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**The New Indonesian
National Social Security Law**

Yves Guérard
Secretary General
International Actuarial Association



The New Indonesian Law: SJSN

- ◆ **Adopted on September 20th, 2004 by the Parliament (DPR)**
 - **Signed and promulgated by the President as Law 40/2004 (“Law 40”) on October 19th, 2004**

- ◆ **SJSN Stands for**
 - **Sistem Jaminan Sosial Nasional = National Social Security System**

- ◆ **A challenge for the country and for the actuarial profession**

- ◆ **Focus on actuarial input that can improve the outcomes**



The Challenge: An Affordable System 1

- ◆ Law 40 contains 53 articles but is mostly a framework to be completed by about 30 President or GOI regulations
- ◆ Unclear expectations created by many generic references to the Constitution and to *“humanity”*, *“social justice”*, *“decent life”* and basic principles such as redistribution, non-profit, openness, prudence, accountability, etc...



The Challenge: An Affordable System 2

- ◆ **Article 3 states:** *"The National Social Security System has the objective to provide assurance of the fulfillment of basic needs of life for every member and or his/her family"*

- ◆ **Mandates universal participation and compulsory contributions but open ended on amounts and benefits beyond generic references**

- ◆ **All members of the labor force and their Employers must contribute to 5 programs in yet to be determined % of wages**
 - **Labor force comprises formal and informal including all Government employees – civil or military**
 - **Nominal amounts of contribution for non-wage earners and assistance recipients**



- ◆ **Government to pay contributions on behalf of assistance recipients (poor and financially disabled)**
- ◆ **Thus combines a social assistance component within social security system**

Health

- ◆ **Health-promoting, preventive, curative and rehabilitating services including medicines and consumables**
- ◆ **6-month extension after termination of employment; afterwards GOI to pay if jobless and financially disabled**
- ◆ **Contributions shared equally by Workers and Employers**
- ◆ **Coverage of retirees undefined except that Workers can enroll parents at a cost**



Workers Compensation

- ◆ Accidents and diseases caused by work environment
- ◆ Extends to travel between home and work
- ◆ Provides for premium by category of risks
- ◆ Nominal contribution to be set for non-wage earners, implying coverage outside of employer-employee relationship
- ◆ Segregation of costs from health program unclear
- ◆ Only Employers contribute



Old Age Savings Benefit

- ◆ **Lump sum payable at death, retirement or disability; partial withdrawal allowed after 10 years of participation**
 - No option for installments or annuitization
- ◆ **Benefits are accumulated contributions (DC) but may be on insurance principle (DB?)**
- ◆ **Lump sum is on top of severance and service pays under Labor Law 13 worth about 8% of wages**
- ◆ **Both Workers and Employers shall contribute**



Death Benefit

- ◆ **Cash amount to be paid within 3 days of claim approval**
- ◆ **Amount of death benefit to be a certain nominal amount but contributions in % of wages**
- ◆ **Only Employers contribute**



- ◆ **Monthly Defined Benefit pension for life from retirement age or prior total permanent disability, sufficient to maintain decent living standards**
- ◆ **Survivors' pension for spouse until remarriage and children until age 23, get a job or marry; also to parents**
- ◆ **Refund of accumulated contributions to participants without 15 years of contributions**



- ◆ **Labor Minister ruling of 29 May 1995 stipulates maximum age 55 for eligibility to Pension**
- ◆ **Contributions shared equally by Workers and Employers**

Structure

- ◆ **A two level structure:**
 - **A National Social Security Council (DJSN) advising the President**
 - **A Social Security Administering Body (BPJS)**
 - ◆ **Also managing the Social Security Fund (DJS)**

- ◆ **Council to be supported by a Secretariat**
 - **May invite or require inputs and experts' assistance**

- ◆ **No clear responsibility for coordination and optimization of all programs under the Law or other laws, such as Labor Law**



The Council (DJSN)

- ◆ **The 15-member quadripartite Council is appointed by and responsible to the President but nominated by Minister responsible for social welfare**
- ◆ **Mandated to formulate general policies and “synchronize” the administration of the System**
- ◆ **Monitor and assess the administration but role is only advisory, no enforcement powers**
- ◆ **Three sets of duties:**
 - **Analyze and conduct research**
 - **Propose investment policies for the Fund (DJS)**
 - **Propose a budget to cover the assistance contribution payable by the GOI plus operational expenses**



The Administrator (BPJS)

1

- ◆ Law 40 creates an oligopoly of 4 existing State Owned Enterprises (*PT Jamsostek, PT Taspen, PT Askes and PT Asabri*) and appoints them as the sole Administrators of the programs
 - Recent decision of Constitutional Court has declared article 5 unconstitutional, thus monopoly powers are not binding but full consequences still unclear for health and other programs

- ◆ The Fund shall be managed optimally with regard to liquidity, solvability, prudence, security and adequate results



- ◆ **Government also responsible for the financial health of Administrators as payor of last resort**
- ◆ **Technical reserves according to normal and commonly applied standards of actuarial practice; bookkeeping in accordance with valid accounting standards**
- ◆ **No cross-subsidy between programs but no segregation of Fund assets from Administrator assets**



Structural Issues

- ◆ Programs are to be managed “*nationally*” but not clear if uniform treatment across regions or simply centrally defined rules producing differentiated results
- ◆ Further stipulations and provisions to be filled in by Presidential or GOI regulations
- ◆ Has to be reconciled with the appointment of 4 Administrators, each potentially managing 5 Funds
- ◆ Programs managed by the Administrators on a non-profit basis but “non-profit” does not necessarily mean “non-taxable”



- ◆ **Emerging best practice is to unlink assets and benefits to better optimize each component and improve the chronic underperformance of public assets**
- ◆ **This Law creates monopolies that pre-empt the creation of specialized entities to manage assets but fragments the responsibilities for benefits administration**

