



PBSS
Pensions & Social Security



Ideas to Mitigate the Global Pension Crisis

Conférence Internationale
Conseil National Economique
Social et Environnemental

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Oct 21, 2021

About the speaker

Abraham Hernández



- Past chairman of the Pension, Benefits and Social Security Section (PBBS) of the International Actuarial Association (IAA), member of the Strategic Planning Committee and Nominations Committee of the IAA.
 - President and co-founder of VITALIS®, a Mexican company that provides consulting and services for private pension plans.
 - Co-founder of Miles for Retirement, a Mexican company that allows people to save for retirement through consumption.
 - He serves on the board and investments committee of public and private companies and large pension funds.
 - Abraham actively participates in social causes related to diminishing poverty for the elderly, fighting labor informality, and promoting socially responsible investments.
 - PhD Candidate in Applied Mathematics on Economics and Management at the University of Lisbon.
 - Proud father of ten children,
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Overview



**SCALE OF THE
GLOBAL CRISIS
IN PENSION
FUNDING**



**CAUSES AND THE
ROLE OF
CHANGING
DEMOGRAPHICS**



**SOME ACTUARIAL
CREATIVE IDEAS
TO ADDRESS THE
CRISIS**

The pension crisis: a global issue



Trying to quantify the global pension crisis



ADEQUACY

Benefits provided, system design, savings and asset allocation

SUSTAINABILITY

Level of funding, demography, labor force participation, government debt

INTEGRITY

Regulation, governance, communication, costs, protection

Overview



SCALE OF THE
GLOBAL CRISIS
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FUNDING

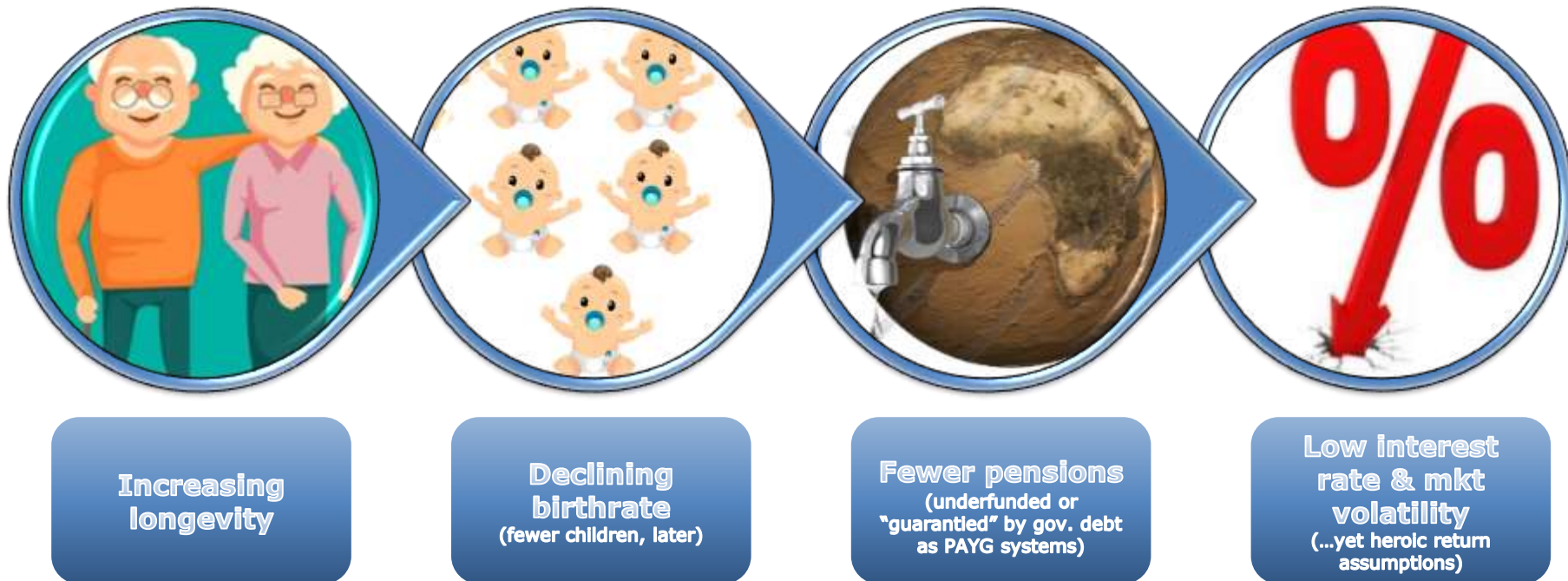


**CAUSES AND THE
ROLE OF
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SOME ACTUARIAL
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Causes

