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Entrepreneurs, Innovation, and Participation

Remarks by

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Thank you for the kind introduction, Jennet.[1] Let me start by saying my thoughts are with all the people in Florida, Georgia, North Carolina, South Carolina, Tennessee and Virginia who have felt the force of Helene's and Milton's impact. I am saddened by the tragic loss of life and widespread disruption in this region. The Federal Reserve Board and other federal and state financial regulatory agencies are working with banks and credit unions in the affected area. As we normally do in these unfortunate situations, we are encouraging institutions operating in the affected areas to meet the needs of their communities.[2]

It is an honor to stand before you and speak to this group of audacious, innovative women. I am also very happy to be back in Charleston. I grew up in Milledgeville, Georgia, just about 250 miles down the road. Some of my fondest childhood memories of traveling in the South, especially as a Girl Scout, include South Carolina.

Today I would like to talk with you about the important role startups, new businesses, and entrepreneurship play in our economy from the perspective of a Federal Reserve policymaker. I also want to share a bit of my story. Just like many of you—including those who have started a business or those who dream of doing that someday—I have faced and overcome hurdles along a winding path.

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[1] The views expressed here are my own and not necessarily those of my colleagues on the Federal Open Market Committee.

[2] See Federal Deposit Insurance Corporation, Federal Reserve Board, National Credit Union Administration, Office of the Comptroller of the Currency, and State Financial Regulators (2024), "Federal and State Financial Regulatory Agencies Issue Interagency Statement on Supervisory Practices regarding Financial Institutions Affected by Hurricane Helene," joint press release, October 2, https://www.federalreserve.gov/newsevents/pressreleases/other20241002a.htm.

My Story

I was born and raised in Milledgeville, where my mother, Professor Mary Murray Cook, was a faculty member in the Nursing Department of Georgia College and State University. She was the first tenured African American faculty member at that university. My father, Rev. Payton B. Cook, was a chaplain and then in senior leadership at the hospital there. My family lived through the events that brought Milledgeville out of a deeply segregated South. My sisters and I were among the first African American students to desegregate the schools we attended. I drew strength from the example set by my family, others in the Civil Rights Movement, and the village that raised me and from their conviction in the hope and promise of a world that could and would continually improve.

While I had an interest in economics even before I entered high school, that was not the initial field of study I pursued. I entered Spelman College in Atlanta as a physics and philosophy major. After graduation, I had the honor of studying at the University of Oxford as a Marshall Scholar.

After Oxford, I continued my education at the University of Dakar in Senegal in West Africa. However, at the end of my year in Africa, it was the chance to climb Mount Kilimanjaro in Tanzania in East Africa where I discovered my love of economics. I hiked alongside a British economist, and, by the end of the trek, he convinced me that studying economics would provide me with the tools to address some big and important questions I had pondered for a long time.

I went on to earn my Ph.D. in economics from the University of California, Berkeley. Entering the economics profession came with its usual challenges, and, for women, a few more challenges existed. To this day, women are still underrepresented in economics. Women earned just 34 percent of bachelor's degrees in economics and 36 percent of Ph.D.'s in economics in 2022, the most recent available data from the U.S. Department of Education. The share of women earning those degrees rose only modestly from 1999, when women earned about 32 percent of economics bachelor's degrees and 27 percent of Ph.D.'s. The data stand in sharp contrast to all science and engineering degrees, including in social science fields, where women earned roughly half of degrees granted in 2022.[3]

Education was paramount in my family and was construed as a means of realizing the promise of the Civil Rights Movement and continual improvement of our society and economy. Of course, economics, like physics, is a field where math skills are vitally important. Between my mother, my aunts, and my extended family, I had essentially understood STEM (science, technology, engineering, and mathematics)-related jobs to be women's work. I was grateful to have these role models in my orbit to give me the confidence to undertake study in a STEM field.

Access and encouragement for girls to pursue study in math and science are a significant concern. Economist Dania V. Francis's research shows that Black girls are disproportionately under-recommended for Advanced Placement calculus.[4] The course is

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[3] See U.S. Department of Education, National Center for Education Statistics (NCES), Integrated Postsecondary Education Data System, Completions Survey, available on the NCES website at https://nces.ed.gov/ipeds/survey-components/7.

