



# IMF RESEARCH

Volume 22, Number 1 *perspectives* Spring | Summer 2020

AN  
**ECONOMY  
FOR ALL**



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## NOTE FROM THE GUEST EDITOR



The world has changed since we started working on this issue of *IMF Research Perspectives* in January 2020. COVID-19 has spread around the globe, disrupting lives, overwhelming health care systems, and impairing economic activity. Although it is still too early to grasp the full impact of the pandemic, some populations—

the socially [marginalized](#), individuals with underlying [health](#) problems, and households with [financial](#) vulnerabilities—will likely bear the brunt of it.

A time like this reminds us of the value of equity and equality, and the dire consequences of lack thereof. The theme of this issue is “An Economy for All”: we hope to provoke thoughts on improving access to economic opportunities for different populations. Our showcased research examines the future of employment for women and for the young, discusses overcoming mommy guilt for professional women, presents new evidence on wealth inequality, and explores the role of inequality in monetary policy. Two members of the IMF’s Research Department sit down with us to share more intimate views on what diversity and inclusion mean for economic research and inside the economics profession.

Research on economic equity and equality is more relevant now than ever as [we work on](#) overcoming COVID-19 and recovering from its blow to the economy. Victor Hugo once said: “Great perils have this beauty, that they bring to light the fraternity of strangers.” This crisis will bring us together to build an economy stronger and more resilient, for all.

Go behind the scenes with the *IMF Research Perspectives* team to see how they adapted to bring this issue to you in these extraordinary times...~[Sophia Chen](#)

## IMF RESEARCH *perspectives*

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ISSN 2708-3535

DOI 10.5089/9781513548579.053



# INCLUSION IN ECONOMICS

Interview with **Sole Martinez Peria**

**Sole Martinez Peria is Assistant Director of the IMF Research Department. A former Research Manager at the World Bank, Sole played an active role in collecting cross-country data and kick-starting the Bank's research on financial inclusion. In this interview, she talks with Sophia Chen about inclusion—what it means for economic research and for the economics profession.**

**SOPHIA C:** Inclusion is a truly multidimensional topic. Understanding inclusion requires thinking that crosses the traditional boundary between different fields. This kind of thinking is not uncommon in your research, Sole: you have written extensively at the intersection of finance and development, two views that have developed mostly independently. What interests you in making the connection between these two?

**SOLE M:** When I started my professional career at the World Bank, I really was not thinking about financial inclusion. However, I was in a group where many colleagues were working on financial development. They studied how the size of the financial sector mattered for growth. With colleagues Asli Demirgüç-Kunt and Thorsten Beck, we started wondering whether what

really matters is the breadth of the financial sector—the extent to which people have access to and use financial services. That is how I got interested in this topic.

**SC:** You recently wrote an article for the *Oxford Research Encyclopedia* on financial inclusion and human development. What is financial inclusion, and why does it matter for human development?

**SM:** Financial inclusion has been defined as access to and use of financial services by individuals. Theoretically, financial inclusion matters for human development because it allows individuals to smooth their consumption and investment (including in human capital) and to be more resilient to economic shocks. Evidence from research focused on India, Kenya, and Chile shows that when people have the ability to save, they can smooth their consumption and make decisions to better deal with economic shocks. This effect has been shown to be quite significant for women.

**SC:** As an empirical researcher you also worked on compiling and collecting data sets; for example, to measure access to finance and the use of financial services. Can you also tell us about that experience?

**SM:** At the World Bank, we discovered very quickly that there were no data sets available to look at financial inclusion. So we had to create our own data. We developed a survey that we sent out in 2003 to central banks and bank regulatory authorities around the world, asking them for information about how many branches banks had, how many ATMs, how many loans they made, and how many accounts they had, and so on (something similar to the Fund's Financial Access Survey, which started in 2010). We then spent a lot of time trying to collect and clean up the data before we could finally

analyze it. It was a difficult task, but it was also rewarding. The research got significant attention, was published in good journals, and is well cited. Our work also inspired later efforts to produce other cross-country data sets on financial inclusion.

**SC:** Do we see in the data that certain populations face high obstacles in access to finance?

**SM:** Yes. In subsequent research that we did with Franklin Allen, Asli Demirgüç-Kunt, and Leora Klapper, we showed that poor individuals with low levels of education, individuals residing in rural areas, and women have a harder time accessing financial services and are also less likely to use them. These gaps in financial inclusion persist to this day, even with all the attention that has been given to the topic.

**SC:** What does this mean for policies?

**SM:** It means that policy needs to be specially targeted to those groups so that the divide narrows rather than grows over time. Interventions from governments or financial institutions that try to design products to reach a broader set of users need to keep in mind the constraints that these groups face, whether it is having physical access or digital access to financial services or the literacy that is required to understand how to appropriately use financial services.

**SC:** Do you see new policy challenges in the post-COVID-19 world?

**SM:** I see challenges and opportunities. One of the challenges is that the crisis seems to be impacting those that are more financially excluded, so the demand for services and the desire by providers to serve them might



**WATCH NOW**

## SOLE MARTINEZ PERIA INTERVIEW

**Sole Martinez Peria** talks about inclusion—what it means for economic research and for the economics profession.

diminish. The crisis may also affect institutions that tend to reach out more to the poor or to women, such as microfinance institutions. They may be affected because there may be less donor funding or because their loan portfolio may deteriorate as a consequence of repayment problems from their borrowers. But the crisis has created a lot of momentum for governments to facilitate access to digital financial services (both to help with social distancing and also to allow for efficient disbursement of government transfers). If these efforts increase access to digital financial services, especially by vulnerable populations in hard-to-reach areas, they might be a pathway to inclusion.

**SC:** Now let's shift the focus a bit. Inclusion is not only a topic that economists study, it is also an obstacle the economics profession has to overcome. For example, a recent professional survey shows that only 40 percent of men and 20 percent of women are satisfied with the overall climate of the economics profession. Would you say that you are among the 20 percent or the 80 percent?

**SM:** I have been lucky throughout my career. I have never felt discriminated against or in any way affected by being a female economist. If anything, later on in my career, I think it has opened doors. But I do acknowledge that, for example, when I was in grad school, it felt a bit awkward to be in a class full of men, with few female students and even fewer female professors. When I started working at the World Bank, I was fortunate enough to have several female colleagues and a female

boss for many years, so I had colleagues to bond with and as role models. Nonetheless, I do see that the profession has a long way to go in closing the disparities between men and women.

**SC:** Do you have any influential teachers or mentors?

**SM:** My first mentor was my graduate advisor at UC Berkeley, Maury Obstfeld. I have always admired him because he is a brilliant economist—someone who is not only knowledgeable about his fields of concentration but who can also speak in depth about any topic. He is also a role model because he is a very nice and caring person, always very down-to-earth, no matter how high he rose in his career, including being a former IMF Chief Economist.