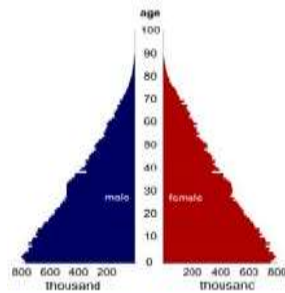


Population Evolution

~1900

Avg. Age: N/A

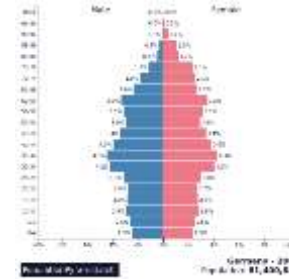
Dep. Ratio (65+): N/A



2000

Avg. Age: 41.0

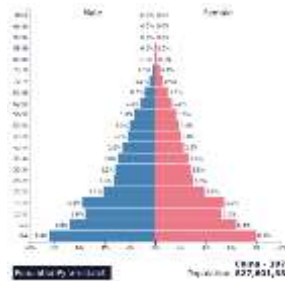
Dep. Ratio (65+): 29.1%



1970

Avg. Age: 24.5

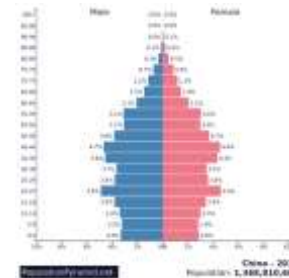
Dep. Ratio (65+): 10.2%

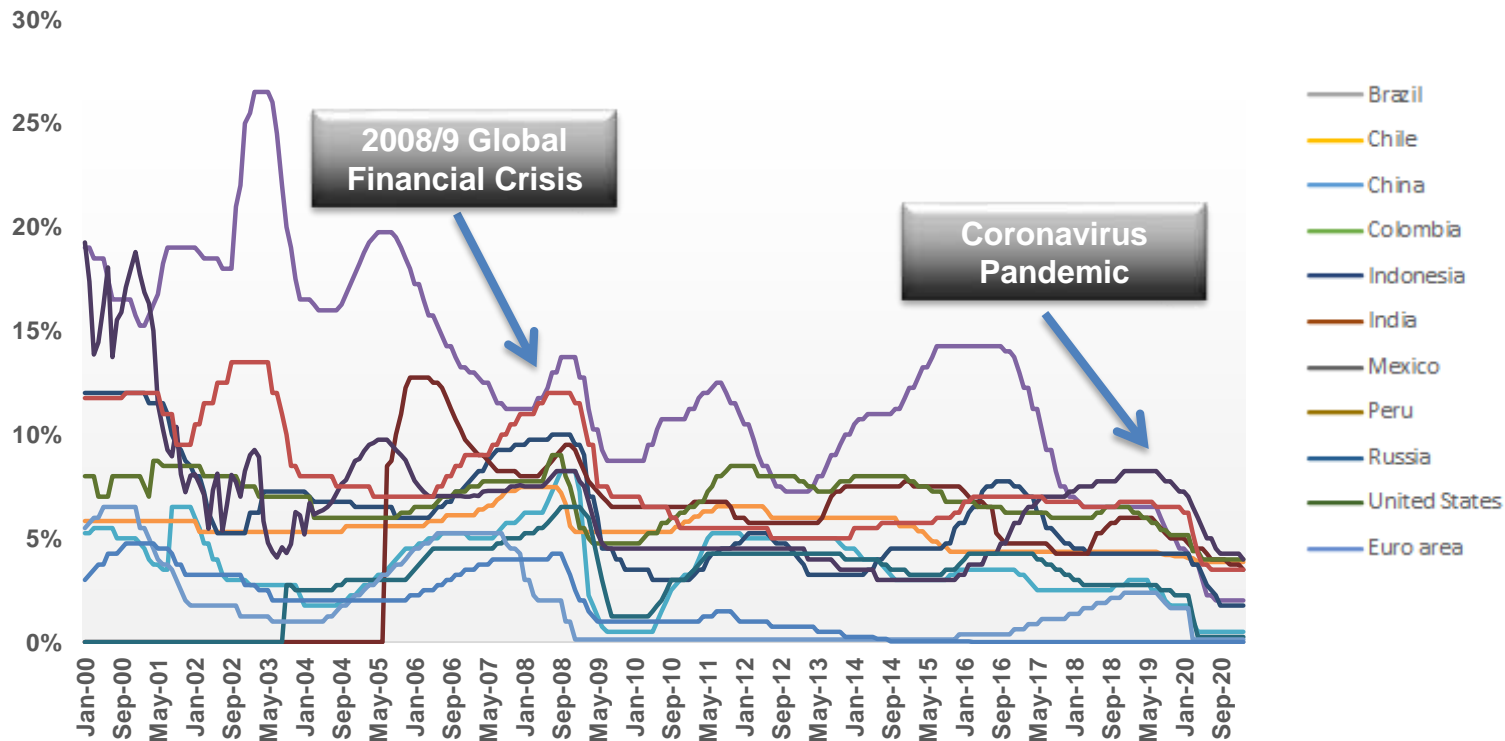


2010

Avg. Age: 35.2

Dep. Ratio (65+): 14.3%





Causes



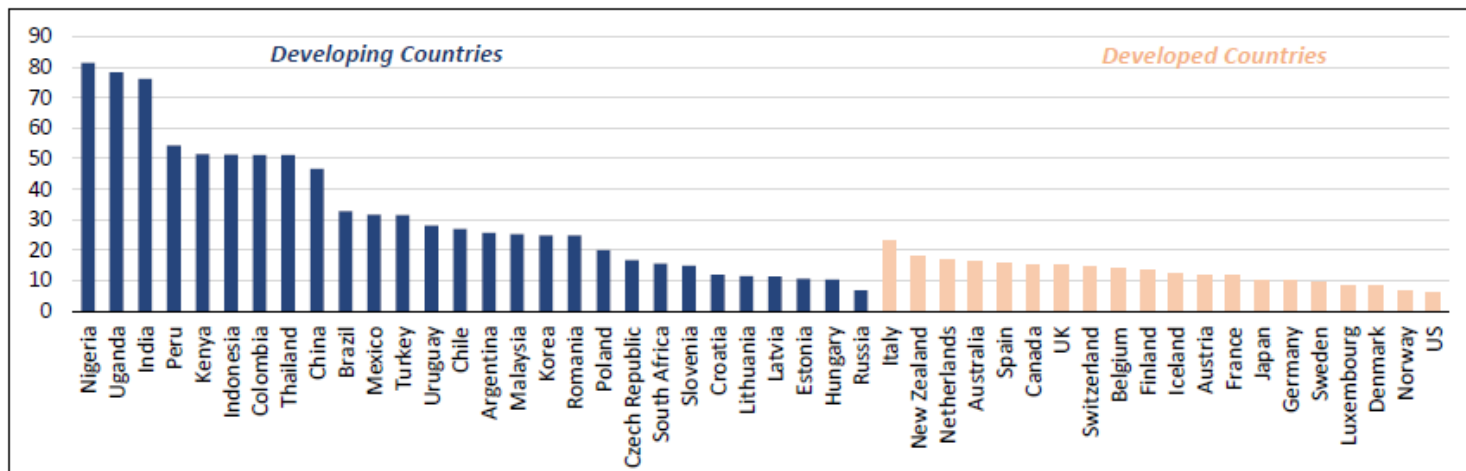
**Atypical
workers**
(migrants, Uber etc)