◆ **Asset Management**

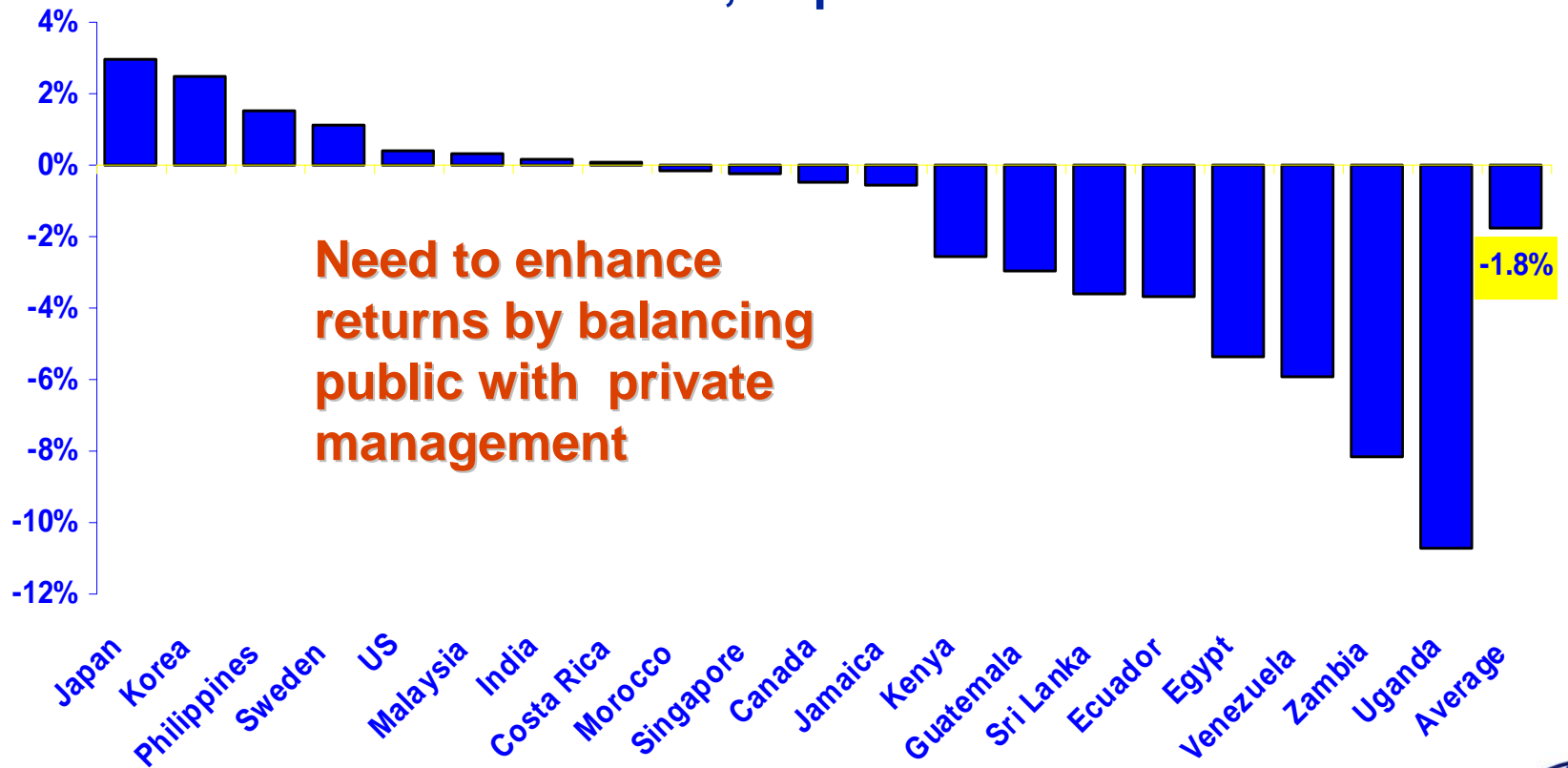
- High risk activity
- Requires strong governance structure
- Mostly professional personnel
- IT support for sophisticated market evaluation and online transactions
- Trend to outsource – totally or partially

◆ **Benefit Administration**

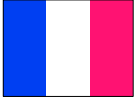












- Transaction intensive
- Lower risk operations
- Mostly clerical personnel
- IT support for database and processes
- Direct contact with participants

Public Sectors Returns vs. Bank Deposit Rates

Robert Pallacios, Managing Public Pension Reserves
World Bank, September 24th 2001



Pension Assets As Percentage of GDP

	France	~1%		Japan	19%
	Germany	3%		UK	66%
	Bolivia	7%		USA	63%
	Canada	48%		Switzerland	114%
	Chile	54%		Netherlands	105%
	Malaysia	57%		Singapore	65%
	Indonesia is about 3.6%				

Why Indonesia So Low?

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- ◆ **Contractual savings (both pension and Insurance) low for a combination of cultural and structural reasons**

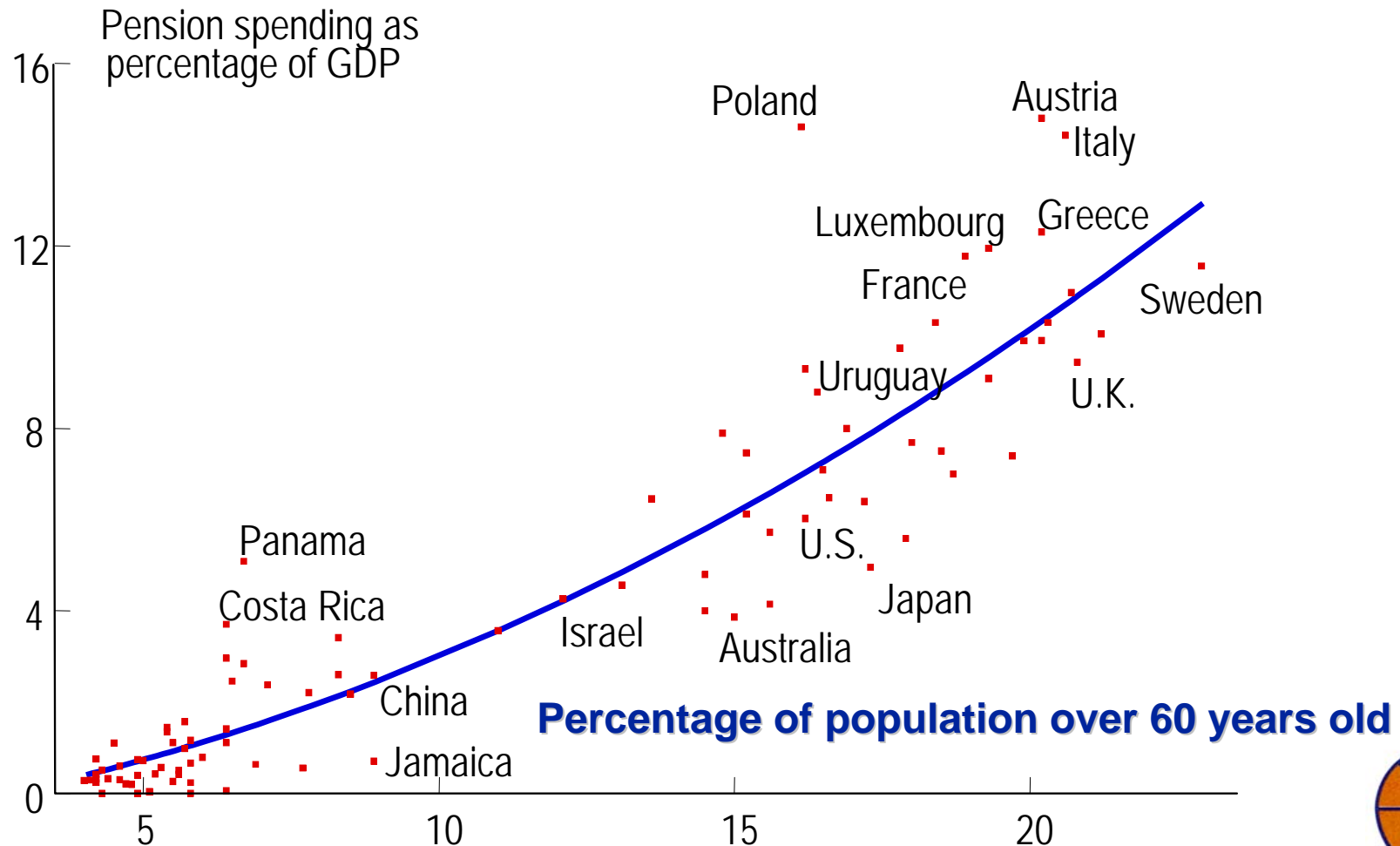
- ◆ **Structural factors working against the accumulation of long term pension assets:**
 - **No real existing social security system**
 - ◆ **No Pillar I public benefits**
 - ◆ ***PT Jamsostek* pre-empts a Pillar II slot with a commercial DC achieves low coverage and pays mostly lump sums at termination**



