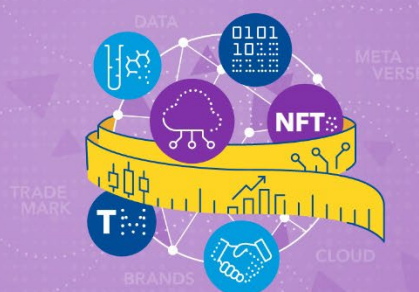


**10<sup>TH</sup>** IMF Statistical Forum

# MEASURING THE TANGIBLE BENEFITS OF INTANGIBLE CAPITAL

November 16-17, 2022 | Washington, DC



## THE 10<sup>TH</sup> IMF STATISTICAL FORUM

(NOVEMBER 16-17, 2022)

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## WELCOME REMARKS

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**Kristalina Georgieva** currently serves as Managing Director of the International Monetary Fund, a position she was selected for on September 25, 2019 and has served as since October 1, 2019.

Before joining the Fund, Ms. Georgieva was CEO of the World Bank from January 2017 to September 2019, during which time she also served as Interim President of the World Bank Group for three months.

Previously, Ms. Georgieva helped shape the agenda of the European Union while serving as European Commission Vice President for Budget and Human Resources. In this capacity she oversaw the EU's €161 billion (US \$175bn) budget and 33,000 staff, as well as the EU's response to the Euro Area debt crisis and the 2015 refugee crisis. Before that, she was Commissioner for International Cooperation, Humanitarian Aid and Crisis Response, managing

one of the world's largest humanitarian aid budgets.

Ms. Georgieva began her career in public service at the World Bank as an environmental economist in 1993. After serving for 17 years, and in many senior positions, including Director for Sustainable Development, Director for the Russian Federation, Director for Environment, and Director for Environment and Social Development for the East Asia and Pacific Region, her career culminated in her appointment as Vice President and Corporate Secretary in 2008. In this role, she served as the interlocutor between the World Bank Group's senior management, its Board of Directors, and its shareholder countries.

Ms. Georgieva serves on many international panels including as co-Chair of the Global Commission on Adaptation, and as co-chair of the United Nations Secretary-General's High-Level Panel on Humanitarian Financing. She has authored and co-authored over 100 publications on environmental and economic policy, including textbooks on macro- and microeconomics.

Born in Sofia, Bulgaria, in 1953, Ms. Georgieva holds a Ph.D in Economic Science and a M.A. in Political Economy and Sociology from the University of National and World Economy, Sofia, where she was an Associate Professor between 1977 and 1993. During her academic career, she was visiting fellow at the London School of Economics and at the Massachusetts Institute of Technology.

In 2010, she was named "European of the Year" and "Commissioner of the Year" by European Voice in recognition for her leadership in the EU's response to humanitarian crises. In October 2020, she received the Atlantic Council's *Distinguished International Leadership Award* in acknowledgement of exceptional and distinctive contributions during her career of public service.

## INTRODUCTION TO THE FORUM

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**Bert Kroese** Before joining the Fund, he worked for 25 years at Statistics Netherlands. He served in various expert, management, and (senior) director roles in the fields of methodology and economic statistics. From 2013 until 2022, he acted as Deputy Director-General and CIO with special focus on and responsibility for IT and Innovation. In 2014 and 2020 (at the start of the Coronavirus pandemic), he was acting Director-General for a short stint.

Nationally and internationally, he has been especially active in the fields of innovation and environmental-economic statistics. He has chaired the UN Committee of Experts on Environmental-Economic Accounting (UNCEEA) for seven years. He has also been co-chair of the Executive Board of the High-Level Group for Modernization of Official Statistics (UNECE). In the context of the European Statistical System, he has been co-chair and deputy chair of a number of innovation related taskforces. In the Netherlands he was member of the strategy team of the Dutch National Artificial Intelligence Coalition and treasurer of ICTU, a large IT service supplier in Dutch government.

Mr. Kroese holds a PhD (honors) in mathematical statistics from the University of Groningen.

## PRESENTATION – THE RISE OF INTANGIBLE CAPITAL

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**Janice Eberly** Senior Associate Dean for Strategy and Academics and James and Helen D. Russell Professor of Finance at the Kellogg School of Management, Northwestern University

Professor Eberly served as the Assistant Secretary for Economic Policy at the U.S. Treasury from 2011 to 2013 after being confirmed by the U.S. Senate. In that capacity she was the Chief Economist at the Treasury, leading the Office of Economic Policy in analysis of the U.S. and global economies and financial markets and development of policy recommendations on micro and macroeconomic issues.