[4] See Dania V. Francis, Angela C.M. de Oliveira, and Carey Dimmitt (2019), "Do School Counselors Exhibit Bias in Recommending Students for Advanced Coursework?" *B.E. Journal of Economic Analysis & Policy,* vol. 19 (July), pp. 1–17.

often a gateway for economics, for STEM classes, and for college preparation, in general.[5]

My mentors and role models encouraged careful study, teaching, and scholarship and helped me block out the voices saying I did not belong at each juncture. They encouraged my work and have been champions for me. As a result, I have been committed to serving as a mentor, as well. For several years, I was the director of and taught in the American Economic Association's Summer Program, an important training ground for disadvantaged students considering economics careers. Each year, the share of students who are women oscillated between 41 percent and 67 percent, much higher than the enrollment in undergraduate economics courses nationally.[6] I told those students—and continue to tell them as they make their way through graduate programs in economics and through the economics profession—"You belong here. Your insights are unique, and the profession will benefit from them."

In my career as an economist, I studied, researched, and taught in roles at universities and worked in the private sector and in government before I was nominated by the President and confirmed by the Senate to become a member of the Board of Governors of the Federal Reserve System in 2022. I am honored and humbled to serve in this role and proud to be the first African American woman and first woman of color to serve on the Board of Governors. As Fed policymakers, we make decisions affecting the

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[5] See Lisa D. Cook and Anna Gifty Opoku-Agyeman (2019), "'It Was a Mistake for Me to Choose This Field,' " *New York Times,* September 30.

[6] See Lisa D. Cook and Christine Moser (2024), "Lessons for Expanding the Share of Disadvantaged Students in Economics from the AEA Summer Program at Michigan State University," *Journal of Economic Perspectives,* vol. 38 (Summer), pp. 191–208.

entire economy and the well-being of every American by focusing on the dual mandate given to us by Congress: maximum employment and stable prices.

Entrepreneurs' Vital Role in the Economy

In my years of conducting research and while at the Board, I have met many inventors, innovators, and entrepreneurs who made important contributions to the economy. Many of them happened to be women who were very knowledgeable, creative, and inspiring. So I want to discuss the vital role entrepreneurship and new business creation play in our economy.

You might ask what interest I have in this subject, as a monetary policymaker focused closely on the dual mandate of maximum employment and stable prices. Well, this topic has interested me for a long time, and I conducted a fair amount of research on entrepreneurship and innovation before joining the Board. But the topic is also important precisely because of our dual mandate. To convince you of this, I will explain a few of the ways in which economists think about entrepreneurship, and how they relate to the dual mandate.

The first is the most basic: For many people—many millions, in fact—entrepreneurship or self-employment is a career choice.[7] It is their preferred way of

[7] There is no single way to measure the number of self-employed individuals and related businesses, but it certainly numbers in the millions. The latest Bureau of Labor Statistics Current Population Survey indicates there are roughly 10 million unincorporated and 7 million incorporated self-employed individuals. Separate data on businesses from the U.S. Census Bureau indicate that, as of 2021, there were about 25 million nonemployer and 800,000 employer sole proprietorships (Nonemployer Statistics; Statistics of U.S. Businesses), https://www.census.gov/programs-surveys/nonemployer-statistics.html, https://www.census.gov/programs-surveys/susb.html.
For analysis of inconsistencies between self-employment data sources, see Katharine G. Abraham, John C. Haltiwanger, Claire Hou, Kristin Sandusky, and James R. Spletzer (2021), "Reconciling Survey and Administrative Measures of Self-Employment," *Journal of Labor Economics,* vol. 39 (October), pp. 825–60.

participating in the labor market and obtaining income for themselves and their families. They prefer to be their own bosses, with all the benefits and risks that entails.[8] But whether they end up hiring others or not, self-employed individuals support the labor market by providing a job for themselves.