- ◆ **Structural factors working against the accumulation of long term pension assets:**
 - Only about 300 occupational DB or DC plans and 20 complementary Financial Institutions Pension Plans in the private sector plus the large plans covering Government employees
 - Unfunded mandatory severance benefits under Labor Law are strong competition for voluntary pension contributions and cannot easily be integrated
 - Insurance sector cannot directly provide pension insurance except via Financial Institution pension plan
 - Tax treatment is EET, that is best practice, but with bureaucratic & practical difficulties; no level playing field for life annuities or structured settlement options



Relationship Between % Of The Population Over 60 Years Old And Public Pension Spending



Life Expectancy At Birth

LE at Birth Selected Countries 1950 - 1998						
Country	Male			Female		
	1950	1998	Gain	1950	1998	Gain
Austria	62.0	74.1	12.1	67.0	80.7	13.7
Belgium	62.1	74.1	12.0	67.4	80.7	13.3
Czech Republic	60.9	70.8	9.9	65.5	77.7	12.2
France	63.7	74.6	10.9	69.4	82.6	13.2
Germany	64.6	73.8	9.2	68.5	80.3	11.8
Greece	63.4	75.8	12.4	66.7	81.0	14.3
Italy	63.7	75.3	11.6	67.2	81.7	14.5
United Kingdom	66.2	74.8	8.6	71.1	80.1	9.0
Australia	66.7	77.0	10.3	71.8	83.0	11.2
United States	66.0	72.9	6.9	71.7	83.3	11.6
Average	63.9	74.3	10.4	68.6	81.1	12.5
LE Gain per Year	2.6 months			3.1 months		



Needs For Diversification

1

- ◆ **Law 40 is based on a monopolistic approach that does not make room for the private sector**
- ◆ **World wide experience indicates that diversification of the sources of post-retirement income is essential to increase robustness and resilience as demographic evolution increases the burden on the state**



- ◆ **Some burden needs to be shifted to the private sector which thus must gradually build up additional capacity to provide an increasing proportion of retirees with consumers goods and services**
- ◆ **Complementary private schemes, personal or employer based, allows a better fit between individual needs and preferences and hence contribute to increase the efficiency of the system as a whole**

A Still Open Process

- ◆ **No legacy of large prior entitlements and lack of detailed stipulations in Law 40 creates an opportunity for creative implementation**
- ◆ **The turf battles and the priority given to the Health program and the social assistance component leave time and space open for the consideration of many options**
- ◆ **Since there was little or no actuarial input to the drafting of Law 40, actuaries benefit from a clean start in providing input even though Law 40 does not mandate costs or feasibility studies prior to setting the programs parameters**



A 3-Phase Process

1

◆ **Commitment-building (Current phase)**

- Likely the longest, must be quite inclusive and transparent
- Need to share with wider forum and key players a maximum of information about facts/costs and options
- Avoid reaching a quick but artificial agreement; wide consensus and buy-in is essential

◆ **Coalition-building**

- Starts with the exposure of a concrete reform concept
- Normally requires the emergence of a champion ready to link his/her political fate with the cause
- Need the support of strong long term projections and sensitivity/risks analysis



◆ Implementation

- Despite tensions between political readiness and administrative capacity continued active political support must continue throughout implementation for any reform to be successful
- Requires a firm commitment to implement but only when administrative preparation sufficiently advanced to ensure the success of the system

Health First, But Not Last!

- ◆ **The priority given to the Health program is generally supported**
- ◆ **A healthier work force will generate greater margins in the GNP to catch-up on the accumulation of long term retirement savings**
- ◆ **But health coverage presents its own challenges**
 - **Aging population, technological innovations**
 - **Spending the money wisely more difficult than collecting contributions**
- ◆ **Health Section recently created by the IAA facilitates access to actuarial resources and expertise**



The Remaining Challenges

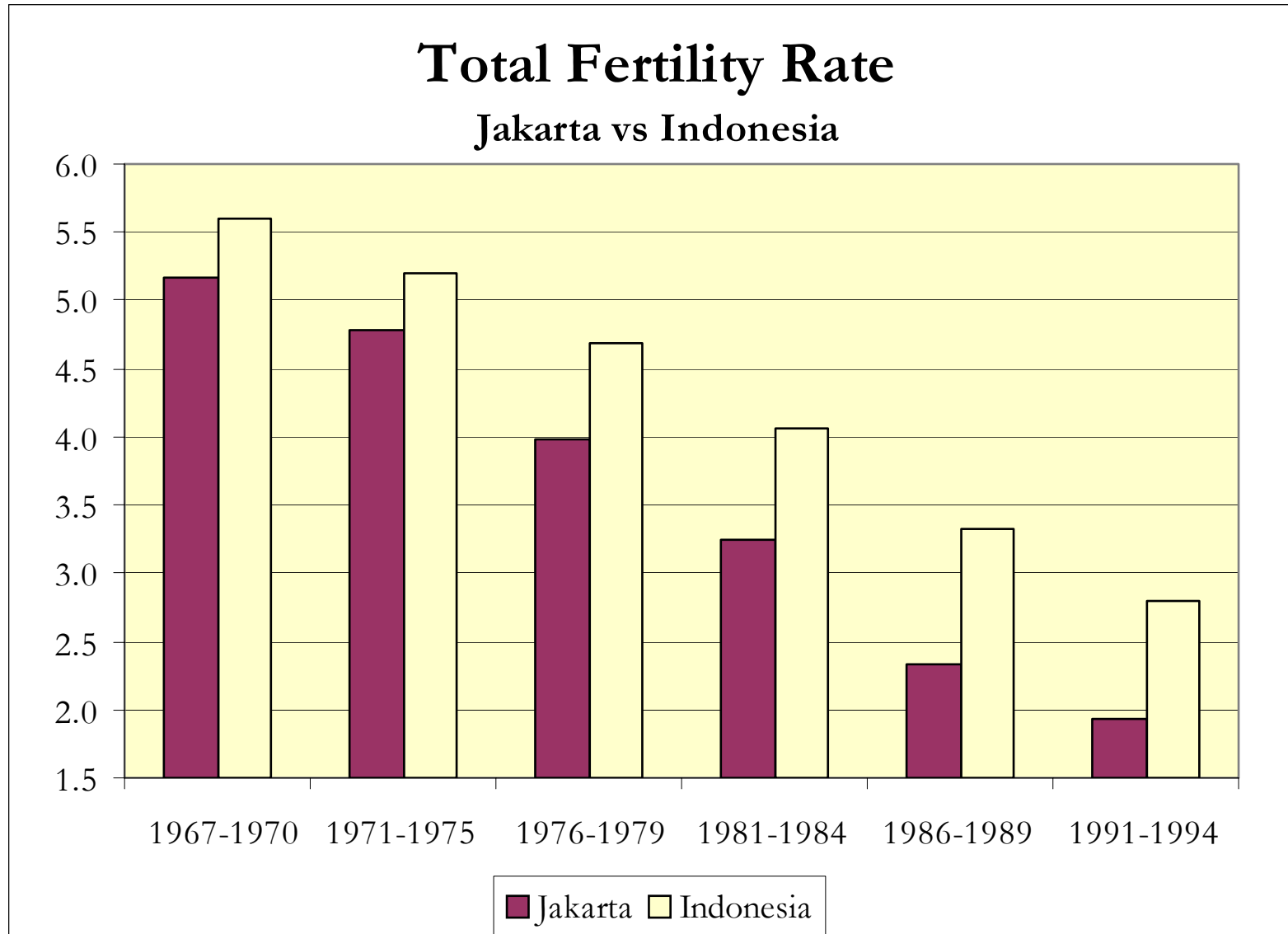
- ◆ **The Government has enrolled over 35 million poor and financially distressed at the bottom end of the labor force; 12 million workers in the formal labor force are now registered in pre-existing plans**
- ◆ **About 20 million of the formal labor force and over 40 million in the informal labor force will be waiting for coverage**
- ◆ **In parallel Indonesia is experiencing rapid demographic changes due to a dramatic drop in fertility combined with the global increase in longevity**
 - **Dependency ratio of 17% at 55 expected to reach 40% within 35 to 45 years unless the labor policy is updated**