**SC:** One last question, Sole: Do you have any advice for those who are starting out in their career?

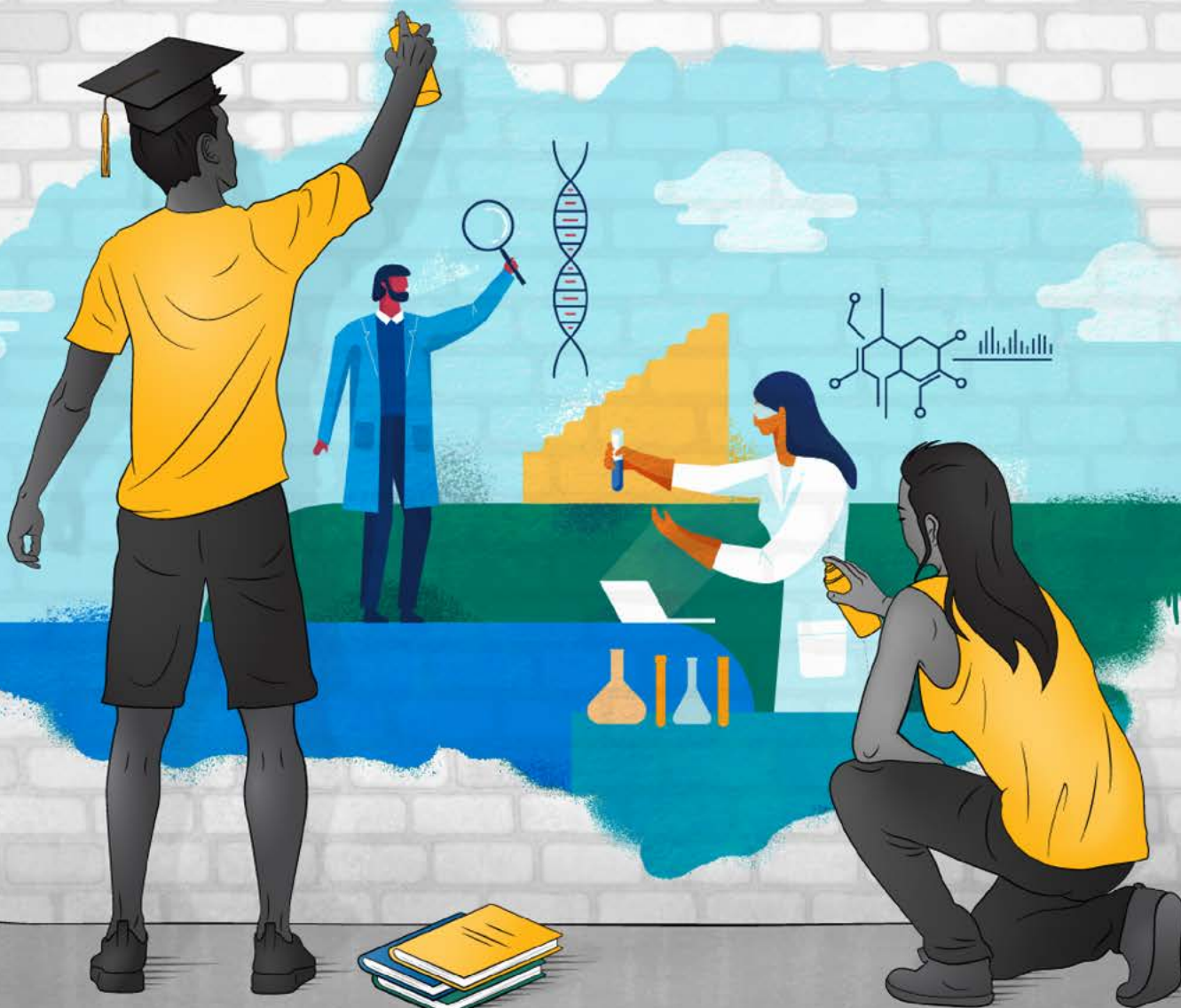
**SM:** Whether you are a man or a woman, it is important to find a field that you are passionate about without thinking too much about the fads that come and go in the profession. It is important to find a job where you can continue to grow and to develop your human capital, where you do not feel trapped and have outside options in your career. Finally, for me, it was also very important to find a job that allowed me to accomplish my personal goals beyond those that relate to my career. I have always felt that being a parent is the most influential job I will have. So I have made career choices that I felt were compatible with my goal of trying to be a good parent.

“...being a parent is the most influential job I will have.”



# GOOD JOBS for Young People

A Policy Imperative to Reduce Inequality



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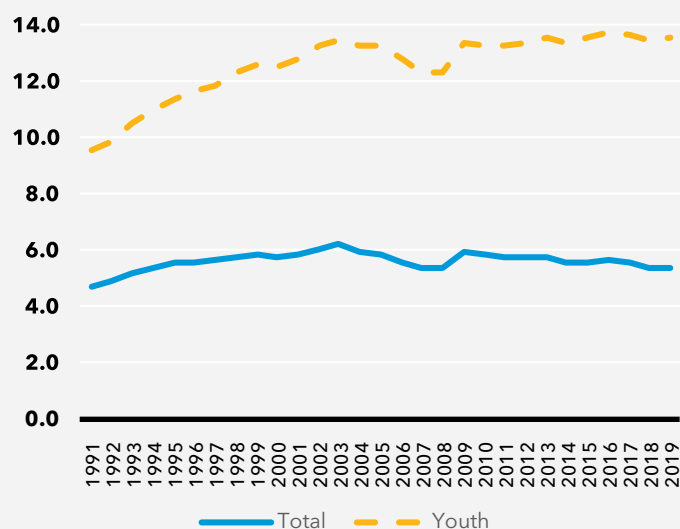
**Youth unemployment rates remain stubbornly high in most countries and have been rising in advanced economies hit hardest by the global financial crisis. Is there a risk of a “lost generation”?**

## *Youth unemployment, poverty, and inequality*

Young people’s active participation in the labor force is a common element of many successful stories of economic development. At the same time, finding work has always been more challenging for young people than for the rest of the labor force, making them more likely to be unemployed (Figure 1) and more vulnerable to fluctuations in economic growth. [Recent International Labour Organization figures](#) suggest that more than a third of the world’s unemployed are young people, defined as those ages 15–24.

Less stable jobs and lower pay for young people can increase the risk of youth poverty and widen intergenerational inequality. This link has been documented by recent studies at the IMF, highlighting the need to prioritize quality jobs for young people. Since the global financial crisis, [young workers in Europe](#) have faced more prevalent in-work poverty, involuntary part-time employment, and temporary work contracts than older workers. The rise in youth unemployment after the crisis led to an [increase in income inequality](#), measured by the Gini coefficient, by an average 4 percentage points for advanced economies. In Greece, Ireland, Italy, Portugal, and Spain, where youth labor markets deteriorated more, inequality is estimated to have increased by up to 8 percentage points.

**FIGURE 1. Global Trends in Youth and Overall Unemployment: 1992-2019**



Source: International Labour Organization, Trends Econometric Models.

## New evidence from developing economies

In recent [research](#), we study a group of 71 low-income and emerging market economies over the period 1981–2014 to identify how good and bad economic times translate into changes in inequality. For each country, good and bad times are determined using two criteria. The first is whether a country's GDP per capita growth rate in any given year was positive (good times) or negative (bad times). The second is the distance, measured in standard deviations, between a country's per capita GDP growth rate in any given year and its period average per capita GDP growth rate. These country-specific thresholds help distinguish normal from extreme growth conditions, whether good or bad, for each country. Mediation analysis then helps identify and quantify the main mechanisms through which growth conditions affect inequality. This methodology, borrowed from the field of psychology, is relatively novel in macroeconomics. Its advantage is that it enables us to decompose observed associations into components that uncover causal mechanisms; that is, transmission channels.