**Informal
Economies**

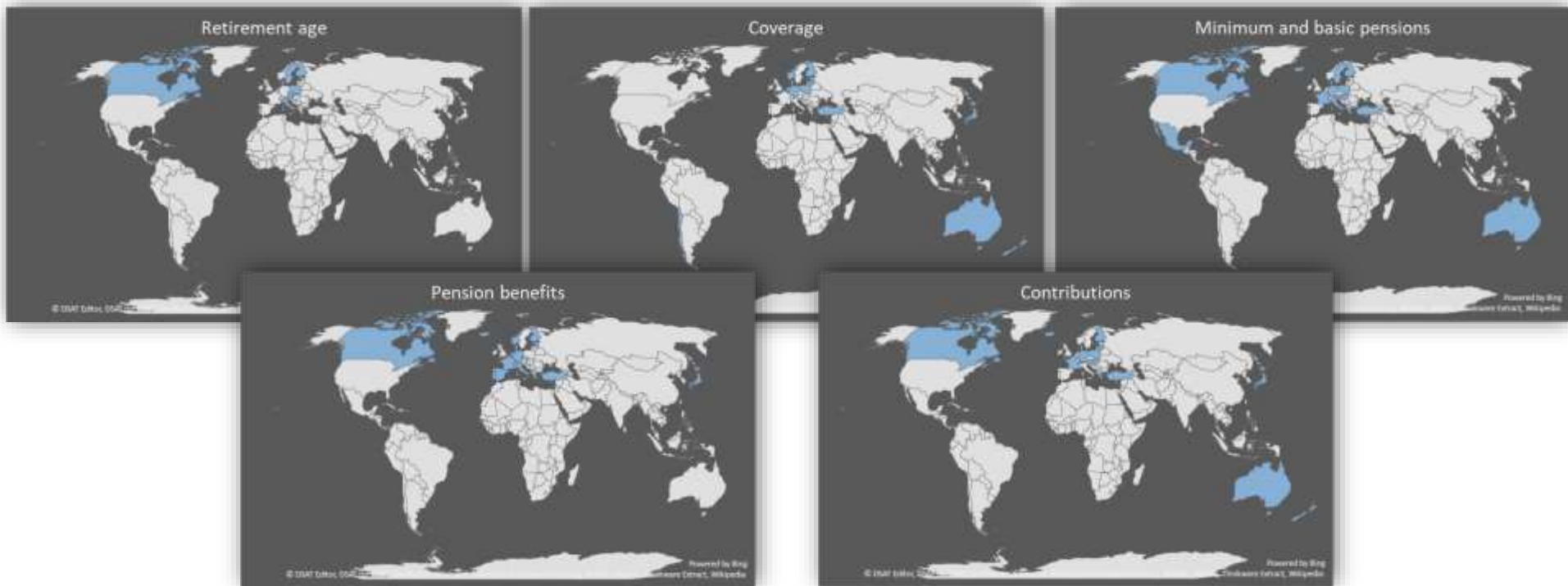
**Low
participation**

**Lack of
knowledge
(interest)**

Causes - Self-employment as a % of total employment



Changes in pension system in World



Overview



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**SOME ACTUARIAL
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CRISIS**

Compilation of countries' proposals to help solve the crisis

🇨🇦 Helping middle class saving for retirement

Addressing pension undersaving for the middle class

- Issue: 60% of employees are not covered by occupational pension plans
- Solution: modest and fully-funded enhancement of the employment related DB public second pillar
- Additional contributions are invested on the financial market

Sources: Social Security Committee, IAA

🇮🇹 Miles for Retirement

The first tool to promote smart consumption

- Saving through consumption
- The general idea is “to flip behavioral challenges into behavioral solutions”
- Connects providers of financial services, retailers and consumers

Sources: Saving for Tomorrow, tomorrow; Miles for Retirement

🇩🇪 Sustainability factor

Adverse development of old-age dep. ratio is offset by an adj. to accruing pensions

- Sustainability factor = % change to old-age dependency ratio
- $$= \frac{\#of\ pensioners\ in\ year_{t-1}}{\#of\ active\ contributors\ in\ year_{t-1}} * \frac{\#of\ active\ contributors\ in\ year_t}{\#of\ pensioners\ in\ year_t}$$

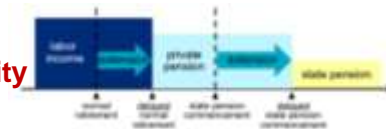
Sources: Daykin, Chris. Workshop on pensions and social security. Actuarial Association of Europe