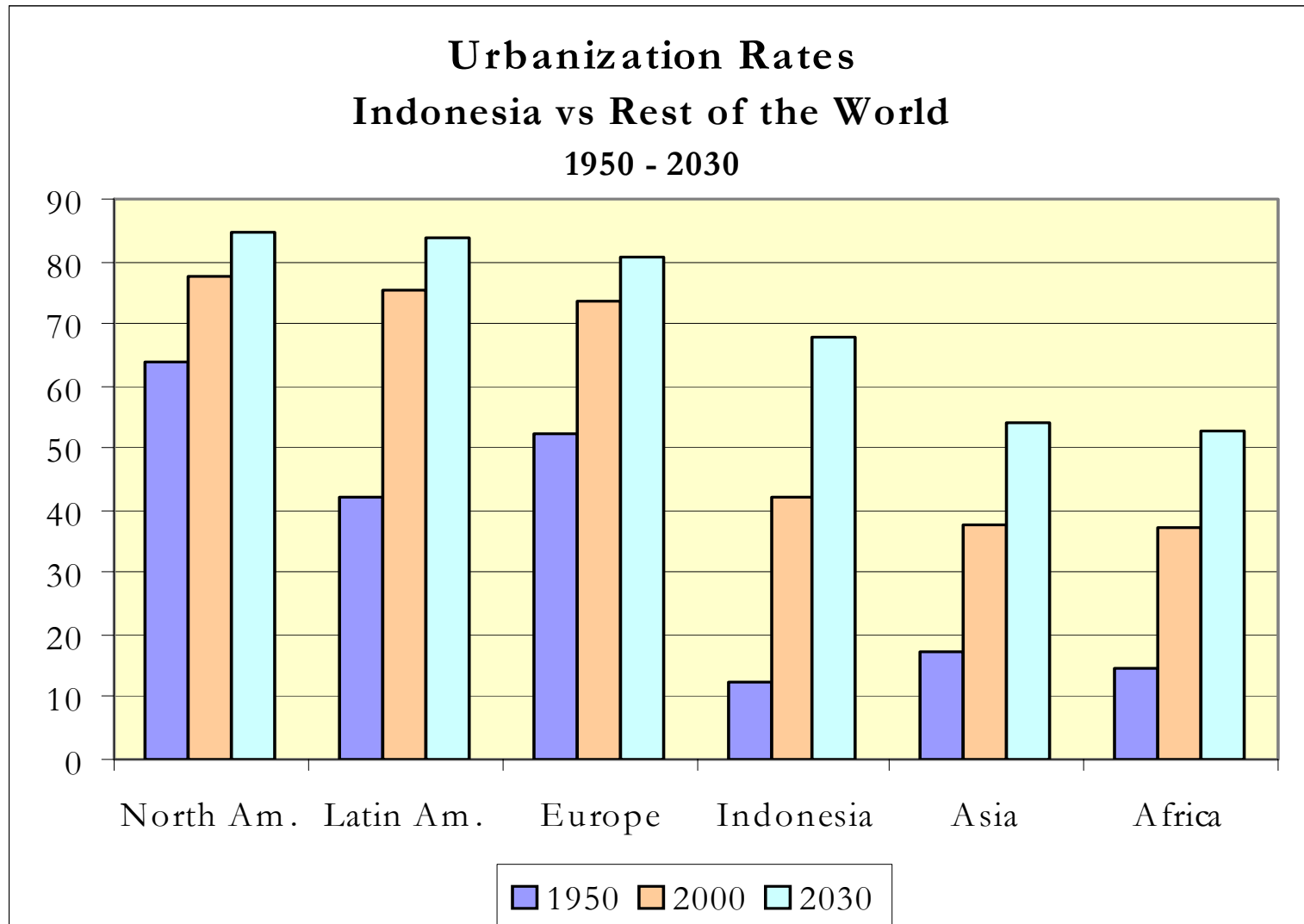
Indonesia Fertility 1950-2000



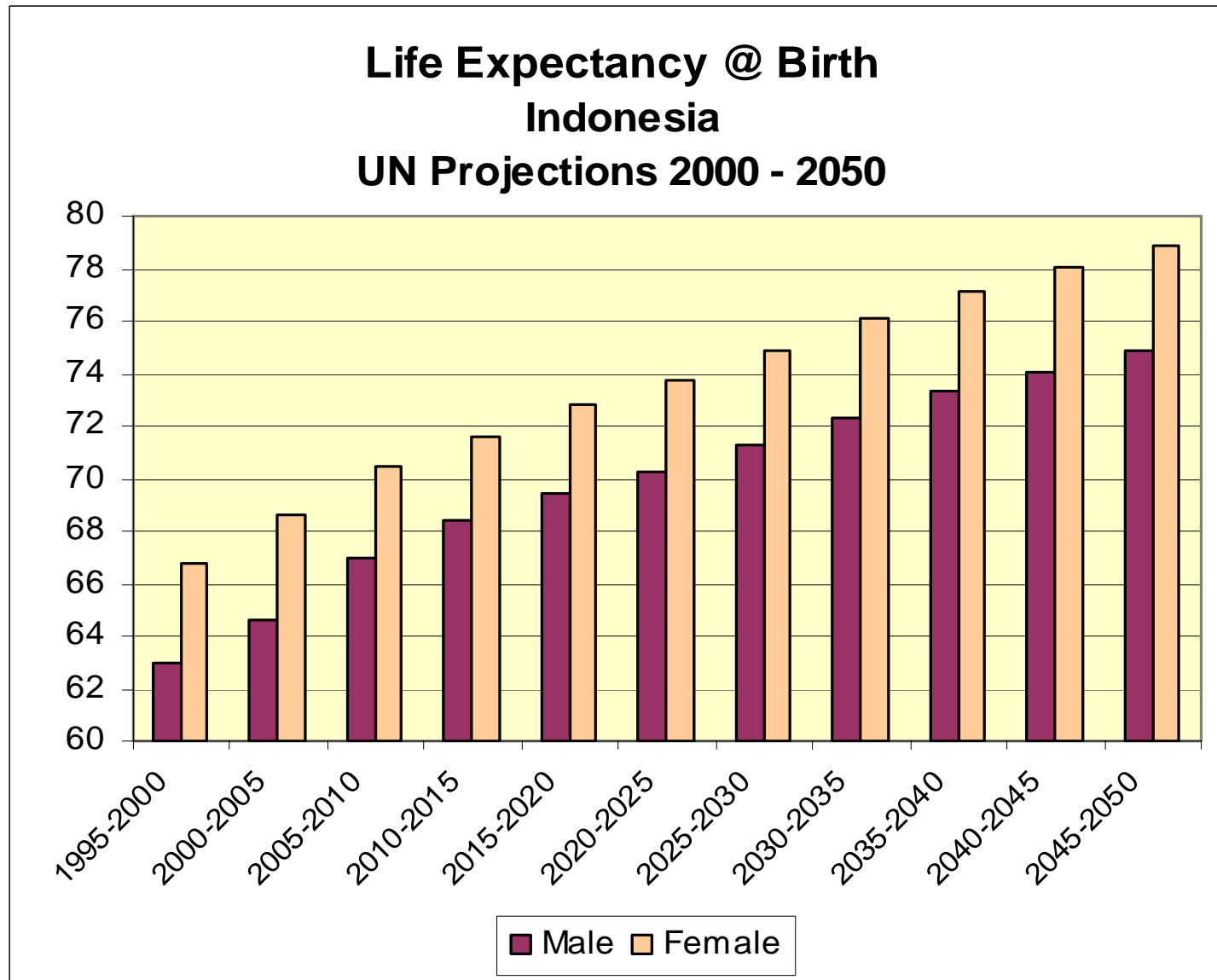
Fertility – Jakarta vs. Indonesia



Indonesia vs. World – UN Urbanization Projections



Indonesia LE @ Birth 2000-2050



The Need For Modelling

- ◆ **Projections can demonstrate the sensitivity of the system to various combinations of factors**
 - Mortality improvements
 - Fertility patterns
 - Retirement age policy
 - Wages or prices increases
 - Eligibility to survivor or disability benefits
 - Return on invested assets
 - Participation to labor force
 - Administration costs
 - Lump sum versus life income



The Need For Transparency

- ◆ **Important to build a critical mass of informed stakeholders that can independently nourish a democratic process for debating policy decisions that will shape the country future for a long time**



Impact Studies

- ◆ **Output of projections essential input to downstream impact studies:**
 - Labor cost
 - Competitively
 - Job creation
 - Fiscal condition
 - Monetary policy
 - Financial markets

- ◆ **Studies need also to cover the impact of other domestic factors as well as consequences of globalization and trade liberalization**



- ◆ **The need for modelling and impact studies is compounded by**
 - **Disparities in the public and private sectors compensation structure**
 - **Specific aspects of existing programs like DB Savings and Endowment program for Civil Servants financed on a DC basis**
 - **Dual stipulation in Law 40: a DC Savings program, paying only lump sums and a DB life pension program**
 - **The existence of costly severance and service pays that generate no retirement income**
 - ◆ **An option could be to convert them into post-retirement health coverage?**

A Complex Puzzle

2

- ◆ Indonesian payrolls already support a high burden that does not generate retirement income because it is payable in lump sums and often before retirement



Tax Treatment

- ◆ **The tax treatment of contributions, return on assets and benefits is not spelled out in Law 40**
- ◆ **There are also transitional issues for accumulated assets and benefits currently in the hands of the appointed Administrators**
- ◆ **In itself it will be a major application for the modelling exercise**
- ◆ **These policy decisions will have an impact on the affordability and the adequacy of the system but even more on the Government fiscal balance**