The results suggest that reductions in unemployment during good times explain about 41 percent of the reduction in inequality for developing economies. In comparison, 28 percent of the increase in inequality during bad times happens because of unemployment. Changes in youth unemployment are a key driver: they explain 38 percent and 27 percent of the variations in inequality in good and bad times, respectively (Figure 2). In other words, unemployment among young people is a key transmission channel of economic conditions to inequality during economic growth and downturns. This is consistent with [other research](#) showing that youth unemployment is relatively more sensitive to business cycle fluctuations than overall unemployment.

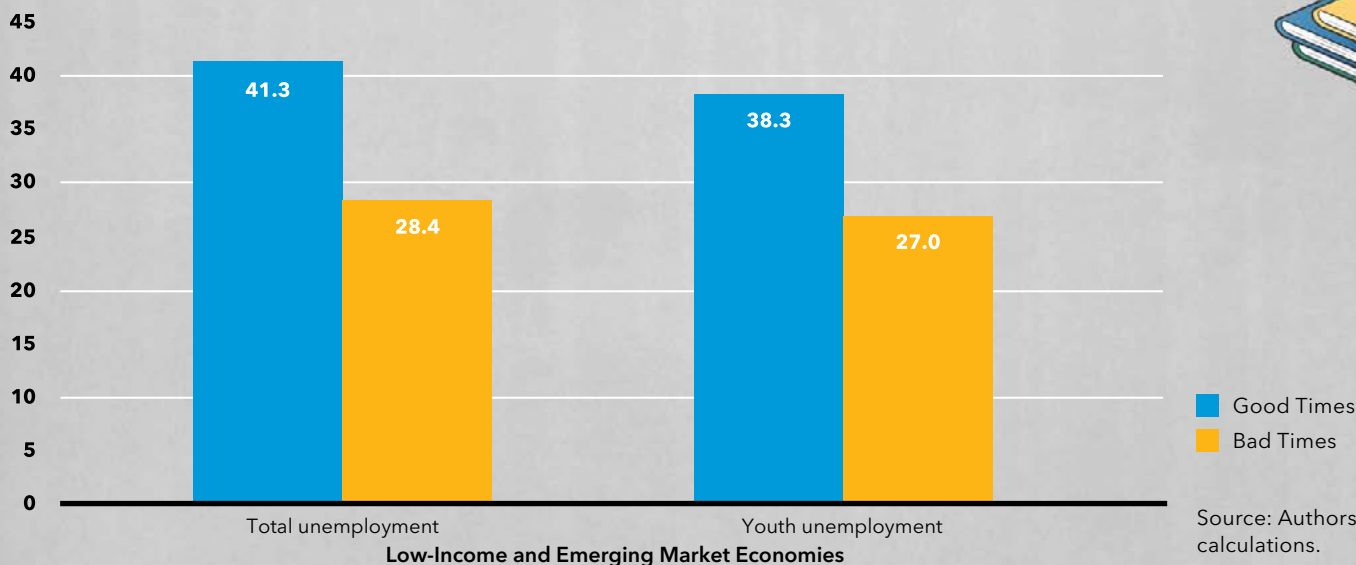
## What can be done?

High and prolonged youth unemployment presents significant risks to the future workforce, including inequality, poverty, and social unrest. Targeted policy design has a key role to play to avoid this hysteresis effect. Advanced economies that have the policy space and institutional capacity can use fiscal policy to encourage companies to hire young people, especially in bad times. This can help enhance integration of young people into the labor force and prevent their permanent exclusion. Underlying issues such as skill mismatches could be integrated into countries' broader structural policy agenda, prioritizing vocational training. In addition, reforms of unemployment and non-pension benefits could mitigate the [long-term poverty risk](#).

For low-income and emerging market economies, however, both the policy space and the institutional capacity may be more challenging. Targeted improvements in education and active labor market policies could [help](#), alongside broad policies to improve the flexibility of the formal labor market, the business environment, and the quality of jobs. Taking advantage of good times to implement these policies and create quality jobs could [shield](#) young workers from the long-term harm caused by bad times. To mitigate the adverse effects, policymakers could [strengthen](#) unemployment insurance systems—together with well-designed tax systems, active labor market policies, and broader policies—to curb informality.

**FIGURE 2. Youth Unemployment and Inequality in Good and Bad Times**

The unemployment rate among young people is a key driver of inequality, in both good and bad economic times. (Percentage effect of good and bad times on inequality explained by unemployment and youth unemployment)



Source: Authors' calculations.



Can you Put a Price on That?

# The Cost of Female Guilt at Work



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Men and women do not necessarily value the same aspects of a job in the same way. Using a novel approach based on a choice experiment and a specially commissioned online survey in Japan, recent [research](#) by IMF economist Chie Aoyagi and Professor Alistair Munro finds that women have higher “willingness to pay” than men to avoid extreme overtime and mandatory intra-firm transfer, and this higher willingness to pay is driven in part by feelings of guilt.



## A choice experiment approach

The authors use a series of hypothetical job choice questions to reveal workers’ preference for jobs that may pay less but offer better work-life balance. Compared with the [traditional approach](#) to understanding worker preferences by relating wages to job characteristics, choice experiments have several advantages. Because choices are made in hypothetical situations, the experimenter can design the choices to directly identify preferences and consider a wide range of job characteristics and policy reforms. Moreover, choice experiments can be used both for people who are employed and for those who are currently out of the labor market.

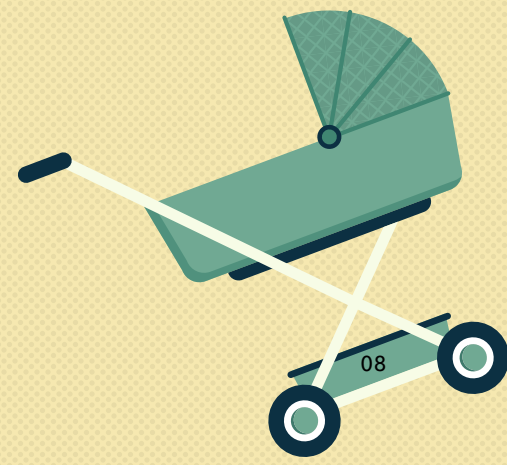
Jobs differ in many dimensions, and it is therefore tempting to design an experiment in which the choice set is highly complex. However, complex experimental design could [result](#) in incomplete responses or inconsistent choices.

Given these trade-offs, Aoyagi and Munro focus on five key attributes of jobs in Japan: salary, required overtime, job security, mandatory intra-firm transfer (at the same location), and mandatory relocation. The benchmark levels for these attributes are selected to match what is typically observed. For example, the median overtime hours for full-time workers (15 hours a month) and the legal overtime limit (45 hours a month) are used for the overtime attribute. Job security has two levels: “high”, informed by average tenure for regular workers and “medium,” informed by average tenure for limited-regular workers whose employment status lies somewhere between full-fledged regular employment and irregular employment.



