result, departing from the assumption of rational expectations in the Black-Scholes model.

Early in the presentation, an audience member suggested that Mehta provide evidence that the Black-Scholes model is inconsistent with data and that his model would eliminate that inconsistency. As his primary approach for testing his model, Mehta used the VIX, an index of options heavily traded in financial markets. He attempted to explain the VIX premium, the difference between the VIX and the squared VIX-expected variance of returns. This difference, which should be zero under the Black-Scholes model, has typically been positive in the real world.

Audience members pointed out that Mehta used terminology which was common in finance but not in economics. They suggested that he adapt his language to present to an audience of economists. One participant questioned the decision to use the VIX and requested an explanation of how the index was compiled. Mehta replied that the VIX was useful because it provided an expectation of stock return variance in the future.

Mehta introduced a model based on the 1978 Lucas tree model, which raised questions from the audience about how he departed from the standard model. Mehta replied that the price was important in his model. A participant pointed out that agents cared about utility, not price alone. Audience members also voiced concern over whether Mehta's assumptions about aggregate consumption growth and dividends were consistent with the model he was extending.

One audience member's assessment of the paper was that if Mehta believed his own results, he would be earning millions of dollars on Wall Street, rather than presenting the paper. Mehta argued that his results were convincing because they explained inconsistencies between the data and the existing model. Another participant requested a more formal, precise definition of the ignorance that generated irrational expectations.

Next, Mehta proposed a distribution of price growth that agents expected in his model and derived the option price based on this distribution. He provided estimates of his model parameters, which he tried to use to match moments of the data. An audience member responded that the significance of the estimates was unclear and requested that Mehta convey the estimates' meaning in terms of departures from the standard model. Another audience member provided an anecdote to demonstrate that gains from non-traditional investing strategies tended to eliminate themselves over time. Participants requested an out-of-sample forecast to demonstrate how much money Mehta could have made by using his suggested investing strategy in the time since his study period ended. In response, Mehta provided results showing that using his strategy would increase an investor's return from 1% to 30% per month, with variance on the return increasing from 4% to 66%. Audience members were skeptical about the magnitudes of these estimates.

Labor Market Polarization with Hand-to-Mouth Households

Johannes Wacks

Polarization in labor markets has occurred as routine jobs have been replaced by machines, causing wages and employment to decrease in routine occupations and to increase in both manual and abstract occupations. Wacks focuses on the borrowing constraint's importance in determining hand-to-mouth workers' abilities to move between occupations and the output consequences of this labor market polarization.

Participants requested a precise definition of hand-to-mouth, with one suggesting a comparison between the highest and lowest wealth quintiles as an alternative to the hand-to-mouth categorization. Wacks used an incomplete markets model to determine how proximity to the borrowing constraint affected occupational choices. He then explored whether government policies could improve welfare and output by alleviating the borrowing constraint.

Participants questioned the importance of results that could be obtained from this model, arguing that the model precluded demonstration of any mechanism other than the one Wacks proposed. Wacks provided a general equilibrium model with incomplete markets and found that 45 to 60 percent of routine workers who switched to manual or abstract labor had initial wage losses, and 35 percent were hand-to-mouth workers with very few liquid assets. He concluded that restrictions on hand-to-mouth workers decreased the employment share in abstract occupations by 2 to 3 percentage points.

Several participants raised concerns about the omission of age from the model, as age was a major determinant of the decision to switch occupations. Wacks agreed to try to add age. Multiple audience members questioned whether the results were driven by selection into switching occupations and requested a decomposition showing how much of the result was driven by the borrowing constraint rather than by selection. Wacks replied that he controlled for observables; a participant then responded that this answer would be convincing only if Wacks provided evidence on whether observables alone could explain the data. A participant asked whether current liquidity mattered more for job switching decisions than innate skill; Wacks said that he controlled for wages in his empirical analysis as a proxy for skill.

Wacks provided policy implications of his analysis: wage replacement programs or loans could improve welfare and output, but there would be winners and losers. Several audience members asked about barriers to entry in highly paid occupations, such as degree requirements, which could prevent efficient job switches even under these programs. Participants also suggested that other mechanisms, such as differences in patience and new workers entering the labor force, could interfere with Wacks's story. Wacks responded that the entrance of new cohorts explained only 30 percent of the patterns in occupational choices that he observed.