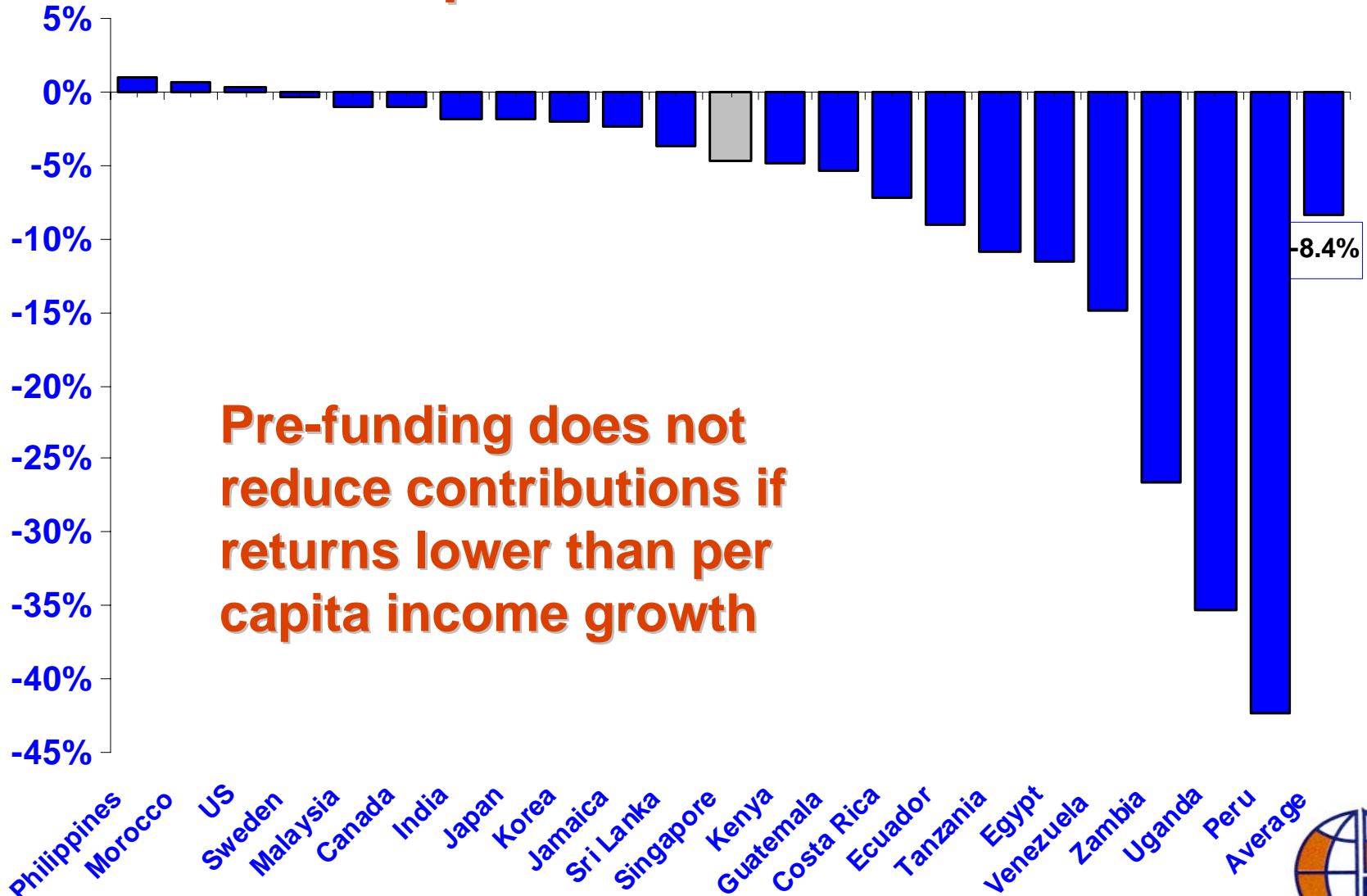


Financing Path

- ◆ Full funding and pay-go financing paths well known
- ◆ But may be too well know, to the exclusion of other actuarially valid methods of financing
- ◆ Our actuarial world is not binary: between pay-go and full funding there are families of methods that offer a range of target options
- ◆ A particularly useful method, that targets intergenerational equity, is the Level Cost Method and variations described as the General Average Premium or the Steady-state method



Returns On Publicly Managed Assets vs. Income Per Capita Growth



Pre-funding does not reduce contributions if returns lower than per capita income growth



The Level Cost Method (LCM)

- ◆ Contribution rate is set as a level % of wages
- ◆ $PV \text{ future contributions} = PV \text{ future expenditures} + PV \text{ desired asset reserve at the end of the projection period}$
 - Applied to a very long projection period, 75 to 100 years
 - Recalculate every 3-5 years for a projection period of same length and adjust rate if necessary
 - Adjustments are small since deviations in experience and changes in assumptions are amortized over a very long period
- ◆ **Advantages:** simplicity, comparability, cost stability, easy to handle changes, intergenerational equity and modest asset accumulation



A Few Examples

1

- ◆ Described as the **General Average Premium (GAP)** in *Actuarial Mathematics of Social Security Pensions*, a joint publication of ILO and ISSA, authored by *Subramaniam Iyer*
- ◆ Variation used for the financing of the Canada Pension Plan under the name *“Steady-state Methodology”* by determining the constant rate that makes the asset/expense ratio the same in the 10th and 60th year following the review period



- ◆ Used in preparing estimates for the Report on Implementing an Indonesia National Social Security System sponsored by FIRST Initiative; a judicious timing of programmed increases in the Normal Retirement Age helped in smoothing as well the asset accumulation (*Borobudur Hotel, June, 6th 2005*)

Defined Benefit Pensions

- ◆ **A large and diverse family**
 - **Earnings and participation related**
 - ◆ Final average risky, expensive for labor force
 - **Contributions related (but not DC)**
 - ◆ More equitable; direct linkage reduces evasion and leakage
 - ◆ Career-indexed used in Canada Pension Plan and Europe
 - ◆ NDC originated in Sweden, later used in diverse countries, supported by World Bank
 - **Non-earnings related**
 - ◆ Flat amount per year of participation
 - Simpler, redistributive, no gender bias
 - ◆ Uniform amount
 - Simplest, more redistributive, exportable to informal sector

◆ Basic DB pension

- Flat benefit/demo-grant type for formal labor force with short transition period; exportable to informal sector
- Low % earnings – related pension with longer transition period

◆ Level % financing path

- Alternative to pay go and full pre-funding
- Limited accumulation of assets
- Control of intergenerational transfers

Illustrative Pension Policy Options

2

- ◆ Programmed gradual increase of retirement age to reflect expected increases in old age longevity and stabilize costs
- ◆ Leverage the savings program and termination benefits to sell higher initial retirement age or pre-fund retirees health coverage



- ◆ **Primary objective should be financial security in retirement, not building up pools of soft money or for public interventions in the markets**