Professor Eberly's research focuses on finance and macroeconomics. Her work studies firms' capital budgeting and investment decisions and household consumption and portfolio choice. She also examines the interaction of these spending and investment choices with the macroeconomy. Her current research emphasizes household finance and intangible investment. Her work has been published in the *American Economic Review*, the *Journal of Political Economy*, *Econometrica*, and the *Quarterly Journal of Economics*, among other academic journals. She has received a Sloan Foundation research fellowship and grant funding from the National Science Foundation and the CME Trust.

Professor Eberly has been an Associate Editor of the *American Economic Review* and other academic journals and Senior Associate Editor of the *Journal of Monetary Economics*. Previously Professor Eberly served on the staff of the President's Council of Economic Advisors and on the advisory committees of the Bureau of Economic Analysis (BEA) and the Congressional Budget Office (CBO). She was elected Vice President of the American Economic Association for 2020.

Professor Eberly is an elected Fellow of the American Academy of Arts and Sciences and is Editor of the Brookings Papers on Economic Activity. She has won numerous awards for her teaching, including Chairs' Core Teaching Awards and Outstanding Professor Awards from the Executive Master's Program. She is a Trustee of the TIAA-CREF funds since 2018. Professor Eberly received her Ph.D. in Economics from MIT.

**SESSION I: PANEL DISCUSSION – WHY IS IT SO IMPORTANT TO CAPTURE INTANGIBLE CAPITAL IN OUR STATISTICS?**



**David Wessel** is a senior fellow in Economic Studies at Brookings and director of the Hutchins Center on Fiscal and Monetary Policy, the mission of which is to improve the quality of fiscal and monetary policies and public understanding of them. He joined Brookings in December 2013 after 30 years on the staff of *The Wall Street Journal* where, most recently, he was economics editor and wrote the weekly Capital column. He is a contributing correspondent to *The Wall Street Journal*, appears frequently on NPR's Morning Edition and tweets often at @davidmwessel.

David is the author of two New York Times best-sellers: “In Fed We Trust: Ben Bernanke’s War on the Great Panic” (2009) and “Red Ink: Inside the High Stakes Politics of the Federal Budget” (2012). His most recent book is “Only the Rich Can Play: How Washington Works in the New Gilded Age” (2021), the story of Opportunity Zones.

He has shared two Pulitzer Prizes, one in 1984 for a Boston Globe series on the persistence of racism in Boston and the other in 2003 for Wall Street Journal stories on corporate scandals. David is a member of the Bureau of Labor Statistics’ Data Users Advisory Committee. He also has taught in the Dartmouth Tuck School of Business Global 2030 executive education program and in the journalism program at Princeton University.



**Kimberly Clausing** Eric M. Zolt Professor of Tax Law and Policy at UCLA Law School

During the first part of the Biden Administration, Clausing was the Deputy Assistant Secretary for Tax Analysis in the US Department of the Treasury, serving as the lead economist in the Office of Tax Policy. Prior to coming to UCLA, Clausing was the Thormund A. Miller and Walter Mintz Professor of Economics at Reed College.

Her research studies the taxation of multinational firms, examining how government decisions and corporate behavior interplay in the global economy. She has published numerous articles in this area, and she is the author of *Open: The Progressive Case for Free Trade, Immigration, and Global Capital* (Harvard University Press, 2019).

Professor Clausing has received two Fulbright Research awards (to Belgium and Cyprus), and her research has been supported by external grants from the National Science Foundation, the Smith Richardson Foundation, the International Centre for Tax and Development, the U.S. Bureau of Economic Analysis, and the Washington Center for Equitable Growth.

Professor Clausing is a nonresident senior fellow at the Peterson Institute for International Economics and a member of the Council on Foreign Relations. She has worked on economic policy research with the International Monetary Fund, the Hamilton Project, the Brookings Institution, and the Tax Policy Center. She was a nonresident senior fellow at the Center for American Progress from 2019 to 2021. She has testified before the House Ways and Means Committee, the Senate Committee on Finance, and the Joint

Economic Committee. Professor Clausing received her B.A. from Carleton College in 1991 and her Ph.D. from Harvard University in 1996, both in economics.