Audience members requested that Wacks provide an economic distinction between the borrowing constraint and other reasons for not making an efficient job switch. They questioned why the borrowing constraint was a particularly important reason for inefficiency and whether the policy solutions were well suited for this situation. Wacks brought up examples of occupations that routine workers could switch into, such as truck driving or administrative work, that do not require college degrees. He pointed out that his policy proposals were similar to current American policies. He also agreed to clarify that he was concerned with adults making long-run switches, so results should not be driven by students who had low-paid summer jobs and then higher-paid professional jobs. Wacks concluded with the result that government interventions increased welfare. Audience members disagreed over whether this effect was significantly large.

Gender Gaps in the Labour Market and Pension Sustainability

Lidia Cruces de Sousa

Cruces de Sousa explored the impact of increasing female labor force participation on Spanish pension sustainability. She demonstrated that female workers improved pension sustainability by financing their own pensions, as well as 10% of men's pensions, using data from 1975 to 2019. Audience members questioned whether this paper was merely an accounting exercise. Cruces de Sousa responded that her results were informative about the effects of gender-equalizing policies on public finances. A participant then asked for specific policy questions the paper could answer, as well as a theory of the evolution of female labor force participation. Cruces de Sousa clarified that her paper did not explain the rise in female labor force participation, but examined its consequences. Therefore she took the female labor force participation rate as an exogenous variable. Participants suggested that endogenizing female labor force participation would improve the model.

Cruces de Sousa developed an overlapping generations model of a small open economy, in which the government operated a pension system, with an added assumption of perfect capital markets. Participants asked for more detail on how a man and woman in the same household made separate decisions in this model about how much to work. The model included both one-earner and two-earner households, the household type was exogenous to the agents, and labor supply was deterministic. Two participants disagreed over whether adding fertility decline would be useful or whether it would be asking too much of the model. Participants asked Cruces de Sousa to be explicit about the fact that the social planner, rather than the agents themselves, chose agents' labor supply at the beginning of life.

In her discussion of pension sustainability, Cruces de Sousa noted that men had lower life expectancies. Conference participants pointed out that because men lived for a shorter time, they should place less weight on the future than women for the model to be time-consistent. Audience members also suggested that the model include male participation in childcare, although Cruces de Sousa argued that adding this feature would not change her conclusion. When Cruces de Sousa presented her calibration, an audience member expressed concern over whether her model allowed enough time variation in the exogenous variables to successfully project into the future, when the exogenous variables would change. Cruces de Sousa pointed out that

the exogenous variables in her model changed significantly from 1975 to 2019, which satisfied the questioner. Cruces de Sousa also agreed with a participant that she needed to adjust her model to better capture the decline in the gender wage gap over time.

Using the assumption of a balanced budget, Cruces de Sousa demonstrated that increased female labor force participation could lower the labor tax rate required for social security. Conference participants doubted the usefulness of these estimates because Spain did not have a balanced budget in reality. Therefore the expected tax rate in the paper would not be realized in Spain. Upon hearing Cruces de Sousa's conclusion that women would finance 10% of male pensions until 2050, an audience member expressed skepticism, saying that this figure should be impossible because women earned less than men. Participants were also concerned over the author's proposal to tax women at lower rates because of their more elastic labor supply, arguing that this type of tax system could introduce new distortions.

Housing and Portfolio Choice Across Family Types

Annika Bacher

Bacher's paper explored variation in investment portfolio choices across household types, using a structural analysis to develop a joint framework of housing, portfolio choice and family types. She calibrated her model to match Panel Study of Income Dynamics household-level data from the United States and used counterfactuals to distinguish between the effects of different mechanisms. An audience member quickly raised the question of whether children were included in the model, as the presence of children was likely to affect savings decisions. Bacher replied that after she controlled for marital status, she surprisingly did not see a significant effect in savings decisions from the presence of children.

Bacher found that income contributed to the marital gap in homeownership rates, that income risk contributed to the marital gap in conditional housing wealth, and that household size and differential tax rates played only small roles. Bacher said that though she could identify these unmarried couples in the data, she dropped them because their inability to file taxes jointly prevented them from behaving like married couples. Participants encouraged her to add these couples to her model as a third category, rather than her current approach of including them only in robustness checks.