 - *“Nothing is worse for workers than a pay go plan except a funded plan in a weak environment”*
 - **High risk that the monopoly providers become large financial power centers pursuing their own objectives!**

- ◆ **Timing is an issue both for the competitiveness of the economy and for poverty alleviation**
 - **An earnings related program requires a complex set-up and robust administration to deliver benefits after a long delay and with high risks.**
 - **A flat benefit pension can be better modulated, produce faster results at lower risks and affordable costs given Indonesia demography**

Hard Learned Lessons

- ◆ **International experience points to the risk resulting from the absence of a global strategy**
- ◆ **Need is for explicit decisions on**
 - **The respective contributions of public and private sector to sustainable financial security in retirement**
 - **The proper balance between social redistribution and wealth accumulation**
 - **The relative importance of funded and non-funded components**
- ◆ **Credibility is a critical success factor that will not exist without transparency in the decision making process**



Actuarial Guidance

- ◆ Usual process is to define the program and then the delivery and administrative structure to implement it
- ◆ Law 40 first puts in place 4 state-owned monopolies making the design of the program an exercise in reverse engineering
- ◆ Higher risks that internal political competition to pre-empt jurisdiction results in poorly designed and ill-coordinated programs that may be unsustainable
- ◆ Hence actuarial guidance is a necessary counterweight for all stakeholders



Questions For Stakeholders

- ◆ Does the reform make sufficient progress toward the goals of a security system and meet distributive concerns?
- ◆ Is there leadership and a credible commitment by government?
- ◆ Is there local buy-in from most socio-economic groups and the civil society?
- ◆ Can the macro-economy, the financial sector and the fiscal framework support the new law?
- ◆ Can the administrative structure operate the new (multi-layer) social security system? Does it include adequate capacity building for satisfactory implementation?
- ◆ Have steps been taken to establish regulatory and supervisory arrangements adequate to ensure delivery of promised benefits and safeguard long term assets?



Goals Of A Pension System

◆ **Primary goals:**

- **Adequacy and Equity:** fairness, efficiency, redistribution
- **Feasibility and expandability:** administrative issues, UNI, scalability, flexibility, informal sector challenge
- **Sustainability and robustness:** affordability, financial soundness, resilience to shocks from economic, demographic and political risks
- **Diversification and customization:** multi-source, individual choices, flexibility

◆ **Secondary goals:** Create developmental effects by minimizing negative impacts (e.g. labor market) and leveraging on positive impacts (e.g. financial market development)



An Actuarial Public Interest Mandate

- ◆ Actuaries define themselves as *“particularly qualified to manage risks”*
- ◆ The IAA Financial Risks Committee is offering Risks Seminars around the world, IAA Sections, especially AFIR, and local associations are building up relevant body of scientific knowledge including Stochastic Modelling, an Institute of Risks is being created
- ◆ Control of risks, financial and non-financial, is a vital component of Good Governance
- ◆ Identification, measurement and mitigation of risks:
 - Financial, non-financial
 - Assets, liabilities



