



CENTER FOR HOMELAND
DEFENSE AND SECURITY
NAVAL POSTGRADUATE SCHOOL



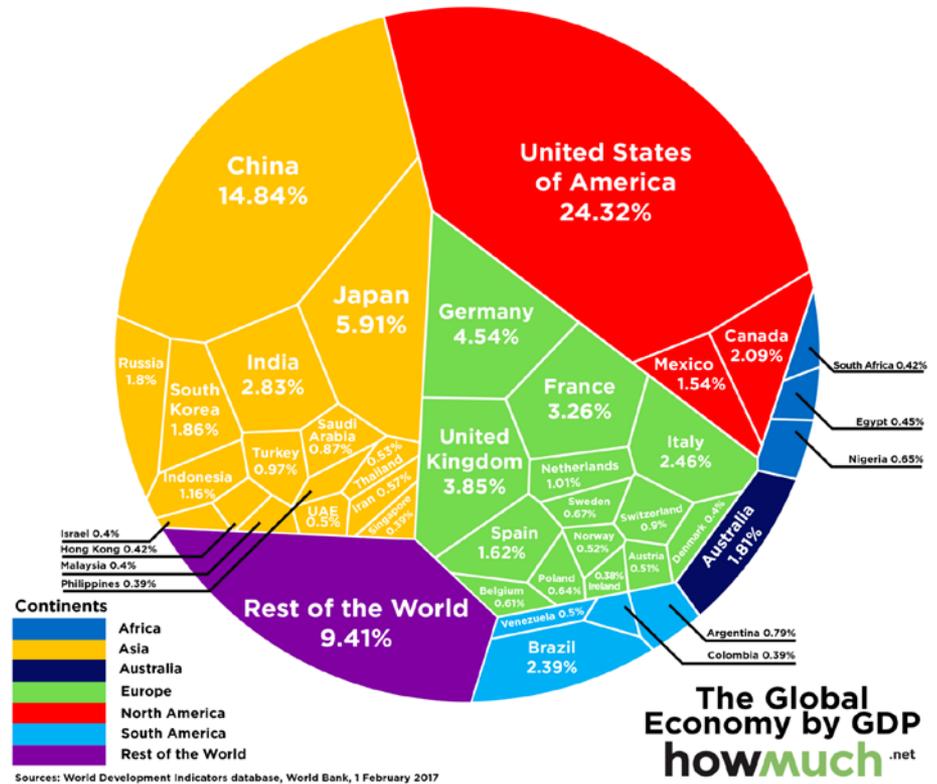
HSx MODULE: MAJOR ECONOMIES CONFRONT SHRINKING WORKFORCE



June 2017

MAJOR GLOBAL ECONOMIES...

- Asia, Europe, and North America make up 83.16 percent of world's Gross Domestic Product (GDP).
 - Asian bloc represents 33.84 percent of global GDP
 - North America makes up 27.95 percent
 - Europe 21.37 percent
- Difference between U.S. and China shrinking; China's economic growth was 6.7 percent in 2016 to 1.6 percent for the U.S.



... FACE A SHRINKING WORKFORCE

- Aging workforces
 - “Baby Boomer” generation aging out of productive workforce years.
 - Longer lifespan due to improvements in global health care and fighting infectious diseases.
 - Japan projected to see a 19 percent decrease in worker population within the next 25 years.
- Lower fertility rates in developed countries.
 - In more than 75 countries around the globe, fertility is well below the replacement level—2.1 children per woman—needed to sustain the workforce at its current levels.
 - Number of births dropped from 5.0 children per woman globally in 1955 to 2.7 in 2005; expected to be 2 by 2100.



U.S. LABOR FORCE PARTICIPATION

Reasons for the decline

- Retirement of the Baby Boom generation with longer life expectancy.
- Higher education.
- Individuals stop searching for jobs.



- Data includes workers ages 16 years and older.
- Grey shaded areas on the graph indicate times of recession.

(Data from Bureau of Labor Statistics)

IMPACT OF SHRINKING WORKFORCE

- Diminishing productivity
 - Numbers of participants in the workforce is decreasing, reducing output of goods and services.
 - Automation driving the need to shift and re-educate workers for new roles.
- Increased dependence on existing workforce
 - Smaller workforce means fewer people are contributing to funding services for those who are not working.
 - In Europe, in order to fund their social security system, 24 nations have payroll tax rates equaling or exceeding 20 percent of wages.
 - Increased dependence on workforce to produce same or increased output of goods and services to keep economies growing.