Bacher discussed why couples and singles made different investment decisions. Couples had higher labor income and a lower variance of labor income risk. A participant argued that Bacher was describing endogeneity, rather than risk. Participants were also curious about how the model dealt with the transition from being single to being part of a couple. Bacher clarified that her model treated couple formation as exogenous and did not allow singles to switch jobs upon joining a couple. Audience members urged her to add this option, as couples might jointly make job choices to insure themselves against risk, and the current model did not allow couples to mitigate risk through this channel.

Bacher used a life cycle model, in which an agent's life was split into working age and retirement. Death and retirement were deterministic, and marriages formed and dissolved exogenously. Marriage formation and dissolution stopped at the age of retirement, although one participant pointed out that, in reality, many divorces occurred at the age of retirement. Another participant took issue with the use of a unitary household model, arguing that men made decisions differently due to shorter lifespan and that the model lacked a theory of interaction between men and women. Bacher proposed assigning different weights to account for this. The same audience member argued that a single person would include the possibility of future marriage in her assessment of utility, and that the model should account for this. Another pointed out that singles may save at high rates to match with other singles who also save, which Bacher's model did not include because she treated matching as exogenous.

When Bacher discussed her results, a participant requested incorporation of the age of marriage into the model, arguing that people who married later would make different investment decisions because they had been taxed as singles for a longer period of time. Participants also encouraged Bacher to add sensitivity to housing prices to her model, as the absence of this feature caused them to doubt her conclusion that differences in income risk partially explain the marital gap in conditional housing wealth.

Extending Unemployment Insurance to Contingent Workers

Tobey Kass

Kass studies how extending unemployment insurance to contingent workers affects labor markets and overall economic welfare. She utilizes the Pandemic Unemployment Assistance of 2020, the first extension of unemployment insurance to contingent workers, to calibrate her structural model of job choice.

Participants questioned whether firms faced any negative consequences when hiring contingent workers. Kass explained that her model included firm-specific human capital that made traditional workers more productive. A participant asked whether workers were randomly assigned to be contingent or traditional, and Kass responded that frictions in her model and differing disutilities from work caused workers to sort between these two options. Participants questioned the economic significance of the distinction between contingent and traditional workers, as the amenities associated with contingent work could be included in a traditional worker's contract.

To differentiate between contingent and traditional work, Kass presented evidence that contingent workers' hours and changes in hours had larger variances than those of traditional workers and that these distributions remained stable from 1994 to 2018. Contingent workers had lower annual income, lower wages, and shorter job spells. An audience member asked whether the model accounted for a worker's ability to hold both a traditional job and a contingent job. Kass clarified that, in the current model, workers could choose only one option.

Kass presented her model, in which workers decided whether to search for a contingent job, a non-contingent job, or neither, given the probability of finding each type of job. A participant questioned the substitutability between many hours of a contingent worker and fewer hours of a non-contingent worker. Kass responded that the two types of workers would be perfect substitutes in her model, with the sole exception of the parameter that denoted firm-specific human capital. One participant took issue with the use of quarterly employment data, arguing that employment was a daily or maybe weekly decision. Kass answered that she was in the process of shortening her model's time period but had started with the longer period to limit computation time. Participants also requested that Kass present data on the relationship between age and a worker's conditional choice of hours.

In her policy analysis, Kass presented the result that extending unemployment insurance to contingent workers increased the unemployment rate as contingent workers chose to stay home and fund their consumption through unemployment insurance. An audience member suggested that Kass's model allow employed workers to choose to quit their jobs and unemployment insurance policy to vary depending on hours worked. Another suggested that agents in the model might choose to become contingent workers if they wished to become unemployed, because the probability of losing one's job is higher for contingent workers.

Kass provided welfare analysis, in which she concluded that extending unemployment insurance to contingent workers led to a smaller drop in GDP and higher welfare relative to the base case without this policy. Considering Kass's welfare analysis, some participants said that extending unemployment insurance to contingent workers had a small effect on GDP. They questioned whether her model could help policymakers draw conclusions about other forms of unemployment insurance. Kass responded that she only considered the case of contingent workers and that future versions of the paper might include calibration and transition paths.