Responsive Investment Policy

- ◆ **Methodology to implement portfolio diversification, including outsourcing, to**
 - Enhance the independence of economic decisions
 - Remedy the chronic underperformance of publicly managed assets
- ◆ **Market driven benchmark combining risks and returns providing a basis to allocate value added**
- ◆ **Dynamic adaptation to a more sophisticated environment**
 - Integrated ASEAN capital markets
 - Replacement of 1998 blanket guarantee by limited Deposit Insurance
 - Creation of a Secondary Mortgage Facility
 - Impact of AFTA and WTO negotiations



Performance Indicators

- ◆ **Cost efficiency, scope and quality of services are critical success factors**
- ◆ **Need to develop qualitative and quantitative benchmarks and criteria for a Chart of Services**
- ◆ **Can be used by Council to manage participants expectations and monitor the performance of the providers**
- ◆ **Can be the base for a Contract of Services defining the responsibilities of the monopoly providers**



Stepping Out Of The Box

- ◆ **Some tend to equate "actuarial" with the calculation of premiums and liabilities**
- ◆ **Modeling work will widen the box to planning and design consulting**
- ◆ **Helping remedy the shortcomings of Law 40 regarding governance, risk management and performance by drawing on our global intellectual capital is a unique opportunity to clearly demonstrate the comprehensive scope of actuarial services**
- ◆ **Promoting the implementation of an Actuarial Control Cycle will add strategic policy advice and feed-back on critical success factors**



The Actuarial Control Cycle

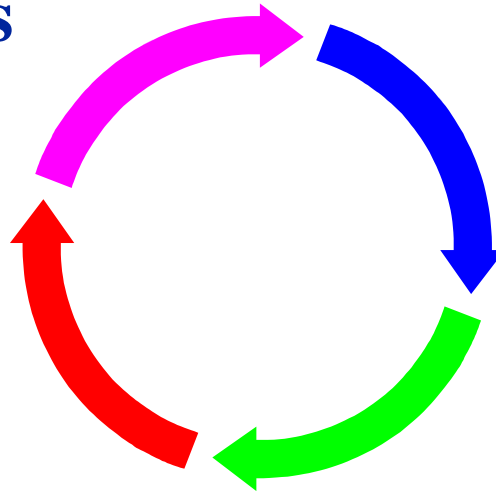
Financial Projections

Risk analysis

**Adjust
Operation
parameters**

**Revise
design and
model
parameters**

**Monitor
Performance
Collect data**



- ◆ **The downside risk is a search for quick answers that may produce unaffordable and unsustainable commitments difficult to cut back**
- ◆ **Because of their specialized expertise and access to a global pool of knowledge, actuaries have a duty and a responsibility to serve the public interest by making an optimal implementation politically feasible**

- ◆ **An orderly process building on actuarial input will help damage-control and create win-win conditions based on:**
 - **Diversification in the sources of retirement income**
 - **Optimizing the contribution of public and private sectors**
 - **Embedding flexibility and competition**

- ◆ **Timely actuarial input can help achieve poverty alleviation and better security in retirement rather than increased hardship for the most vulnerable segment of the population**



Additional Material

Second presentation originally scheduled on modelling had to be cancelled for health reasons

What follows are complementary remarks on modelling capacity



Social Security Modelling

- ◆ **Focus often on pension modelling**
- ◆ **But pension models substantially applicable to other social security programs as well**
- ◆ **Indeed most pension models are or may be easily adapted to generate costs for other types of programs because they require the same basic data and projections of benefit flows**



Estimating System Costs

- ◆ **This is a complicated task:**
 - Many factors: demographics, economics, management performance
 - Factors interact with one another
 - Many different parameters, especially for pensions
 - Parameters may change over time
 - Factors/parameters vary i.e. by age, gender, income level
 - Must project over very long periods
- ◆ **A model must recognize how compounding each of these factors affects the fiscal position of a scheme and its main indicators**
- ◆ **A model increases rigor and discipline and assures consistency**

Needs Survive Implementation

- ◆ **Models are also needed to:**
 - **Monitor cost trends**
 - **Test resilience of system**
 - **Cost potential amendments**
 - **Perform statutory reviews**
 - **Measure implicit pension debt**
 - **Perform special studies**

- ◆ **Models require continuity and permanence**



Existing Models

- ◆ **Some of several credible and sound software-based models:**
 - **WB's PROST**
 - **ILO-PENS**
 - **Wiese's PRISM**
 - **Wilkin's**
 - **Ernst & Young's DemPen**

- ◆ **Effective customization requires access to programming codes**

- ◆ **Need good documentation and proper training**



Models Are Dynamic

- ◆ **No model is ever finished**
- ◆ **A model is continually subject to changes**
 - **To add or modify outputs**
 - ◆ To test ideas for modifying the system
 - ◆ To reflect newly adopted amendments
 - ◆ To reflect new administrative practices and control
 - ◆ To deal with newly or no longer available data
- ◆ **Therefore models must be flexible, user friendly and be adopted by the country**



- ◆ **Social Security Systems entail complex interactions of many variables, over long periods with exposure to risks and uncertainties making remote control a risky process**
- ◆ **Outputs can provide costs estimates and projections for all programs but also input for impact studies on labour, business, monetary policy, fiscal policy, financial sector and other socio-economic variables responsive to local conditions**

- ◆ Various software products exist that can be customized to jump start the capacity in the target country and enhance the credibility of the model
- ◆ Essential to provide training and transfer of expertise to enhance local autonomous and permanent capacity as well as adequate review and quality control process