**Seamus Coffey** is Lecturer in Economics Department of University College Cork. Seamus Coffey's research and writing focuses on the performance of the Irish economy. He became a member of the Irish Fiscal Advisory Council in 2016 and was made Chair of the Council in January 2017.

In October 2016, he was appointed the independent expert by the Minister for Finance to undertake a review of Ireland's Corporation Tax code. He is also a member of the external advisory board to the Irish Governmental Economic Evaluation Service and of the council of the Irish Economic Association.

He is a sometime contributor to print, broadcast and online media relating to the Irish economy including fiscal outcomes, corporation tax, household debt, national accounts, and other economic issues. His teaching includes microeconomics, economic policy, advanced microeconomics, and econometrics as well as adult, distance, and executive education courses.



**Giovanni Dell'Ariccia** is Deputy Director of the Research Department at the IMF. Previously he worked in the Asia and Pacific Department. His research interests include: Banking; the Macroeconomics of Credit; Monetary Policy; International Finance; and Conditionality in International Lending and Aid Programs. He is a *CEPR* Research Fellow.



**Pierce O'Reilly** is Head of the Business and International Taxes Unit in the Tax Policy and Statistics Division of the OECD's Centre for Tax Policy and Administration.

Pierce O'Reilly leads the Business and International Taxes Unit, which undertakes economic analysis on a wide range of corporate tax policy issues, including on BEPS, taxation and investment, taxation and R&D and innovation, taxation and growth, and international and domestic corporate tax reform. The unit also works on international tax issues pertaining to tax transparency and IFFs. Pierce leads the production of the flagship OECD publication on business tax trends, Corporate Tax Statistics.

Pierce is an Irish national and joined the OECD in 2013. He holds a Ph.D. from Columbia University in New York. He is a Fulbright Scholar and also holds an M.Sc. in Economics from Trinity College Dublin. Prior to joining the OECD, he worked as a consultant on fiscal transparency issues for the World Bank.

## SESSION II: HOW INNOVATION IS PUSHING THE BOUNDARIES

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**Alfred Kammer** is the Director of the European Department at the International Monetary Fund since August 2020. In this capacity, he oversees the IMF's work with Europe.

Mr. Kammer was previously the Chief of Staff of the Office of the Managing Director, advising the Managing Director on strategic and operational issues and overseeing operations for the senior management team; Deputy Director of the Strategy, Policy and Review Department, overseeing the work on Fund strategy and surveillance policy; Deputy Director of the Middle East and Central Asia Department, overseeing regional economic developments and financial sector issues; Director of the Office of Technical Assistance Management, advising management on technical assistance operations and overseeing fundraising and global partnerships for capacity building; and Advisor to the Deputy Managing Director. Mr. Kammer also served as resident representative of the IMF in Russia. Since joining the IMF, Mr. Kammer worked with countries in Africa, Asia, Europe, and the Middle East, and on a wide range of policy and strategic issues.



**Eric Hazan** is Senior Partner at McKinsey & Company and co-leads the Marketing & Sales Practice in Western Europe. He also works within the High Tech, Media & Entertainment, and Telecommunications Practices, as well as in the Retail Practice with a focus on marketing and strategy. Eric is a member of the McKinsey Global Institute Council, which advises on MGI's business, economic, and technology research.

Focusing on strategic and operational issues, with specific expertise in digital transformation, Eric counsels top management across several European countries. He also dedicates a significant amount of time to capital and investment funds and to governments on digital issues.

Eric has contributed to numerous McKinsey research programs, including a recent study led by McKinsey's French office regarding the digital transformation of French companies. He coauthored another report about the impact of the Internet on economies, which led to the publication of the Internet Matters report for the eG8 global summit of 2011 and the Innovation Matters report for the G8 Innovation Conference in London in 2013. He co-leads major McKinsey research initiatives on digital media and consumer trends worldwide. Over the past ten years, Eric has also advised several governments and public leaders on topics related to digital, innovation, and industry policies.

Prior to joining McKinsey, Eric was a senior partner at Arthur D. Little, where he led the global TIME (telecoms, Internet, media, and entertainment) practice and the consumer practice. He started his career in marketing and sales in consumer goods at Kraft Jacobs Suchard and at Danone.