🇩🇪 Sequencing DC and Social Security

Vertical Combination

- Require that first “X” years of retirement be funded from JIDC/JCDC (akin to US IRA/401k)
- Delay start of social security to $year_{t+1}$
- Some will die first, all will receive “X” years fewer benefits, hence social security benefit level can be sustained even as longevity and dep. ratio increase

Sources: <http://www.actuaries.org/oslo2015/papers/PBSS-Kawaguchi.pdf>



Compilation of countries' proposals to help solve the crisis

Automatic balancing mechanism

Life expectancy coefficient and automatic adj. in retirement age

- If life expectancy increases, monthly pensions are decreased and if life expectancy decreases, monthly pensions are increased
- Increase the effective retirement age and lengthen working careers by introducing also a link of the general retirement age to life expectancy.
- Then, link between life expectancy and the general retirement age was also taken into account.

Sources: http://actuaries.org/cancun2017/Papers/27.%20Mikko%20Sankala_Paper.pdf

Investing pension funds in forestry

Reforestation and forestry

- Mitigating Social Security crisis through reforestation and forestry investment programs
- The project is based on financing plantations of Teak, Bamboo and Pine Radiata; depending on the retirement time horizon

Sources: Ibarra, Rodrigo. Investment of Pension Funds in Reforestation and Forestry Projects: The Ecuatorian Case. PBSS Cancun Colloquium 2017

Voluntary tax free and digital savings

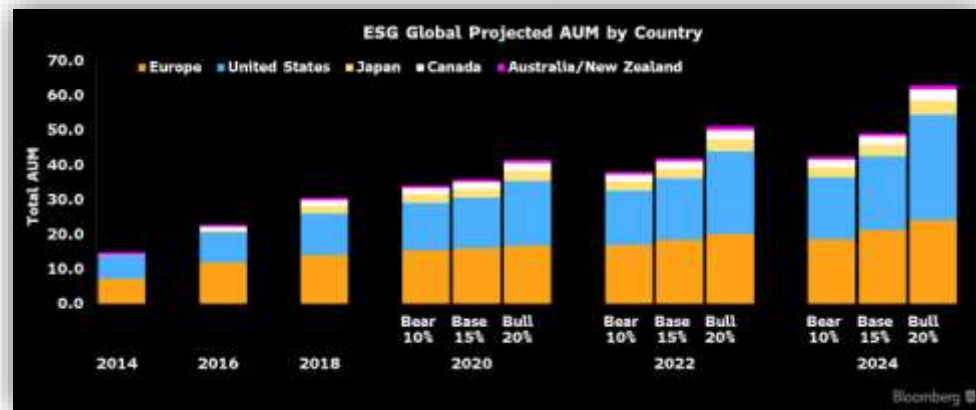
Mbao Pension Scheme and Mobile Phone saving systems

- Mbao Pension Plan is a voluntarily saving plan which matures at the time of retirement either from a formal or an informal employment. If a member continue saving up to the age of 65 years, no tax is levied on the saving
- Kenya is considering introducing mobile-based pension schemes to boost the country's retirement coverage. The digital pensions schemes will allow for use of mobile payment to make monthly contributions toward retirement

Sources: Retirement Benefits Authority (RBA); http://www.xinhuanet.com/english/2019-03/01/c_137861241.htm



Bitcoins vs Sustainable Funds



Bitcoin USD (BTC-USD)
CCC - CoinMarketCap. Currency in USD

ESG projected global AUM USD by Bloomberg
ESG assets may hit \$53 trillion by 2025, a third of global AUM



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From a 3-pillar to a multi-pillar system