A second way economists think about entrepreneurship is a little broader: New business creation is a large contributor to overall job growth. In fact, new businesses punch above their weight. For example, during the handful of years before the pandemic, in a typical year only about 8 percent of all employer firms were new entrants, but these new entrants accounted for about 15 percent of annual gross job creation.[9] And research has found that this job creation effect is long lasting. Even though many new firms do not survive, those that do survive tend to grow rapidly over 5 to 10 years, largely offsetting the job losses from those firms that shut down.[10]

A third way economists think about entrepreneurship, which I have explored in my own research, is that a small but critical subset of new firms are innovators—they introduce new products or business processes that change how we consume or produce.[11]

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[8] See Erik Hurst and Benjamin Wild Pugsley (2011), "What Do Small Businesses Do?" *Brookings Papers on Economic Activity,* Fall, pp. 73–142, https://www.brookings.edu/wp-content/uploads/2011/09/2011b_bpea_hurst.pdf; and Erik G. Hurst and Benjamin W. Pugsley (2017), "Wealth, Tastes, and Entrepreneurial Choice," in John Haltiwanger, Erik Hurst, Javier Miranda, and Antoinette Schoar, eds., *Measuring Entrepreneurial Businesses: Current Knowledge and Challenges* (Chicago: University of Chicago Press).

[9] Gross job creation refers to all jobs created by entering and expanding establishments. Data are from the Census Bureau Business Dynamics Statistics, averaged for 2015–19. New firms' share of net job creation is much higher, but this is partly an artifact of measurement practices: Firms with an age less than one measured in annual data cannot contribute negatively to net job creation.

[10] See John Haltiwanger, Ron S. Jarmin, and Javier Miranda (2013), "Who Creates Jobs? Small versus Large versus Young," *Review of Economics and Statistics,* vol. 95 (May), pp. 347–61; and Ryan Decker, John Haltiwanger, Ron Jarmin, and Javier Miranda (2014), "The Role of Entrepreneurship in US Job Creation and Economic Dynamism," *Journal of Economic Perspectives,* vol. 28 (Summer), pp. 3–24.

[11] For evidence on the importance of innovating young and small firms, see Daron Acemoglu, Ufuk Akcigit, Harun Alp, Nicholas Bloom, and William Kerr (2018), "Innovation, Reallocation, and Growth," *American Economic Review,* vol. 108 (November), pp. 3450–91. For recent trends in technology diffusion of relevance to business entry, see Ufuk Akcigit and Sina T. Ates (2023), "What Happened to US Business Dynamism?" *Journal of Political Economy,* vol. 131 (August), pp. 2059–2124.

As such, they make large contributions to overall productivity growth over time. That is, innovative entrepreneurs help enable us to do more with less—and even more so if access to innovation participation is equitable.[12] It is important that everyone, including women, historically underrepresented groups, people from certain geographic regions, and other diverse representative groups, can participate in the entrepreneurship and innovation economy. In my research, I have found that investors underrate the prospects of Black-founded, or simply outsider-founded, startups in early funding stages. Better assessment of the early stages of invention and innovation could broaden the range of new entrants and the ideas they contribute to their local communities and the broader economy.

Consider the Dual Mandate

So let's return to the dual mandate. You can now understand that self-employment and entrepreneurial job creation are relevant for our employment mandate. Indeed, one could argue that entrepreneurs are critical to Fed policymakers' efforts to promote maximum employment. And the productivity gains we reap from entrepreneurship are like productivity growth from any other source. When the pace of productivity growth increases, it allows for economic activity and wage growth to be robust while also being consistent with price stability.

The importance of business startups to our dual mandate objectives is why I have watched closely as various measures of new business formation have surged since the onset of the COVID-19 pandemic.

[12] See Lisa D. Cook (2011), "Inventing Social Capital: Evidence from African American Inventors, 1843–1930," *Explorations in Economic History,* vol. 48 (December), pp. 507–18; Lisa D. Cook (2014), "Violence and Economic Activity: Evidence from African American Patents, 1870–1940," *Journal of Economic Growth,* vol. 19 (June), pp. 221–57; and Lisa D. Cook (2020), "Policies to Broaden Participation in the Innovation Process," Hamilton Project Policy Proposal 2020-11 (Washington: Brookings Institution, August), https://www.hamiltonproject.org/assets/files/Cook_PP_LO_8.13.pdf.

Applications for new businesses jumped to a record pace shortly after the pandemic struck the U.S.[13] The pace of applications has remained elevated above pre-pandemic norms all the way from the summer of 2020 to the most recent data, even though the pace appears to be cooling some this year.[14] At first, it might have seemed like these business applications were mainly being submitted by people who lost their jobs, or perhaps by an increase in "gig economy" work. There was doubtless some of that going on, but research and data since then have painted a more optimistic picture.