Eric holds a Master of Science degree in management from HEC Paris, where he is a professor of business strategy.



**Lareina Yee** is Senior Partner at McKinsey & Company. She writes and speaks on technology and diversity. In her role as chair of the [McKinsey Technology Council](#), she recently published the firm's annual "[Technology Trends Outlook](#)" and "[Value creation in the metaverse](#)" reports, which examine long-term technology shifts and the implications for different industries.

Lareina also cofounded "[Women in the Workplace](#)," an annual research partnership with LeanIn.org, which reports on the state of women in corporate America year over year. In addition to this yearly report, she has coauthored a significant body of research on diversity including "[Race in the workplace: The frontline experience](#)," and "[Delivering through diversity](#)."

Lareina frequently speaks about women in business at prominent industry events. She writes and speaks widely on diversity and inclusion topics, including appearances in the *Wall Street Journal*, *Bloomberg*, *Fortune*, *Fast Company*, and *CBS News*, among others. Outside of McKinsey, Lareina is on the board of the San Francisco Ballet and the advisory boards of the Clayman Institute for Gender Research at Stanford University and the Beyond Barnard program at Columbia University.



**Nicola Borri** is Assistant professor of economics at the LUISS Guido Carli University in Rome. His research interests focus on asset pricing, international finance and macroeconomics. His paper *Sovereign Risk Premia* (joint with Adrien Verdelhan) received the ABI Country Risk Forum Best Paper Award at the International Risk Management Conference 2010, and the 2010 WRDS Best Paper Award at the European Financial Management Association Conference. He received his undergraduate and master degree from Bocconi University, and a Ph.D in economics from Boston University in 2009.



**Rob Smith** is principal of Midsummer analytics. He is an experienced consultant with an international reputation as an environment-economy expert. He has a broad knowledge of the science, policy, and economics related to natural capital, climate change, natural resources, ecosystems, wastes, environmental technologies and environmental expenditures. In addition, he has deep knowledge of official statistics, including the national accounts. He is especially known for his work developing and promoting the concept of natural capital and its use as a basis for measuring sustainable development.

Rob worked for more than 20 years at Statistics Canada, Canada's national statistical agency. During this time, he was responsible for moving the agency's environment statistics program into many new areas: climate change; natural resource wealth; household environmental practices; industrial and agricultural water use; ecological goods and services; municipal water treatment and others. He strongly promoted linkages between the environment and economic statistics programs. After 7 years as Director of Statistics Canada's environmental statistics program, Rob spent 18 months on executive exchange helping TELUS Communications Inc. rethink its data centre strategy to meet the company's financial and sustainability goals. Rob left Statistics Canada in 2013 to establish Midsummer Analytics.

## SESSION III: MEASURING INTANGIBLE CAPITAL IN OFFICIAL STATISTICS

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**James Tebrake** is currently the Deputy Director of the Statistics Department at the International Monetary Fund. His main responsibilities include overseeing the Fund's new Data Gaps Initiative, Climate change statistics program as well as oversight for the national accounts, price statistics, and monetary and finance statistics programs. James' current research includes developing improved frameworks and methods to account for financial innovation, the informal economy, globalization, digitalization, well-being, and sustainability.

Prior to joining the IMF in August 2019 James held several positions at Statistics Canada including, Assistant Chief Statistician, Economic Statistics and Director General of the Macroeconomic Accounts Branch at Statistics Canada, where he managed Canada's national accounts, balance of payments and government finance statistics programs.



**Fa'ed Rayyan** born in 1976, a Palestinian external sector statistics professional. He holds a master's degree in economics.

In 1998, Mr. Rayyan worked as a manager at the Stone and Marble Union in the West Bank. Then, in 1999, he joined the Palestinian Central Bureau of Statistics (PCBS) to work as the Director of Finance and Government Statistics Department.

Mr. Rayyan is a great asset at PCBS and a valuable member. During his career span in the PCBS, he worked on developing and improving the External Sector Statistics, Government Finance Statistics and Financial Intermediation Statistics for Palestine. He also made sure to transfer these expertise to his colleagues and staff through capacity building. He conducted several technical missions as a short term expert with IMF between 2009 – 2018. During these missions, he worked on improving the balance of payments and international investment position statistics in several countries.