Universal Pension

Social Security

Private Pensions

**Retirement
Insurance**

Reverse Mortgages

**Save Through
Consumption**

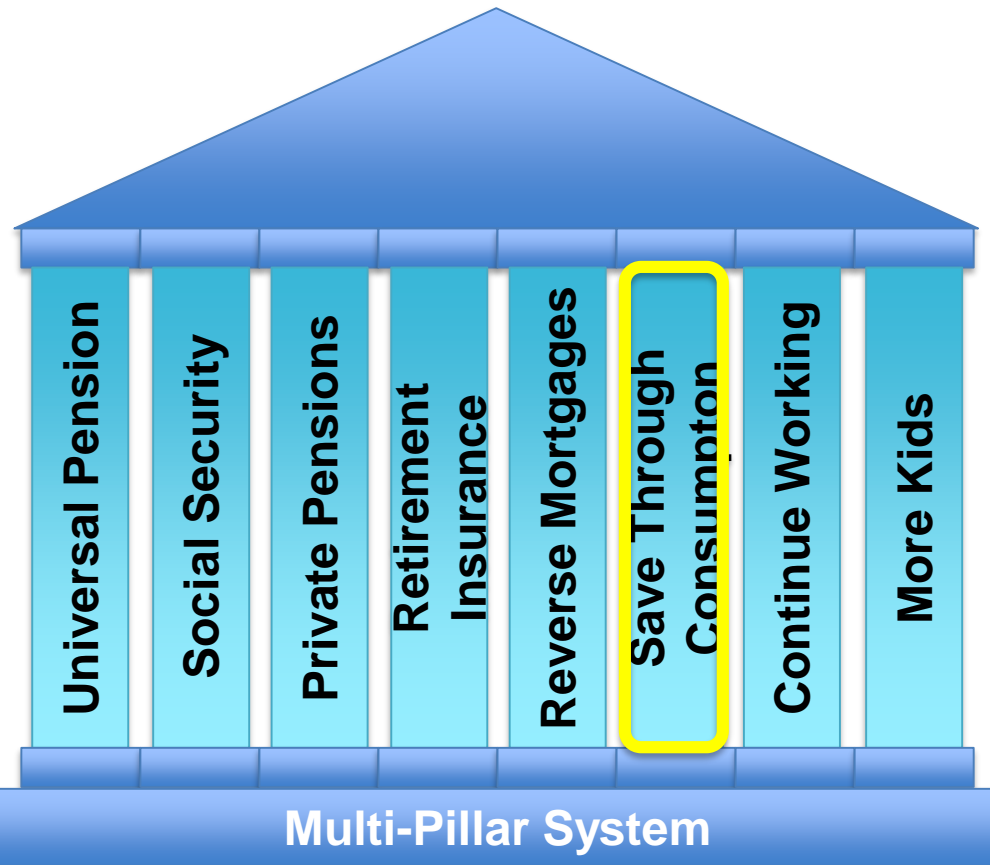
Continue Working

More Kids

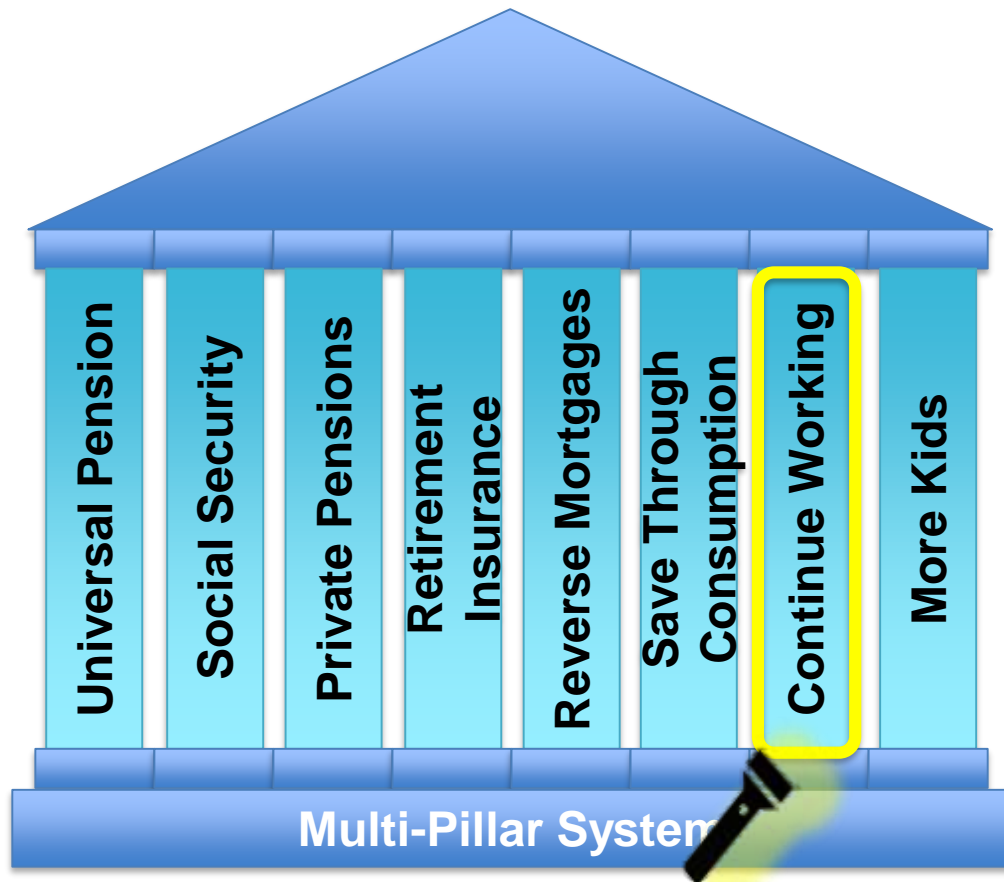
Multi-Pillar System



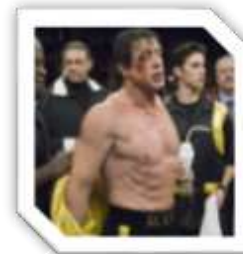