Perceived and Actual Labor Market Risk

Almut Balleer, Georg Duernecke, Susanne Forstner and **Johannes Goensch**

The difference between perceived and actual labor market risk can have several implications for individual and societal welfare, as well as for the selection and effectiveness of economic policy, according to research presented by Johannes Goensch. If individuals are excessively optimistic about their own labor-market prospects they may delay wealth accumulation decisions. This could cause wealth dispersion to rise, relative to an economy in which individuals have rational expectations about their risks. In addition, such optimistic individuals may be less likely to develop their human capital, leading to lower wealth, consumption and welfare in the long run. A key finding by Goensch is that labor-market risk misperception is decreasing in educational attainment. Then, since over-optimism leads to lower savings, one of the paper's key predictions is that the wealth distribution fans out in proportion to the human capital distribution.

The manner in which the presenter conveyed his main results, however, was subject to considerable debate.

First, in keeping with a theme of the conference, an audience member strongly objected to the utilization of a steady-state comparison of welfare in order to glean how inequality may be affected by a particular policy implementation, giving transfers to hand-to-mouth routine workers to induce them to switch task type. Welfare analyses should always take place along a transition path between two steady states, otherwise we miss how the economy represented by the steady state outcomes is arrived to in the first place.

Second, the environment is a particular flavor of heterogeneous agent models common in the literature, namely the so-called "Bewley-Huggett-Aiyagari," or B-H-A, model. One participant suggested that the model was wrongly named after these three people, and that attribution should go instead to Ayse Imrohoroglu. This participant noted, the insistence amongst certain authors to refer to these models as B-H-A amounts to rewarding "dinky analytical proofs of continuity while looking down on computational work."

Third, the author calibrated his model, which featured unemployment spells, to quarterly data, as in 12 weeks, even though typical unemployment spells are around

10 weeks. There were considerable objections to this, since model inference wrought from such a calibration does not have a clear mapping to real world outcomes. Continuing with the calibration, there was an issue regarding how top coding of high-wealth individuals was handled in the data and how this may affect model inference. One participant suggested that since rich folks are top-coded, the relative wealth of poor folks is exaggerated in an attempt to match observable data. There were no agreed-upon suggestions as to how to ameliorate this problem, however, just acknowledgment that it exists.

The presenter tried to round out the talk by returning to his steady-state comparison that lacked transition-path dynamics. The audience member who had criticized this earlier said that comparing steady states was "morally criminal," imploring the presenter, "Don't show it to us. Just because you committed a crime doesn't mean you have to re-enact it now." The audience members and the presenter shared a good laugh, and he agreed to work on the transition dynamics to augment the other high-quality analyses that he had already performed.

Financing Universal Health Care: Premiums or Payroll Taxes

Hans Fehr and **Maria Feldman**

With co-author Hans Fehr, Maria Feldman explores different financing mechanisms for a German-style universal health care system that features both public and private health insurance options. Generally, audience members praised Fehr and Feldman for their modeling choices, which managed to capture important, idiosyncratic features of the German health-services and health-insurance markets without frivolous details.

The authors' general equilibrium model featured overlapping generations of households that were heterogeneous by cohort, skill type, health level, labor productivity, and wealth. Health and wealth were endogenous stock variables that would rise or fall depending on investment decisions, which in turn depended on exogenous skill types and labor productivity through labor-market earnings. Households could receive health shocks that would affect their ability to work and earn labor income, worsen their quality of life, and lower their chances of surviving into the next model period. The authors used the model to understand how reforms to both Germany's publicly-financed health insurance system and its optional, private health insurance system could impact consumer welfare along a dynamic transition path.

An audience member noted that economists define insurance to be a mechanism used to fund future liabilities that result from shocks that cannot be foreseen ex-ante. "Health insurance" is not precisely insurance, by this definition, but rather a complicated system used to fund health care expenditure, which itself is a certain type of investment.