He conducted several short term contracts with local and international consulting firms in fields of economic statistics and studies.

Mr. Rayyan ran the position of a Board Member of the Palestinian Economists Association (PEA) during the years 2010 – 2017. He also was a Board Member of the Japanese International Cooperation Agency (JICA) - Alumni Association between 2007 and 2009. In 2018, Mr. Rayyan became a member of the General Union of Arab Experts.

Now, as a senior professional at PCBS, Mr. Rayyan is improving Palestinian Statistical System by ensuring cooperation with PCBS' partners and users of statistical services.





**Eurydice Fotopoulou** is the Head of Non-Financial Assets Development, in the Productivity, Investment and Research Division at Office for National Statistics, UK. Before joining the ONS, Eurydice was Assistant Professor in economics at Goldsmiths, University of London, and works as a consultant for technology companies. Eurydice has a PhD in Economics by the University of Greenwich, an MSc in the Political Economy of Development, and a BSc in Development Economics from SOAS, University of London. She has previously worked at the University of Greenwich, SOAS (University of London), the NGO sector, the British Council and the public sector in China and Turkey.



**Sean Crick** Acting Program Manager for the Production, Income & Expenditure Branch in the Australian Bureau of Statistics. This branch produces the headline quarterly and annual measures of macroeconomic activity for Australia. The data includes the key economic indicators of gross domestic product (GDP), national income and expenditure, national savings, and wealth, that underpin economic forecasting and macroeconomic policy.

Sean has 17 years' experience working in official statistics, having worked on range of economic statistics, the Census of Population and Housing, and the Australian Marriage Law Postal Survey. Sean has led the ABS' National Accounts program for the last 12 months, before which he was responsible for the Australian Supply Use and Input Output tables. Sean supported the National Statistics Directorate of East Timor in running their first national business survey program. Sean has a Bachelor of Commerce and a Master of Actuarial Science, both from the University of Melbourne.



**Jennifer Ribarsky** Deputy Division Chief in the Real Sector Division of the IMF's Statistics Department, where she has been working since 2018. Previously, she worked at the Organization for Economic Co-operation and Development (OECD) where she was Section Chief over the Sectoral National Accounts and the U.S. Bureau of Economic Analysis where she held various positions including Deputy Division Chief of the Balance of Payments Division and Chief of the Investment, Foreign Trade and Prices Branch in the National Accounts Division. Over her more than 25-year career in national accounts and balance of payments statistics she has been involved in several projects related to globalization, digitalization, and measurement of non-financial assets. She was co-chair of the Eurostat-

OECD Task force on Land and other Nonfinancial Assets and was the editor of the *Compilation Guide on Land Estimation and Compilation Guide on Inventories*. She has also authored working papers, guidance notes and contributed to other guides such as the *Guide to Measuring Global Production*.

NOVEMBER 17

SESSION IV: MEASURING INTANGIBLE CAPITAL AND ITS IMPLICATIONS FOR POLICY

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**Vitor Gaspar** is Director of the Fiscal Affairs Department at the IMF. He joined in 2014. Before that, he was Portuguese Minister of State and Finance from 2011–13 and has held various positions in European and Portuguese institutions, including head of BEPA at the European Commission, director-general of research at the European Central Bank, director of Economic Studies and Statistics at the Central Bank of Portugal, and Director of Economic Studies at the Portuguese Ministry of Finance.

Mr. Gaspar holds a Ph.D. and a post-doctoral agregado in Economics from Universidade Nova de Lisboa; he graduated from Universidade Católica Portuguesa.



**Rana Foroohar** is Global Business Columnist and an Associate Editor at the Financial Times, based in New York. She is also CNN's global economic analyst. Her book, "Makers and Takers: The Rise of Finance and the Fall of American Business" (Crown), about why the capital markets no longer support business, was shortlisted for the Financial Times McKinsey Book of the Year award in 2016. Foroohar is the author, along with colleague Edward Luce, of the Swamp Notes newsletter, which covers the intersection of money, power, and politics in America.

Prior to joining the FT and CNN, Foroohar spent 6 years at TIME, as an assistant managing editor and economic columnist. She previously spent 13 years at Newsweek, as an economic and foreign affairs editor and a foreign correspondent covering Europe and the Middle East. During that time, she was awarded the German Marshall Fund's Peter Weitz Prize for transatlantic reporting. She has also received awards and fellowships from institutions such as the Johns Hopkins School of International Affairs and the East West Center. She is a life member of the Council on Foreign Relations. Foroohar graduated in 1992 from Barnard College, Columbia University. She lives in Brooklyn with her husband, the author John Sedgwick, and her two children.