The table shows an example choice set. Job A, Job B, and Job C are the three alternatives. Each alternative is described by the five attributes. Each respondent answers two questions: which is the best job, and which is the worst job out of the three alternatives?

	Job A	Job B	Job C
Annual Wage	6 million yen	7 million yen	8 million yen
Overtime	0 hours/month	15–45 hours/month	0 hours/month
Employment	Medium	High	Medium
Transfer Possibility	Some	None	None
Relocation	None	None	Some
	Job A	Job B	Job C
Best Job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worst Job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Women's willingness to pay

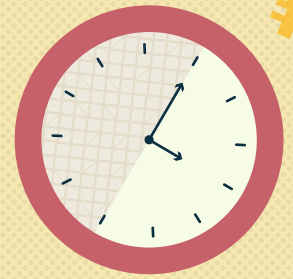
Both men and women have a high willingness to pay to avoid the worst aspects of a job. For example, people with an annual wage of 3 million yen (the equivalent of 28,000 US dollars) are willing to pay 1.3 million yen—nearly half of their annual wage—in order to avoid extreme overtime of 45 hours or more. Workers in the highest wage group (8 million yen) are willing to pay 3.5 million yen to avoid such overtime. People are also willing to pay 0.9 to 2.8 million yen to avoid intra-firm transfer, depending on their wage level. Notably, women are on average willing to pay more to avoid long overtime, relocation, and intra-firm transfer. For example, among workers with no children, women are willing to pay 0.3 million yen more than men to avoid extreme overtime. They are also willing to pay 0.4 million yen more to avoid intra-firm transfer. The gender difference in willingness to pay is higher for workers with children. On average, mothers are willing to pay 0.7 million yen more than fathers to avoid extreme overtime. They are also willing to pay 0.5 million yen more to avoid intra-firm transfer.

## The role of guilt

The difference in the responses to the wage trade-offs between fathers and mothers may be attributed to traditional gender roles: men are breadwinners, and must earn more when they have children, whereas women are the primary caregivers, and prioritize work flexibility. To test this hypothesis, Aoyagi and Munro ask the respondents how much guilt they would feel in situations typically experienced by working parents; for example, "I took paid leave for family reasons when my colleagues are working a lot of overtime" or "I missed my children's event because of work." Women report feeling more guilt as a result of such work-family conflicts, confirming the well-known phenomenon of "mommy guilt". What is striking is that feelings of guilt affect the worker's trade-off between wages and other job attributes. In other words, some of the gender differences in acceptable wage reduction can be attributed to the fact that women experience higher levels of guilt and hence accept flexible work arrangements with lower pay.

## Policy implications

Japan faces a declining labor force given the rapidly aging population, so there is an urgent need to mobilize untapped human resources, including those of the educated female working-age population. To make stepping into the labor market attractive, employers and policymakers must answer an important question: how do you create a more inclusive work environment? A limited-regular contract can be an appealing option, especially—but not only—for women with children. Under a limited-regular contract, regular jobs would be limited regarding overtime and relocation. Moreover, to avoid job market segmentation unfavorable for women, direct managerial and cultural solutions may be needed to deal with mommy guilt.



# SHE, ROBOT

Women's Employment in the Face of Automation



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## An imaginary conversation between a worker and a machine

WORKER: Will you replace my job?

MACHINE: Perhaps.

WORKER: How likely?

MACHINE: Well, it depends on your gender, age, and education.

Automation is hardly a novel phenomenon; traditional sectors such as agriculture and manufacturing have experienced large substitutions of labor with machine capital in the past. With [acceleration in computerization](#) of manual labor in recent years, concerns are rising that a new wave of displacement by automation is upon us, with female workers rather than their male counterparts on the front line.

Why would female workers be more vulnerable? Because women perform more routine tasks than men—tasks that are more prone to automation. Moreover, women perform fewer tasks requiring analytical input or abstract thinking, where technological change can complement workers' skills and improve their productivity.

Recent [IMF research](#) has zoomed in on how the threat of automation varies by workers' gender, age, and education in 30 advanced and emerging market economies. The worker-level microdata from the Organisation for Economic Co-operation and Development's

Programme for the International Assessment of Adult Competencies (PIAAC) permits analysis of exposure to automation at the individual level.

### THE GENDER ROUTINENESS GAP

The index of routine task intensity (RTI) evaluates the relative importance of abstract skills, such as reasoning and interpersonal communication, and nonroutine manual skills against routine tasks that are repetitive and hence can be easily automated:  $RTI_i = Routine_i - Abstract_i - Manual_i$ . The RTI gap is the ratio of female-to-male RTI.

Women, on average, perform more routine and less abstract tasks than men across all countries, sectors, and occupations. Differences in occupational distribution across genders explain most of the RTI gap between women and men. For instance, women are overrepresented in clerical occupations, where RTI gaps are high, and underrepresented among managers, legislators, and senior officials, where RTI gaps are low.

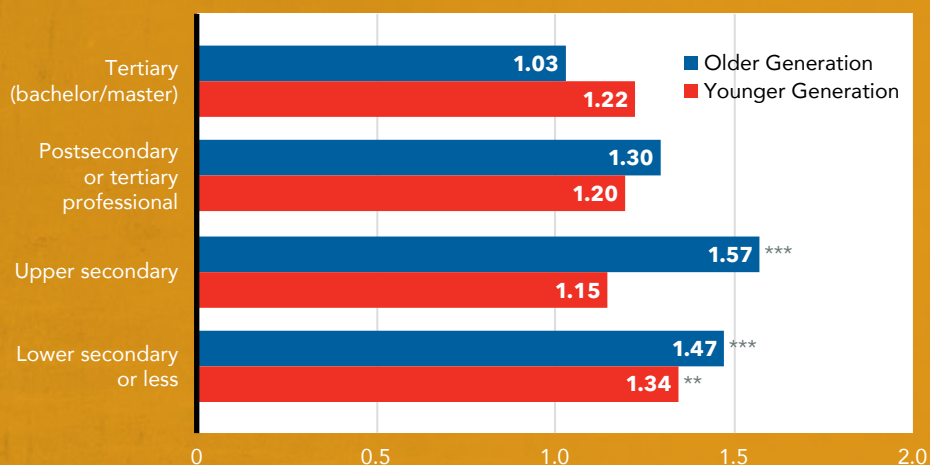
### RISK OF AUTOMATION

The risk of automation for individual workers can be quantified in two steps. The first step uses [estimates](#) for the risk of automation at the occupational level, which depends on whether workers in these occupations can be replaced by state-of-the-art computer-controlled equipment. The second step [relates](#) these automation risks to individual workers based on worker characteristics—such as gender, age, education, literacy, and numeracy skills—and the characteristics of tasks they perform at work—such as the use of technology, the use of interpersonal skills, and the flexibility of work processes.

Using this approach, the authors find a large gender difference in the risk of automation. Eleven percent of the female workforce is at a high risk of automation (defined as having at least a 70 percent estimated likelihood of automation), relative to 9 percent of the male workforce, with 26 million female jobs at stake in 30 countries. While younger cohorts of male and female workers have similar levels of exposure to automation, women older than 40 are at significantly higher risk than men. Gender gaps in automation are also highest for less educated workers and for clerical and sales workers (Figure 1).