When researchers look across areas of the country, the pandemic business applications had only a weak connection with layoffs. The surge in applications persisted long after overall layoffs fell to the subdued pace we have seen since early 2021. The applications did have a strong relationship with workers voluntarily leaving their jobs. Some quitting workers may have chosen to join these new businesses as founders or early employees. And surging business applications were soon followed by new businesses hiring workers and expanding. Over the last two years of available data, new firms created 1.9 million jobs per year, a pace not seen since the eve of the Global Financial Crisis.[15]

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[13] "Business applications" refers to applications for new Employer Identification Numbers submitted to the Internal Revenue Service. These are reported by the U.S. Census Bureau in the Business Formation Statistics. An application does not necessarily mean an actual firm with employees, revenue, or both will result.

[14] Unless otherwise noted, the facts described in this section are documented in Ryan A. Decker and John Haltiwanger (2024), "Surging Business Formation in the Pandemic: A Brief Update," working paper, September; and Ryan A. Decker and John Haltiwanger (2023), "Surging Business Formation in the Pandemic: Causes and Consequences?" *Brookings Papers on Economic Activity*, Fall, pp. 249–302, https://www.brookings.edu/wp-content/uploads/2023/09/Decker-Haltiwanger_16820-BPEA-FA23_WEB.pdf.

[15] Data from the Bureau of Labor Statistics Business Employment Dynamics (BED) report new firm job creation of 1.9 million, on average, in 2022 and 2023, the highest pace since 2007. Alternative data on firm births from the Census Bureau Business Dynamics Statistics, which lag the BED by one year, report 2.5 million jobs created by new firms in 2022, also the highest pace since 2007.

The industry patterns of this surge reflect shifts in consumer and business needs resulting from the pandemic and its aftermath. For example, in large metro areas, new business creation shifted from city centers to the suburbs, perhaps because of the increase in remote work. Suddenly, people wanted to eat lunch or go to the gym closer to their home, rather than close to their downtown office. Likewise, consumer and business tastes for more online purchases, with the shipping requirements that entails, are evident in the surge of business entry in the online retail and transportation sectors. But this is not only about moving restaurants closer to workers or changing patterns of goods consumption. There was also a particularly strong entry into high-tech industries, such as data processing and hosting, as well as research and development services.[16] That may have more to do with developments like artificial intelligence than with the pandemic specifically, as I discussed in a speech in Atlanta last week.[17]

Economists will spend years debating the various causes of the surge in business creation during and soon after the pandemic. Perhaps strong monetary and fiscal policy backstopping aggregate demand played some role, or pandemic social safety net policies, or simply the accommodative financial conditions of 2020 and 2021.[18] Indeed, more research is needed and will be the subject of many dissertations in the near future.

[16] See Ryan Decker and John Haltiwanger (2024), "High Tech Business Entry in the Pandemic Era," FEDS Notes (Washington: Board of Governors of the Federal Reserve System, April 19), https://www.federalreserve.gov/econres/notes/feds-notes/high-tech-business-entry-in-the-pandemic-era-20240419.html.

[17] See Lisa D. Cook (2024), "Artificial Intelligence, Big Data, and the Path Ahead for Productivity," speech delivered at "Technology-Enabled Disruption: Implications of AI, Big Data, and Remote Work," a conference organized by the Federal Reserve Banks of Atlanta, Boston, and Richmond, Atlanta, October 1, https://www.federalreserve.gov/newsevents/speech/cook20241001a.htm.

[18] For a potential role of fiscal policy, see Catherine E. Fazio, Jorge Guzman, Yupeng Liu, and Scott Stern (2021), "How Is COVID Changing the Geography of Entrepreneurship? Evidence from the Startup Cartography Project," NBER Working Paper Series 28787 (Cambridge, Mass.: National Bureau of Economic Research, May), https://www.nber.org/papers/w28787. For safety net programs (specifically expanded unemployment insurance), see Joonkyu Choi, Samuel Messer, Michael Navarrete, and Veronika