**Federico Sallusti** Researcher at the Directorate of National Accounts of the Italian National Statistical Office (Istat), where he coordinates the estimates of regular and under-ground value added of market producers and the development of extended SUTs to account for the role of Multi-National Enterprises and international trade in goods and services. He is also in charge of the pilot activity aimed at defining concepts and methods to treat Multi-National Enterprises in the light of their fiscal behavior. He is currently consultant at UNCTAD for the development of a statistical framework for measuring Base Erosion and Profit Shifting (BEPS) in the context of the assessment of illicit financial flows. He is a holder of a Ph.D. in economics at University of Roma

Tre in 2009, master's in industrial economics at University of Toulouse 1 in 2008 and master in econometrics and applied economy at the Advanced School of Public Administration in 2010. Research

fellow at Sant'Anna School of Advanced Study in 2009 and University of Roma Tor Vergata in 2010. His research interests are mainly connected with underground and illegal economy, with a focus on illicit financial flows and BEPS measurement. Other interests are in micro and meso analysis of the Italian business system (internationalization, granularity, global supply-chains, performance).



**Subir Lall** is Deputy Director in the Middle East and Central Asia Department of the International Monetary Fund, where he is responsible for overseeing the Fund's engagement with the Caucasus and Central Asia region. He has been the IMF mission chief for Egypt, Portugal, Germany, the Netherlands, Indonesia, Korea and Malaysia, and deputy division chief (in charge) of the World Economic Studies Division. His country experience has been in Asia, Europe, Middle East and Central Asia, and Western Hemisphere economies, and he has been a co-author of the IMF's World Economic Outlook and the Global Financial Stability Report. His research interests and publications are in the areas of financial systems and crises, speculative attacks, contagion, financial market

microstructure, income inequality, and the impact of technological change on the economy. He served on the Academic Advisory Panel of the World Economic Forum's Financial Development Report. He has a B.A. (first class with Honors) in Economics from the University of Delhi and a Ph.D. in Economics from Brown University, where he was the recipient of the Susan B. Kamins Fellowship.



**Carol Corrado** is Distinguished Principal Research Fellow at The Conference Board, Senior Policy Scholar at the Center for Business and Public Policy, McDonough School of Business, Georgetown University, and Fellow at the National Institute for Economic and Social Research in the UK. Corrado's primary research focus is measuring and analyzing intangible capital and digital innovation (including digital services prices) and their contributions to economic growth. She is on the team leading the EUKELMS & INTANProd project, which provides productivity accounts including all Corrado, Hulten, and Sichel intangible assets for European economies, Japan, and the United States. An essay on re-imagining GDP that she co-authored won the Indigo Prize in 2017, and she received the

ASA's prestigious Julius Shiskin Award for Economic Statistics and a Special Achievement Award from the Federal Reserve Board for her contributions to measuring high-tech prices and industrial capacity. Corrado holds a PhD in economics from the University of Pennsylvania and a BS in management science from Carnegie-Mellon University.

## SESSION V: UPGRADING OUR TOOLKIT TO MEASURE INTANGIBLE CAPITAL

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**Josh Martin** is an economic advisor at the Bank of England, on secondment from the UK Office for National Statistics (ONS), where he was most recently Head of Productivity statistics. He worked at ONS between 2016 and 2022 in a variety of areas relating to productivity, including measuring intangible assets and infrastructure, measuring the productivity of public services, and microdata analysis. He has a keen interest in measuring capital, having worked extensively on improving ONS' capital investment and stocks data.

Josh has written on a range of topics related to productivity, including environmentally adjusted productivity measures, productivity of the non-profit sector, measurement of intangible investment at firm-level and in the national accounts, and on welfare measures beyond GDP. He is a Topic Lead for the Economic Statistics Centre of Excellence (ESCoE), where he focusses

on productivity, a member of The Productivity Institute, and a member of the International Advisory Committee of the International Productivity Monitor.