**FIGURE 1. Gender Gaps in High Risk of Automation by Generation and Educational Level**

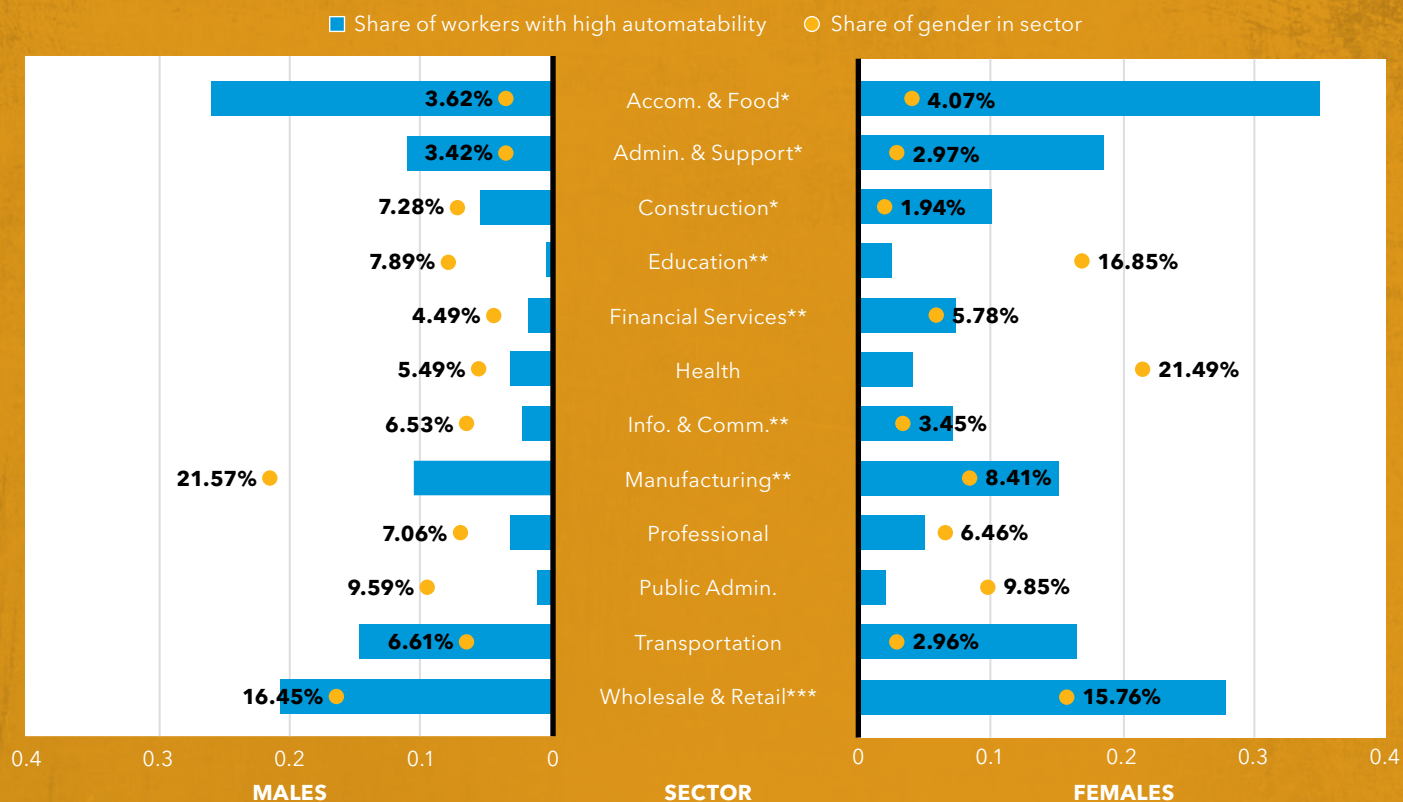
(Difference in automatability between females and males)



Note: The probability of automation is estimated using an expectation-maximization algorithm that relates individual characteristics (age, education, and training, among others) and job task characteristics to occupational-level risk of automation. Bars represent the gender difference in automatability = (share of females at high risk for automation) / (share of males at high risk for automation). High automatability is defined as probability of automation  $\geq 0.7$ . Individuals between ages 20 and 39 are defined as younger generation. Individuals between ages 40 and 65 are defined as older generation. Statistical significance levels on bars reflect t-tests of the differences between proportions of male and female workers at high risk of replacement by technology. Statistical significance levels: \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

Sources: Organisation for Economic Co-operation and Development, Programme for the International Assessment of Adult Competencies; and IMF staff estimates.

**FIGURE 2. Gender Gap in High Risk of Automation across Sectors**



Sources: Frey and Osborne (2017); Organisation for Economic Co-operation and Development, Programme for the International Assessment of Adult Competencies; and IMF staff estimates.

Note: The probability of automation is estimated using an expectation-maximization algorithm that relates individual characteristics (age, education, and training, among others) and job task characteristics to occupational-level risk of automation. Bars represent, respectively, the proportion of male and female workers at high risk of replacement by technology. High automatability is defined as probability of automation  $\geq 0.7$ . Dots (and associated percentages) reflect the proportion of the male and female labor force employed in each sector. Statistical significance levels on the sectors reflect the  $t$ -test of the differences between proportions of male and female workers at high risk of replacement by technology. Statistical significance levels: \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

At the sectoral level, more women in accommodation and food services, retail trade, and transportation face a high risk of automation (Figure 2). Women are also overrepresented in sectors relatively less exposed to automation, such as education and health care. However, even within less-automation-prone sectors, women face a higher risk than men. These differences suggest that not only selection of men and women across sectors but also variation in task composition performed within these sectors determine the likelihood of automation.

Reassuringly, since the 1990s, more women than men have shifted from

elementary and clerical occupations toward professional jobs, providing more insulation from displacement by technology. Moreover, job growth in aging economies is likely to be stronger in traditionally female-dominated sectors such as health and social services, where jobs require cognitive and interpersonal skills and thus are less prone to automation.

The overall positive trends displayed by the intergenerational analysis suggest that there is room for optimism about the future of work for women. An important caveat, however, is in order. The data set does not allow tracking of workers over time, so these results could also reflect widening

gender gaps in routinization and thus risk of automation over the women's life cycle. For instance, a large part of gender inequality in the labor market can be explained by a "childbearing penalty." Thus, there may be an important role for policies that smooth transitions of younger female workers and ensure adequate safety nets for older, displaced workers (Brussevich and others 2018).

# THE SNOWBALL EFFECT

HOW THE RICH GET RICHER



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Wealth distribution is extremely concentrated in most countries. According to [Saez and Zucman \(2016\)](#), in 2012 the top 0.1 percent richest Americans held more than one-fifth of the economy's net worth, the highest share since the mid-1920s. A recent and growing body of research suggests that the wealthiest individuals both have disproportionately more wealth and receive higher returns from investing it.

In a [recent paper](#),<sup>1</sup> IMF economist Davide Malacrino and coauthors Andreas Fagereng, Luigi Guiso, and Luigi Pistaferri show that returns are positively correlated with individuals' wealth. They are also heterogeneous, persistent, and correlated across generations.