OTHER GLOBAL FACTORS IMPACTING ECONOMY

Unbalanced Population Growth

- Population boom in developing countries and stagnation in developed countries increases economic employment and urbanization pressures while also driving migration
 - Increase in urbanization (going to cities in search of employment)
 - Additional strain on governments, infrastructure
 - Risk of adding to slums, which increases risk of disease outbreak
 - Could increase migration if workers are not able to find employment or improve their standard of living

OTHER GLOBAL FACTORS IMPACTING ECONOMY

Slow Recovery from 2008-09 Recession

- The 2008-09 recession was by a wide margin the deepest economic downturn since the depression of the 1930s, but it has been made even worse by the failure to generate a strong recovery.
 - Unemployment shot up during the recession from 4.5 to 10 percent of the labor force.
 - As of May 2017, unemployment rate was at 4.3 percent.
- Global economy continues to struggle to resume growth.
 - Major economies slowly recover from the 2008 crisis.
 - Work through sharp increases in public-sector debt.
- Weak growth reduces poverty reduction gains.

OTHER GLOBAL FACTORS IMPACTING ECONOMY

Reaction to Globalization

- Increased protectionism in response to financial crises, the erosion of the middle class, and greater public awareness of income inequality.
 - Sentiment in the West that globalization costs are more significant than the benefits.
- Further steps toward globalizing economies/increasing free trade may be limited to more narrow issues or sets of partners.

ECONOMIC IMPLICATIONS

- Amount of money collected by government taxes is reduced due to fewer contributions from workers.
 - If governments raise taxes on workers to support aging population, could have negative impact on working age population.
 - Social movements, demonstrations could emerge.
- Fewer workers to produce goods and provide services.
 - Shrinking labor force needs to make up difference to support growing economy.
 - Slower economic growth.
- Need to find ways to boost the dropping productivity caused by a declining number of workers.

SOCIETAL AND POLITICAL IMPLICATIONS

- Need to expand medical services to improve overall population health.
 - If aging population is healthier and able to work longer, productivity might not decline as rapidly.
 - If aging population stays in the workforce longer, there is less dependence on younger workers to support social security (e.g., lower taxes).
- Poverty increases when economy growth stagnates.
 - Higher levels of poverty mean more reliance on government for support (may already be strained by lack of economic growth).
 - Disenfranchisement leads to political violence/illegal activities.

TECHNOLOGICAL IMPLICATIONS

- Higher demand for technological innovation to increase productivity as workforce numbers age and decline.
 - If workplaces that require physical labor are adapted to accommodate older workforce, productivity might not decline as rapidly.
 - More years working means less reliance on social security and/or pensions.
 - Less dependence on younger workforce to support aging population.

RESOURCES

The following resources provide further information on this topic:

- “Global Trends: Paradox of Progress,” National Intelligence Council, January 2017.
<https://www.dni.gov/files/images/globalTrends/documents/GT-Full-Report.pdf>
- Guarino, Arthur. “An aging global population and its economic implications,” Global Risk Insights, February 12, 2017.
<http://globalriskinsights.com/2017/02/aging-global-population-economic-implications/>
- IMF Direct. “Our population is ageing, and it’s impacting our productivity,” World Economic Forum. December 15, 2016.
<https://www.weforum.org/agenda/2016/12/an-ageing-population-is-impacting-our-productivity-heres-why>

Additional research materials and information sources regarding this topic can be found in the associated Literary & Scholastic Resource List.

Literary and Scholastic Resources – Major Economies Confront Shrinking Workforce

Date of information: May 2017

Overview: While not exhaustive, the following resources provide a roadmap to understanding primary drivers of change in the space, both through commercialization and national security. These resources provide a baseline of understanding, but as space capabilities continue to evolve, new data will become available and resource lists will require updates.

Module Resource Lists to Cross-Reference: Urbanization, Growth of Global Middle Class, Changing Role of the Individual, Artificial Intelligence & Machine Learning

Organizations:

- **Organization for Economic Co-operation and Development:** The OECD provides a forum in which governments can work together to share experiences and seek solutions to common problems. OECD works with governments to understand what drives economic, social and environmental change. They measure productivity and global flows of trade and investment. Analyzes and compares data to predict future trends. Set international standards on a wide range of topics, from agriculture and tax to the safety of chemicals. More information can be found at <http://www.oecd.org/>
- **World Economic Forum:** The World Economic Forum is a non-profit organization that examines the interrelationship between global security issues, the Fourth Industrial Revolution currently in play, and the challenges that require a global solution. They release regular reports and articles on a variety of topics to include the aging global population and its impact on productivity. More information can be found at www.weforum.org

Recent Publications and Journal Articles:

- **Our population is ageing, and it's impacting our productivity:** This article from IMF Direct and the World Economic Forum lays out the effects that an aging population—both because of longer life span and declining birth rates—have on the economy, governance, and society. There is an increased need for quality healthcare as people tend to have more medical issues as they age. There are fewer people producing goods and providing services, so productivity goes down. The article provides some ideas on how to address productivity losses, such as using automation to allow aging workers in labor-intensive jobs to continue working.
 - *Citation:* IMF Direct. “Our population is ageing, and it’s impacting our productivity,” World Economic Forum. December 15, 2016.
<https://www.weforum.org/agenda/2016/12/an-ageing-population-is-impacting-our-productivity-heres-why>
- **The United States Economy: Why such a Weak Recovery?:** This paper prepared by Brookings identifies reasons why the U.S. economy did not rebound from the 2008-09 financial crisis. The authors found that falling state and local spending, a lack of recovery in residential construction

due to the number of “underwater” mortgages and vacant housing units, and weak consumption due to real disposable income’s slow growth are the primary reasons for the slow recovery from the Great Recession.

- *Citation:* Baily, Martin Neil and Bosworth, Barry. 2013. The United States Economy: Why such a Weak Recovery? Nomura’s Foundation’s Macro Economy Research Conference. <https://www.brookings.edu/wp-content/uploads/2016/06/united-states-economy-why-weak-recovery-baily-bosworth.pdf>
- The Sustainable Demographic Dividend – What do Marriage & Fertility have to do with the Economy?: The Sustainable Demographic Dividend contends that the long-term fortunes of the modern economy rise and fall with the family. The report focuses on the key roles marriage and fertility play in sustaining long-term economic growth, the viability of the welfare state, the size and quality of the workforce, and the profitability of large sectors of the modern economy.
 - *Citation:* Wilcox, Bradford and Cavale, Carlos. The Sustainable Demographic Dividend – What do Marriage & Fertility have to do with the Economy? An International report from the Social Trends Institute. <http://sustaindemographicdividend.org/wp-content/uploads/2012/07/SDD-2011-Final.pdf>
- Global Trends: Paradox of Progress: Trends will converge at an unprecedented pace to make governing and cooperation harder and to change the nature of power—fundamentally altering the global landscape. Economic, technological and security trends, especially, will expand the number of states, organizations, and individuals able to act in consequential ways. Within states, political order will remain elusive and tensions high until societies and governments renegotiate their expectations of one another. Between states, the post-Cold War, unipolar moment has passed and the post-1945 rules based international order may be fading too. Some major powers and regional aggressors will seek to assert interests through force but will find results fleeting as they discover traditional, material forms of power less able to secure and sustain outcomes in a context of proliferating veto players.
 - *Citation:* National Intelligence Council. Global Trends Paradox of Progress. 2017. NIC 2017-001. <https://www.dni.gov/files/images/globalTrends/documents/GT-Full-Report.pdf>
- Engaging and Integrating a Global Workforce: The globalization of today’s workforce has not developed on its own, but rather through a set of interlinked forces. The greater openness of economies, the never-ending push by firms to support the bottom line via resource- and market-seeking efforts, the growth of labor migration and technological advancements have all played a role in globalizing the deployment of human capital. Understanding these factors and their underlying drivers is critical not only to understanding the current make-up of the global workforce, but also its future trajectory.
 - *Citation:* “The Evolving HR Function and Role.” *Global Trends in Human Resource Management*. February 2015. SHRM Foundation. <http://whitepaper-admin.eiu.com/futurehrtrends/wp-content/uploads/sites/2/2015/03/Engaging-and-Integrating-a-Global-Workforce-June2015.pdf>

Other Resources:

- Global Economic Imbalances Threaten Sustainable Development for All, Second Committee Hears as General Debate Begins: The world was facing an unprecedented array of global risks and negative trends from the refugee crisis and climate change to drug-resistant antibiotics and political upheaval, a renowned economist told the Second Committee (Economic and Financial) as it began its general debate. *Citation*: “Global Economic Imbalances Threaten Sustainable Development for All, Second Committee Hears as General Debate Begins | Meetings Coverage and Press Releases.” *United Nations*. October 3, 2016. <https://www.un.org/press/en/2016/gaef3448.doc.htm>

- An aging population and its economic implications: A phenomenon deeply troubling economists and policymakers is the aging global population. This is a major concern since it has numerous global economic and financial implications affecting economic growth, health care costs, and social support systems.
 - *Citation*: “An aging global population and its economic implications | GRI.” *Global Risk Insights*. February 12, 2017. Web. <http://globalriskinsights.com/2017/02/aging-global-population-economic-implications/>