**Zachary Gast** from Maryland, USA, has more than 20 years of investment experience. Prior to joining the Board in 2020, Zach worked at the Center for Financial Research and Analysis (CFRA)—a provider of independent investment research—where he served as president, directing the organization's forensic accounting and equity research strategy.

Before that he served as a senior vice-president at Paulson & Co investment managers from 2009 to 2013 and as the sector lead for financial sector equity analysis at the CFRA from 2005 to 2009.

Mr. Gast also served as a member of the Financial Accounting Standards Board's (FASB) Financial Accounting Standards Advisory Council. He has an MBA from Georgetown University.



**Lucy Chung** is the Assistant Director of the Investment, Science and Technology Division at Statistics Canada. She is responsible for the Science, Technology and Innovation program along with the Digital Economy program. Her current portfolio also covers the Capital Expenditures program and Public Infrastructure program. Lucy sits as vice-chair on the OECD bureau for National Experts on Science and Technology Indicators which provides international guidance on the measurement of science and technology.



**Adhi Kurniawan** Central Office of Statistics Indonesia, Jakarta Statistician, November 2012 to now - Designed sampling method and estimation method for social surveys conducted by Statistics Indonesia and other organizations, such as National Socio-Economic Survey, National Labour Force Survey, Demographic Health Survey, National Basic Health Research, Study of Indonesian Nutrition Status, Corruption Perception Survey, Happiness Measurement Survey, etc. - Calculated sampling weight for social surveys - Analyzed the survey data using statistical methods - Assessed and evaluated survey data quality 2 - Communicated and collaborated with stakeholders, governmental and nongovernmental organization related to data based decision for social and public policy

Sekolah Tinggi Ilmu Statistik (Institute of Statistics), Jakarta Visiting lecturer, November 2012 - present - Taught sampling method course for undergraduate students Supervisor for undergraduate theses, 2021 - 2022: - Supervised undergraduate theses entitled "The Determinant Analysis of Educated Unemployment in Indonesia using Panel Regression Model" - Supervised undergraduate theses entitled "Using Mass Imputation and Generalized Least Square for Probability Survey Data Integration (Application to Socioeconomic Survey and Labour Force Survey).

## SESSION VI: INNOVATION: WHERE ARE WE HEADED?

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**Philippe Aghion** is a Professor at the College de France and at the London School of Economics, and a fellow of the Econometric Society and of the American Academy of Arts and Sciences. His research focuses on the economics of growth. With Peter Howitt, he pioneered the so-called Schumpeterian Growth paradigm which was subsequently used to analyze the design of growth policies and the role of the state in the growth process. Much of this work is summarized in their joint book *Endogenous Growth Theory* (MIT Press, 1998) and *The Economics of Growth* (MIT Press, 2009), in his book with Rachel Griffith on *Competition and Growth* (MIT Press, 2006), and in his survey “What Do We Learn from Schumpeterian Growth Theory” (joint with U. Akcigit and P. Howitt.) In 2001, Philippe Aghion received the Yrjo Jahnsson Award of the best European economist under age 45, in 2009 he received the John Von Neumann Award, and in March 2020 he shared the BBVA “Frontier of Knowledge Award” with Peter Howitt for “developing an economic growth theory based on the innovation that emerges from the process of creative destruction.”



**Bo Li** assumed the role of Deputy Managing Director at the IMF on August 23, 2021. He is responsible for the IMF’s work on about 90 countries as well as on a wide range of policy issues.

Before joining the IMF, Mr. Li worked for many years at the People’s Bank of China, most recently as Deputy Governor. He earlier headed the Monetary Policy, Monetary Policy II, and Legal and Regulation Departments, where he played an important role in the reform of state-owned banks, the drafting of China’s anti-money-laundering law, the internationalization of the renminbi, and the establishment of China’s macroprudential policy framework.

Outside of the PBoC, Mr. Li served as Vice Mayor of Chongqing—China’s largest municipality, with a population of over 30 million—where he oversaw the city’s financial-sector development, international trade, and foreign direct investment. Mr. Li was also Vice Chairman of the All-China Federation of Returned Overseas Chinese. He started his career at the New York law firm of Davis Polk & Wardwell, where he was a practicing attorney for five years.

Mr. Li holds a Ph.D. from Stanford University and an M.A. from Boston University, both in economics, as well as a J.D., magna cum laude, from Harvard Law School. He received his undergraduate education from Renmin University of China in Beijing.