These findings are based on 12 years of tax records on the wealth and capital income of all taxpayers in Norway from 2004 to 2015. These exhaustive records are available in Norway because of a wealth tax that requires assets to be reported—often by employers, banks, or other third parties, thereby reducing errors that arise from self-reporting. Moreover, the data make it possible to match parents with their children, hence offering a valuable opportunity to examine intergenerational patterns in returns to wealth.

Such thorough data on wealth are extremely rare. Even though administrative data on income are available in many countries, it is much

less common for authorities to collect data on wealth, given how few countries collect wealth taxes. Because of the lack of direct wealth measurement, researchers have relied on imputation methods to measure inequality. For example, the so-called capitalization approach relies on imputing individual wealth through the capitalization of asset income from tax returns. This is the method adopted by Saez and Zucman in their recent book, *The Triumph of Injustice*. As pointed out in [previous work](#) by Malacrino and his coauthors, measures of wealth based on the capitalization approach can lead to misleading conclusions about the level and the dynamics of wealth inequality if returns are heterogeneous and even moderately correlated with wealth.

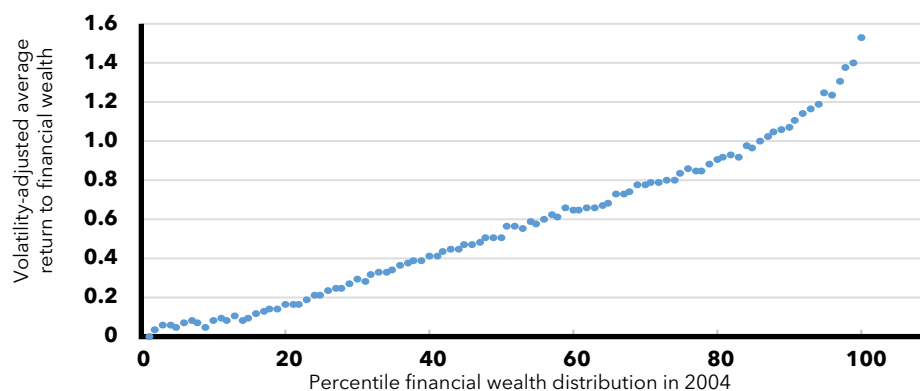
Why do rich people earn high returns? Conventional wisdom suggests that it is because of risk compensation: richer people on average allocate a higher fraction of their assets to risky investments. Their risk exposure is rewarded with higher returns. However, the authors find that there is more to the story. Richer individuals enjoy pure returns to scale on their wealth. Specifically, for a given portfolio allocation, those who are wealthier are more likely to get higher risk-adjusted returns, possibly because they have access to exclusive investment opportunities or better wealth managers (Figure 1).

Finally, individual characteristics such as financial sophistication, financial information, and entrepreneurial talent are also important. These characteristics, which people tend to retain over time, make the return to wealth persistent. The combination of higher returns for wealthier individuals with the persistence of their higher returns gives rise to a mechanism that makes wealth more concentrated over time as the wealthy get wealthier. This mechanism has been hypothesized in [previous theoretical work](#), but this research is the first to quantify this mechanism and show that it is likely to have empirical significance.

Returns persist over time for the same individual, but do they also persist across generations? The answer is a qualified yes. Like wealth, which has a high degree of intergenerational correlation—children of wealthy families are likely to have a lot of wealth as adults—returns to wealth are also correlated intergenerationally. But there are important differences in how wealth returns accrue across generations. Returns to wealth display some degree of mean reversion: the children of the richest are likely to be very rich but unlikely to get as high returns from this wealth as their parents did. This suggests that while money is perfectly inheritable, exceptional talent is not.

These results shed new light on the recent debate on wealth taxation. In the presence of heterogeneous returns, a wealth tax could be [more efficient](#) than a capital income tax. Using wealth instead of capital income as a tax base would reduce the burden on high-return investments and may motivate taxpayers to direct their savings toward more productive investment. This could benefit society via positive effects on employment and firm creation. Incidentally, the introduction of a wealth tax would also provide more precise data on wealth, which could help explain the dynamics of inequality, its roots, and its relationship with other economic phenomena.

**Figure 1. Wealthier Individuals Get Higher Returns (Percent)**



Source: [Fagereng and others \(2020\)](#).

Note: The figure shows the average return to individual financial wealth portfolios adjusted for their volatility for 2005–2015 against the financial wealth percentile in 2004.

<sup>1</sup> Andreas Fagereng, Luigi Guiso, Davide Malacrino and Luigi Pistaferri. 2020. "Heterogeneity and Persistence in Returns to Wealth." *Econometrica* 88 (1): 115-70.



# INEQUALITY AND THE CONDUCT OF MONETARY POLICY



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# CENTRAL BANKERS SHOULD CARE ABOUT INEQUALITY

## Inequality—a rising concern and policy focus

Rising disparity between the haves and the have-nots in advanced economies and emerging markets, along with a [declining labor share of income](#), has sparked public debate about how to ensure that prosperity is more widely shared—in particular, because there is evidence that inequality itself could [reduce growth](#).

Fiscal and structural policies are well understood to be powerful mitigators of inequality. For example, taxes and transfers can [partly offset market income inequality](#). Spending on education, health, and active labor market policies can promote social mobility not only for the current generation but also for future generations. [Structural reforms](#) of labor and product markets can also affect income distribution through their effect on aggregate employment and the distribution of labor market earnings and capital income.

## What about monetary policy?

Even though inequality remains outside central banks' mandates, major central bankers are [increasingly discussing distributional issues](#). At the same time, recent advances in economic theory shed new light on the interplay of monetary policy and inequality. It is now an accepted view within both academia and major central banks that wealth and income inequality affect the effectiveness of monetary policy. This is because the poor, who tend to be more liquidity constrained than the rich, increase their consumption more in response to the income boost stemming from an interest rate cut. The same rate cut thus [stimulates aggregate consumption more](#) in an economy with a larger proportion of the poor.

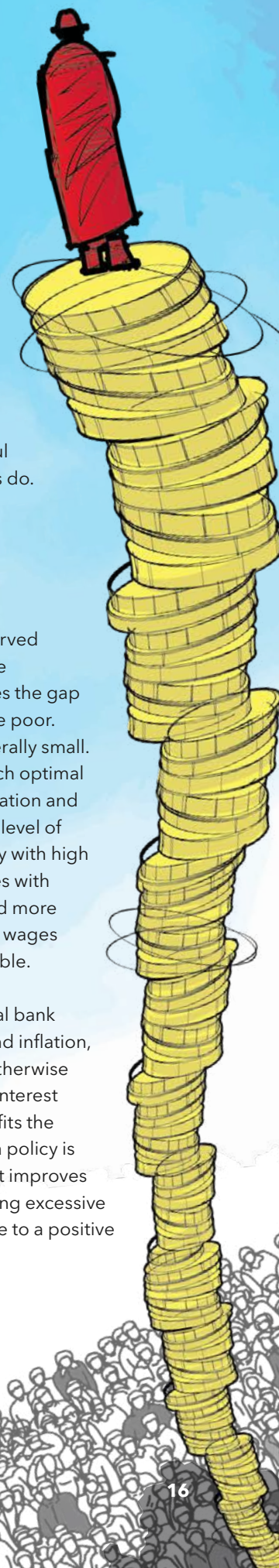
In recent IMF research, we investigate how the conduct of monetary policy is affected by inequality in a stylized model in which the economy is subject to technology shocks. In this setting, a rich person—call her R—owns all the capital. R's income is thus composed of after-tax dividends and wages. In contrast, a poor person—call her P—receives only wages and a transfer from the government financed by the dividend tax. In the model, capital income rises in response to positive productivity shocks, thereby exacerbating inequality. Moreover, productivity shocks are biased toward the rich: when productivity rises, R's income goes up, while P's declines. These mechanisms are consistent with US micro- and macroeconomic data and match the empirical [effects of technology shocks on consumption inequality](#).