I do think a large part of the story is ultimately a case of resourceful and determined American entrepreneurs, perhaps including some of you, responding to the tumultuous shocks of the pandemic. They, like some of you, stepped in to meet the rapidly changing needs of households and businesses. This points to a fourth way economists like to think about entrepreneurship, which is that entrepreneurship plays a big role in helping the economy adapt to change. Research suggests that entrepreneurs and the businesses they create are highly responsive to big economic shocks, and the COVID-19 pandemic was certainly a seismic shock.[19] To be sure, the future is uncertain. It is unclear what the productivity effects of the pandemic surge of new businesses, particularly in high tech, will be.[20] And whether that surge will continue is an open question; after all, the pre-pandemic period was a period of declining rates of new business creation, and the pandemic surge itself does appear to be cooling off recently.[21]

Penciakova (2024), "Unemployment Benefits Expansion and Business Formation," working paper, April. For the importance of financial conditions for entrepreneurship in past business cycles, see Michael Siemer (2019), "Employment Effects of Financial Constraints during the Great Recession," *Review of Economics and Statistics,* vol. 101 (March), pp. 16–29; and Teresa C. Fort, John Haltiwanger, Ron S. Jarmin, and Javier Miranda (2013), "How Firms Respond to Business Cycles: The Role of Firm Age and Firm Size," *IMF Economic Review,* vol. 61 (3), pp. 520–59.

[19] Examples of research finding a large role for business entry in responding to aggregate shocks include Manuel Adelino, Song Ma, and David Robinson (2017), "Firm Age, Investment Opportunities, and Job Creation," *Journal of Finance,* vol. 72 (June), pp. 999–1038; Ryan A. Decker, Meagan McCollum, and Gregory B. Upton, Jr. (2024), "Boom Town Business Dynamics," *Journal of Human Resources,* vol. 59 (March), pp. 627–51; and Fatih Karahan, Benjamin Pugsley, and Ayşegűl Şahin (2024), "Demographic Origins of the Startup Deficit," *American Economic Review,* vol. 114 (July), pp. 1986–2023.

[20] The last period of robust productivity growth in the U.S., the late 1990s and early 2000s, was preceded by several years by strong business creation in high-tech industries; see Lucia Foster, Cheryl Grim, John C. Haltiwanger, and Zoltan Wolf (2021), "Innovation, Productivity Dispersion, and Productivity Growth," in Carol Corrado, Jonathan Haskel, Javier Miranda, and Daniel Sichel, eds., *Measuring and Accounting for Innovation in the Twenty-First Century* (Chicago: University of Chicago Press).

[21] The number of annual new firms as a share of all firms declined from around 12 percent in the 1980s, on average, to around 9 percent in the period of 2010–19. New firms' share of gross job creation declined from nearly 20 percent to less than 15 percent over the same period. Data are from Census Bureau Business Dynamics Statistics. The pre-pandemic trend decline in entry rates was documented by Ryan Decker, John Haltiwanger, Ron Jarmin, and Javier Miranda (2014), "The Role of Entrepreneurship in US Job Creation and Economic Dynamism," *Journal of Economic Perspectives,* vol. 28 (Summer), pp. 3–24.

Conclusion

For now, let me say that I am grateful that entrepreneurs continue to give us a hand in meeting our employment mandate, and whatever productivity gains we may reap in coming years as a result may help ease tradeoffs with inflation as well.

Finally, I will share one last story about why South Carolina will always hold a special place in my and my sisters' hearts. Every summer and at Thanksgiving, we would travel through the Palmetto State to our grandparents' house in Winston-Salem. Sitting in the back seat of the station wagon, we were entranced by the many colorful signs along Interstate 95 advertising what I, as a child, viewed as South Carolina's number one attraction: the South of the Border roadside amusement park. We begged our parents to stop every time. It was an epic struggle that went on for more than a decade. Once or twice they did relent, a sweet childhood victory! And here is the funny thing about travels—paths can cross. The timing is such that my sisters and I may have even been helped by a waiter named Ben, a young man from Dillon, South Carolina, who would go on to be Federal Reserve Chairman Ben Bernanke! [22] Perhaps it was the world's way of foreshadowing.

Thank you for having me here in Charleston. It is inspiring to meet this group of bold, entrepreneurial women in South Carolina, and I look forward to continuing our conversation.

[22] See Ben S. Bernanke (2009), "Brief Remarks," speech delivered at the Interstate Interchange Dedication Ceremony, Dillon, S.C., March 7, https://www.federalreserve.gov/newsevents/speech/bernanke20090307a.htm.