There were many questions regarding how health care services are purchased in Germany, including about how individual consumers choose to transition from public health insurance to the private system. One commenter remarked that if having private insurance guaranteed more efficient access to health care, then this fact should be accounted for in the model by, perhaps, introducing an amenity premium for private health care to a consumer's preference structure. The presenter acknowledged that private insurance might afford a consumer better options, but that it was difficult to quantify exactly how much better those options would be. The lack of data would make calibration difficult.

The presenter proceeded to describe the model in detail. One concern was that the only mechanism the model had that affected health outcomes was investment in health services. An audience member noted that human capital levels may be intrinsically associated with better health outcomes, independent of income. Another concern was that non-health consumption and health care were assumed to be complementary, so that healthier consumers are assumed to want to consume more. It was unclear why this should be the case.

The authors' numerical results were presented without much controversy. The calibration targeted health indicators, such as the fraction of specific cohorts who were sick in a given period, as opposed to targeting life expectancy or survival rates. One suggestion was to either present what the model predictions were for these health outcomes or add them to the set of targeted data moments.

The authors used the model to run several counterfactuals to understand how reforms to the health financing structure could affect welfare. First, they considered two reforms where private insurance would be gradually phased out. In one, consumers would pay health care premiums to the government. In the other, all consumers would be enrolled in the public plan without paying premiums. Second, they considered a reform where the public option was eliminated, and all consumers faced a mandatory private option.

Surprisingly, consumer welfare was higher in models with unfunded premiums than with funded premiums. But while welfare, as measured in terms of consumption-equivalent variation between the baseline and counterfactual transition paths, might vary, the authors found that neither life expectancy nor rates of survival for consumers of different types were greatly affected by their experimental reforms.

Some additional suggestions were offered pertaining to the counterfactual simulations. While different types of reform to the health care funding mechanism led to various degrees of welfare gain or loss for consumers of different ages, it was unclear what would happen in an environment where such reforms had already been implemented and policymakers decided to gradually revert back to the current system. In essence, what would happen if policymakers phased out the public option in favor of a fully private health-funding market, and then decided to gradually phase the public option back in? The presenter agreed to consider such an exercise.

Idiosyncratic Consumption Risk and Wealth Dynamics

Luigi Maria Briglia

In an attempt to answer why the standard precautionary savings model with uninsurable idiosyncratic income risk cannot explain so-called "hand-to-mouth" consumption behavior, Luigi Briglia presented a plethora of novel empirical facts pertaining to household wealth-accumulation dynamics. Arguing that the standard heterogeneous agent model with precautionary savings could not predict the facts, the presenter ran into a sequence of tough questions that inspired lively discussion among audience members.

The crux of the problem seemed to be how to define terms like "excessive spending," which leads to "excess borrowing." A key model mechanism in the paper was that there existed a component of the consumption set that was "excessively" sensitive to marginal utility shocks. The audience had difficulty understanding what these marginal utility shocks were. (There is widespread familiarity with permanent income shocks, common features of household consumption models, that rely on habit formation and income-shock persistence to replicate consumption patterns.)

One audience member suggested that marginal utility shocks were like shacking up with an "expensive lover." But the marginal utility shock affected only one component of consumption, not the entire set. The audience member also pointed out that it was impossible to separate the two different types of consumption goods in the model: the consumption good that followed standard dynamics conforming to the permanent income hypothesis and the component of consumption that was sensitive to a marginal utility shock.

The discussion then turned to model fit: Was the estimation routine, in trying to identify marginal utility shocks, picking up something other than measurement error? It was difficult to say. Model fit relative to observations from the Panel Study of Income Dynamics drew suggestions that perhaps the identification strategy needed to be revisited. As quantitative results were presented, one audience participant suggested modifying the model to accommodate a different style of shock. Another participant disagreed with the idea of adding more complication to the model. The marginal utility shock, this participant thought, already had a good interpretation, that of the expensive lover.

One participant objected to the time span and permanence of the marginal utility shock, suggesting that this shock didn't fit with how utility shocks are normally thought of. "I usually just wake up one day and want to consume way more, but not doing so [sic] over an entire year."

The participant who gave the marginal utility shock the "expensive lover" moniker suggested there was something fundamentally, or structurally, different from a transient shock that affected your propensity to consume in a day versus over the long run. Expensive lovers, he seemed to think, are unlikely transients.

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