We study implications for monetary policy in two settings. In the first setting, the central bank chooses the best possible path of interest rates with full information and with equal care about all individuals. This setting is called "[optimal policy](#)". In the second setting, the central bank does not consider inequality in its interest rate policy. It simply chooses the interest rate based on the state of the economy, following a so-called [Taylor rule](#). This setting is useful because it is closer to what central banks do.

## Implications for monetary policy

In the first setting, we find that a central bank should place some weight on observed inequality. This is because overall welfare improves when the central bank stabilizes the gap in consumption between the rich and the poor. However, we find that this weight is generally small. Interestingly, a central bank pursuing such optimal policy cares progressively less about inflation and more about growth the higher the initial level of inequality. This is because in an economy with high inequality, stabilizing inequality coincides with stabilizing growth since the poor depend more on wages the greater the inequality, and wages are more stable when growth itself is stable.

In the second setting, in which the central bank pursues a Taylor rule targeting output and inflation, interest rates should be set lower than otherwise because of inequality. A policy of lower interest rates leads to higher wages, which benefits the poor. Beyond lowering inequality, such a policy is also beneficial more generally because it improves inflation and growth outcomes by avoiding excessive tightening of the interest rate in response to a positive productivity shock.





# FALLING OFF THE LADDER

Why So Few Female Economics Professors?



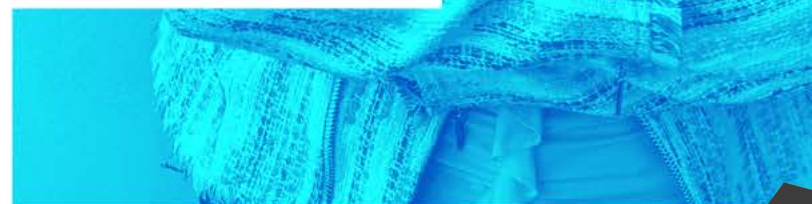
*In all stages of academia, from the first days as a PhD student to full professor, women in economics have been and remain a minority. Perhaps even more striking, the higher the rank, the lower the representation of women—a phenomenon that appears to be **unique** to the economics profession. We spoke with Şebnem Kalemli-Özcan, assistant director of the Research Department at the IMF, professor of economics at the University of Maryland, College Park, and associate chair of the Committee on the Status of Women in the Economics Profession, to find out why and learn what can be done about it.*

### LET'S START WITH SOME DATA, AS ECONOMISTS OFTEN DO...

Women are underrepresented in all stages of economics academia. The fraction of baccalaureate women who majored in economics is in decline. Women made up less than 40 percent of students entering economics PhD programs, while they received just a third of the PhD degrees granted by US institutions in 2018. The numbers for minority women are even worse: out of 148 American women who received their PhDs in economics from a US institution in 2018, only seven are Black and four Hispanic. Furthermore, [fewer than one in five](#) full professors in economics departments are women.

### IS THE UNITED STATES AN OUTLIER?

Lack of data makes comprehensive comparisons difficult, but the United States looks worse than Europe both in the women's share of entry-level and full professors. That is not to say that women in Europe are doing great in climbing the ladder: women constitute 40 percent of entry-level professors but only 24 percent of full professors in [European](#) economics departments.



### AS YOU KNOW, THE IMF HAS SET **AMBITIOUS GOALS** TO INCREASE WOMEN'S REPRESENTATION ON ITS STAFF. WHAT DO THESE STATISTICS MEAN FOR ACHIEVING SUCH GOALS?

It is important to note that, compared to the field of microeconomics, women are [especially under-represented](#) in finance, macro, and international economics—three main fields in the IMF's hiring of PhD economists.

The underrepresentation matters because the diversity of opinion enriches the profession. For example, men and women have different [views](#) on the inclusiveness of the economy. More than 70 percent of female economists agree or strongly agree with the statement that "the distribution of income in the United States should be made more equal," compared to only 40 percent of male economists.

Diverse teams also conduct more influential research: a [study](#) of 2.5 million scientific papers written by US-based researchers from 1985 to 2008 found that papers with author teams of different ethnicities and in different locations were published in higher-impact journals and cited more often.

### NOW COMES THE DIFFICULT QUESTION: WHY ARE WOMEN UNDERREPRESENTED, ESPECIALLY AT HIGHER RANKS?

First and foremost, basic economic principles may create a misperception: markets are efficient, so differences across groups must result from differences in preferences or abilities. Referee reports prepared by white male economists on gender research include statements such as “women are less famous because they have to take time off to take care of kids and there are fundamental differences in the way males and females network,” “based on my observations of my wife and her friends, women seem to prefer to stay home,” “women do not like math,” and “women prefer less math-intensive jobs because they are more social.” These [stereotypes and biases](#) are quite far from the truth but have real consequences. In undergraduate education, the share of women majoring in math increased, while that in economics decreased. Women who major in math [prefer](#) other STEM [science, technology, engineering, and mathematics] fields to economics.

There is also increasing evidence of discrimination against women in economics. Extensive work has shown that [women](#) get [less credit](#) for [coauthored](#) work, are [evaluated](#) more harshly by students, and [do more](#) volunteer and service work. There is, perhaps more disturbingly, evidence that women face a more hostile audience during their presentations at [seminars](#) and such an aggressive professional environment deters women from an early stage in their career. Last but not least, there is an important [childbirth penalty](#) that lasts a long time, with 20 percent lower lifetime earnings and 26 percent lower probability of advancing in one’s career.

### ECONOMISTS ARE OFTEN KNOWN FOR ADVOCATING EVIDENCE-BASED DECISION-MAKING AND POLICIES. WHAT IS THE PROFESSION DOING WITH THIS EVIDENCE? WHAT ACTIONS ARE BEING TAKEN?

The American Economic Association (AEA) has undertaken several initiatives, starting with a [climate survey](#); raising awareness on the issue is the first step. Men are satisfied more than women with the existing climate in the economics profession.

AEA has also set up a task force on [best practices](#) to have a diverse and inclusive profession focusing on five areas: conducting research; organizing conferences, seminars, and visitor programs; serving as colleagues; working with students; and leading departments and workplaces. The main message here is that we all have a part in this, need to be aware and think about inclusivity all the time.

### ANY ADVICE FOR NEWCOMERS OR THOSE CONSIDERING A CAREER IN ECONOMICS?

We are not going to solve these problems overnight, but there are a lot of things you can do, individually and collectively, that will improve the situation. You might say or do things that hurt or offend other people. The goal is to build relationships with others where you can discuss openly and learn from others. Diversity and inclusion are the responsibility of everyone.