From a 3-pillar to a multi-pillar system



From a 3-pillar to a multi-pillar system



1976

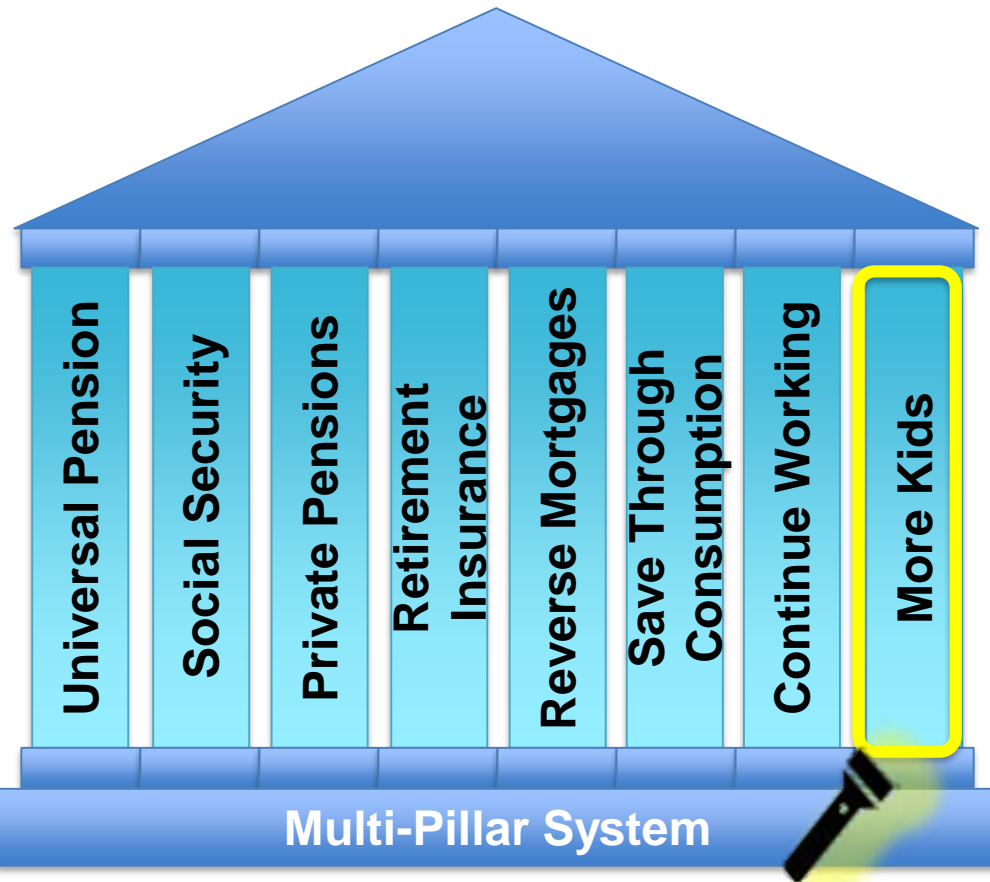


30 years
later



2019

From a 3-pillar to a multi-pillar system



Thank you for your attention

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