My suggestion for young economists is do not give up, keep up the good work, and never ever lose your integrity. Be an effective bystander, meaning call it out when you see it. Even if you cannot intervene directly due to shyness and power imbalances, find someone to talk to. We can all be an ally, when everyone is one.

	Men	Women
Satisfied with overall climate in economics	40%	20%
Feel valued within the field of economics	46%	25%
Ever been discriminated against or treated unfairly on the basis of sex	4%	48%
Experienced discrimination or unfair treatment in service assignments	9%	43%
Experienced discrimination or unfair treatment in course evaluations	8%	47%

Source: AEA climate survey.

# The Perspective from

# H O M E

The COVID-19 pandemic has meant that this issue of *Research Perspectives* was put together in the same rooms where our families, pets, and grocery lists were competing for our attention. We've been impressed by one another's resilience, so we thought it would be worthwhile to share a few of the stories and insights from those who contributed to this latest issue. Maybe you'll even pick up an idea or two about how to dress your dog!

*"My biggest challenge is working while keeping track of my son's distance learning and keeping him entertained throughout the day. I wouldn't call this a solution, but I have adapted to having multiple 'offices' around the house with toys around my 'workstations.'"*

~SOPHIA CHEN, CONTRIBUTOR

*"For me keeping all three kids engaged, active, and safe at the same time has been the biggest challenge while working from home. Solution? Sometimes saying yes to the mess makes everyone happy."*

~CHIE AOYAGI, CONTRIBUTOR

*"My biggest challenge while working from home was getting my kids used to distance learning. My older son adapted quickly but it was harder for my younger son. I got him motivated by reorganizing his workspace so that he felt comfortable and could focus. He is doing fine now though he of course misses his friends from school."*

~SOLE MARTINEZ PERIA, CONTRIBUTOR

*"Biggest challenge: Cooking and cleaning for four males—two boys, a husband, and the dog. Solution: None so far. I've tried to assign tasks to each but then I ended up redoing them all."*

~ŞEBNEM KALEMLI-ÖZCAN, CONTRIBUTOR





*“I had never learned how to cook (excluding some basic stuff). My mother didn’t like to cook, so growing up I didn’t have anyone to teach me.*

*Later in life I was always busy studying or working. But since*

*the quarantine I’ve been forced to cook a lot more and have enjoyed learning new recipes and making things my kids enjoy.” ~SOLE*

*“I started playing piano again. I played from five years old to pretty much until I had kids. But then life got busy and I didn’t have the time. I started playing again under lockdown.”*

*~ŞEBNEM*

*“In the evenings, I’ll play Nintendo Switch with coworkers – which we normally did on Fridays before all of this happened. So it’s been nice to bring back something that was normal for us to do together and bring back some sense of normalcy.” ~SHARON*

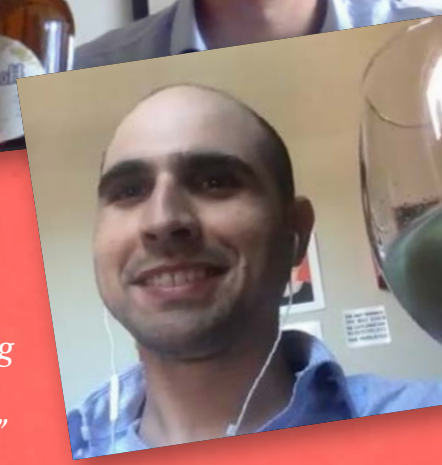
*“Learning how to focus and block out distractions by separating my work from other things has been truly life-changing. Being home and surrounded by food, projects, games, and pets means being constantly distracted by something. I learned to focus on one thing at a time.” ~SHARON DUKE, DESIGNER*

*“I created and hosted an online obstacle course through a Nintendo Switch game called Animal Crossing: New Horizons. I took the whole week prior to the event date to build five obstacle courses. The players were divided into teams of two. Throughout the competition, seeing everyone working together, laughing, and cheering really put a smile on my face. We connected and bonded throughout that full hour with nothing but joy and happiness.”*

*~LANNY NGUYEN, DESIGNER*

*“My mother was a Home Economics teacher so I grew up learning all the domestic skills, but lost them over the years. I’ve returned to sewing and crafting during this shut-in period, and am having a lot of fun with it! I actually finished a blanket for my niece which I started over three years ago.” ~LAURA SPOFFORD, DESIGNER*





*"I look forward to being able to travel to visit my family in Argentina, and to go on vacations with my husband and kids. We really enjoy travelling together. I also miss my friends and colleagues at work."* ~SOLE

*"I look forward to work interactions again, conversing with colleagues, and just being in a work environment that promotes creativity."*

~DAVID HUNT, DESIGNER

*"Everybody looks so different without showers and haircuts."* ~STEFAN LIPSKY, DESIGNER

*"Someone put a homemade PPE on her dog. When I looked with amazement while I was walking my own dog, she offered to make one for my dog too."* ~ŞEBNEM

*"My wife and I are both working from home. From such a small apartment, funny situations are inevitable. At one point someone in her office told her a joke; her burst of laughter was heard in the meeting I was taking part in, making everyone laugh."* ~FABIO BOLZAN, DESIGNER

*"I started trying out dessert recipes. I guess I need my sugar fix once in a while."* ~SOPHIA

*"I use the same device for my Zoom meeting and my son's distance learning. One time I was kept in the Zoom waiting room for 15 minutes and I found out that it was showing my son's name. The host wouldn't let me (him!) in."* ~SOPHIA

*"My newest hobby? Canine mind-reading and weekday naps."* ~LAURA

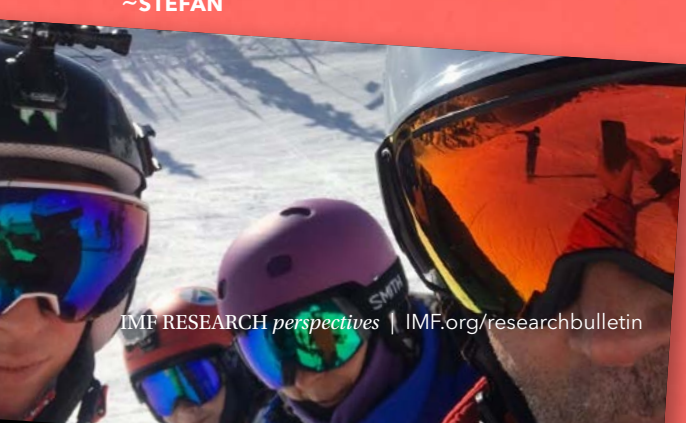
*"I learned patience - definitely something new for me - and to value the small things in life I didn't pay attention to because I took them for granted. I'll value things like seeing my friends or colleagues in person much differently now."*

~STEFAN

*"The microphone on my laptop works sporadically. On one occasion during a meeting, I went to talk and everyone started laughing. Apparently, my mic somehow made me sound like..."*

~SHARON

*"...she sounded like Jabba the Hutt."* ~STEFAN







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**NEXT ISSUE: JANUARY 2021**