Definitions

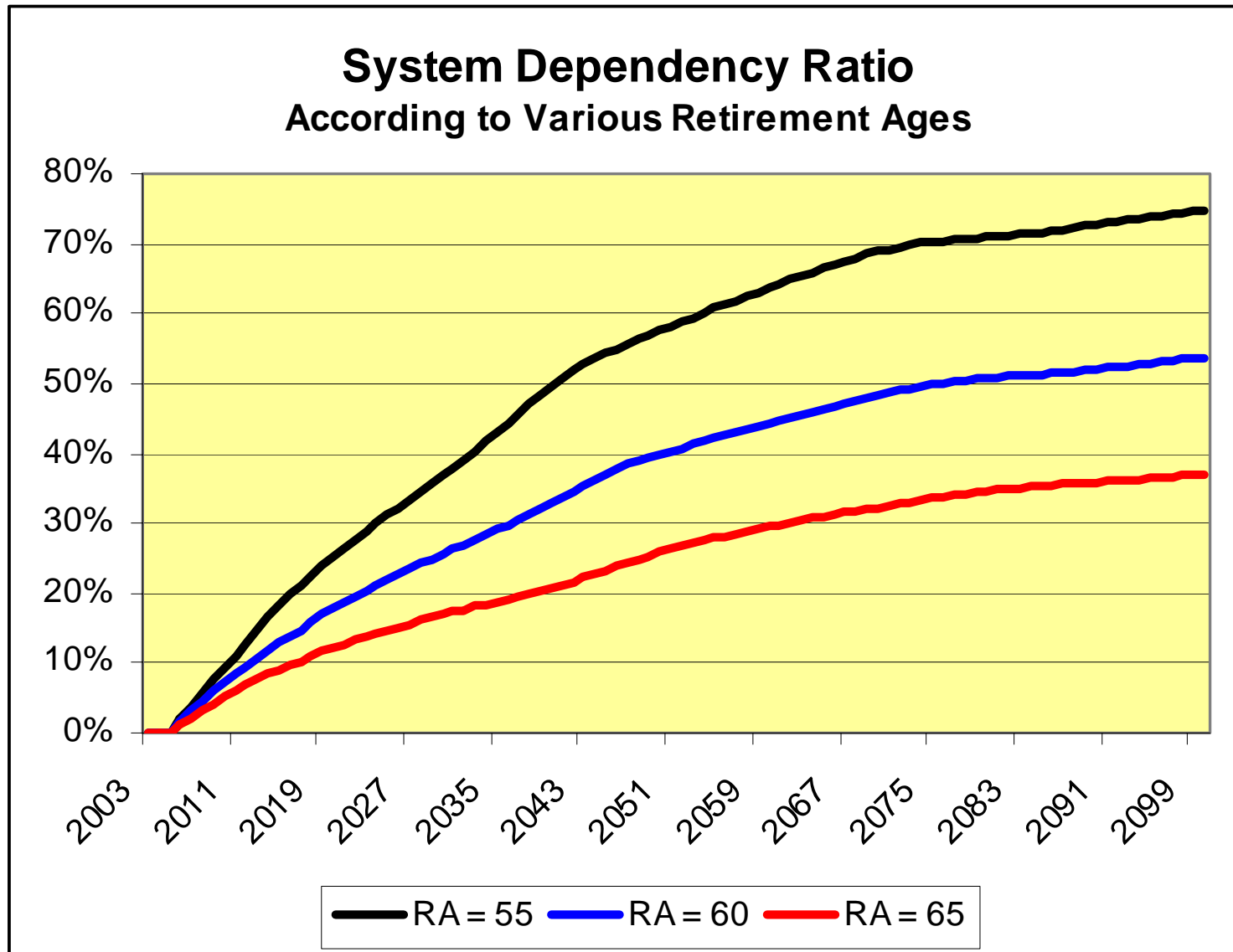
- ◆ The Old Age Dependency Ratio (DR) refers to the general population

$$DR = \frac{P_{65+}}{P_{15-64}}$$

- ◆ The so-called System Dependency Ratio (SDR) refers to a defined system

$$SDR = \frac{\# \textit{Beneficiaries}}{\# \textit{Contributors}}$$

System Dependency Ratio



Demographic Drive Costs

- ◆ **Decreases in fertility reduce the weight of young individuals relative to the older people and increase DRs and hence SDRs**
- ◆ **Improvements in mortality at old age also increase DRs and hence SDRs**
- ◆ **Migration also has effects similar to fertility**
- ◆ **The effects of demographic changes are slow to emerge but they last for very long periods**
- ◆ **Demographic changes cannot be altered; they can only be anticipated and managed**
- ◆ **This is why demographic effects can and must be anticipated long in advance**



Demographic Assumptions

(For Illustrative Purposes Only)

◆ Total Fertility Rate

- 2.4 in 2002 => 1.95 over 20 years

◆ Mortality Improvement

- 1% for all ages and all years
- LE @ Birth increases from 66 in 2003 to 78 in 2100

◆ Net migration

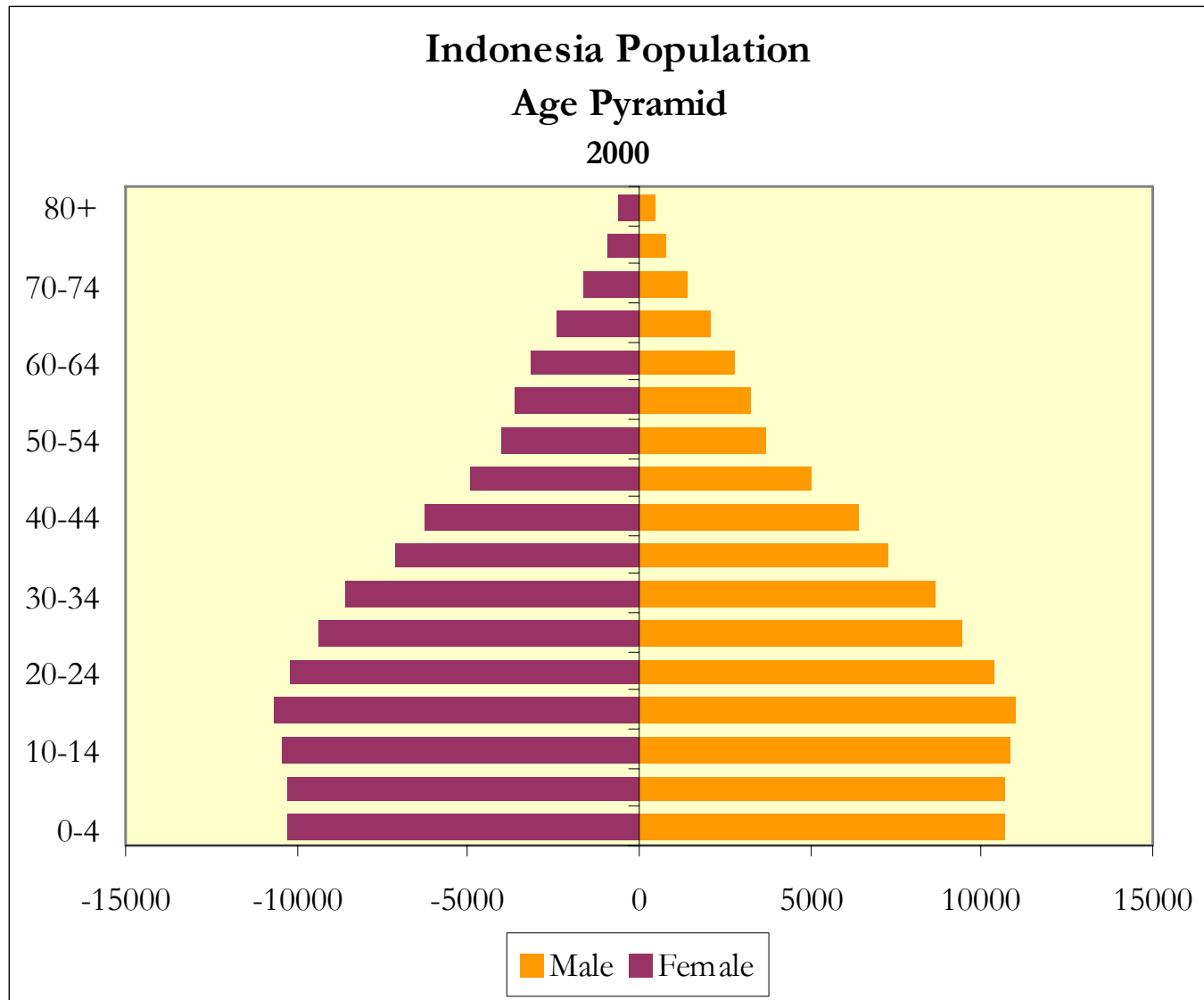
- Nil

◆ By no means the worst case scenario

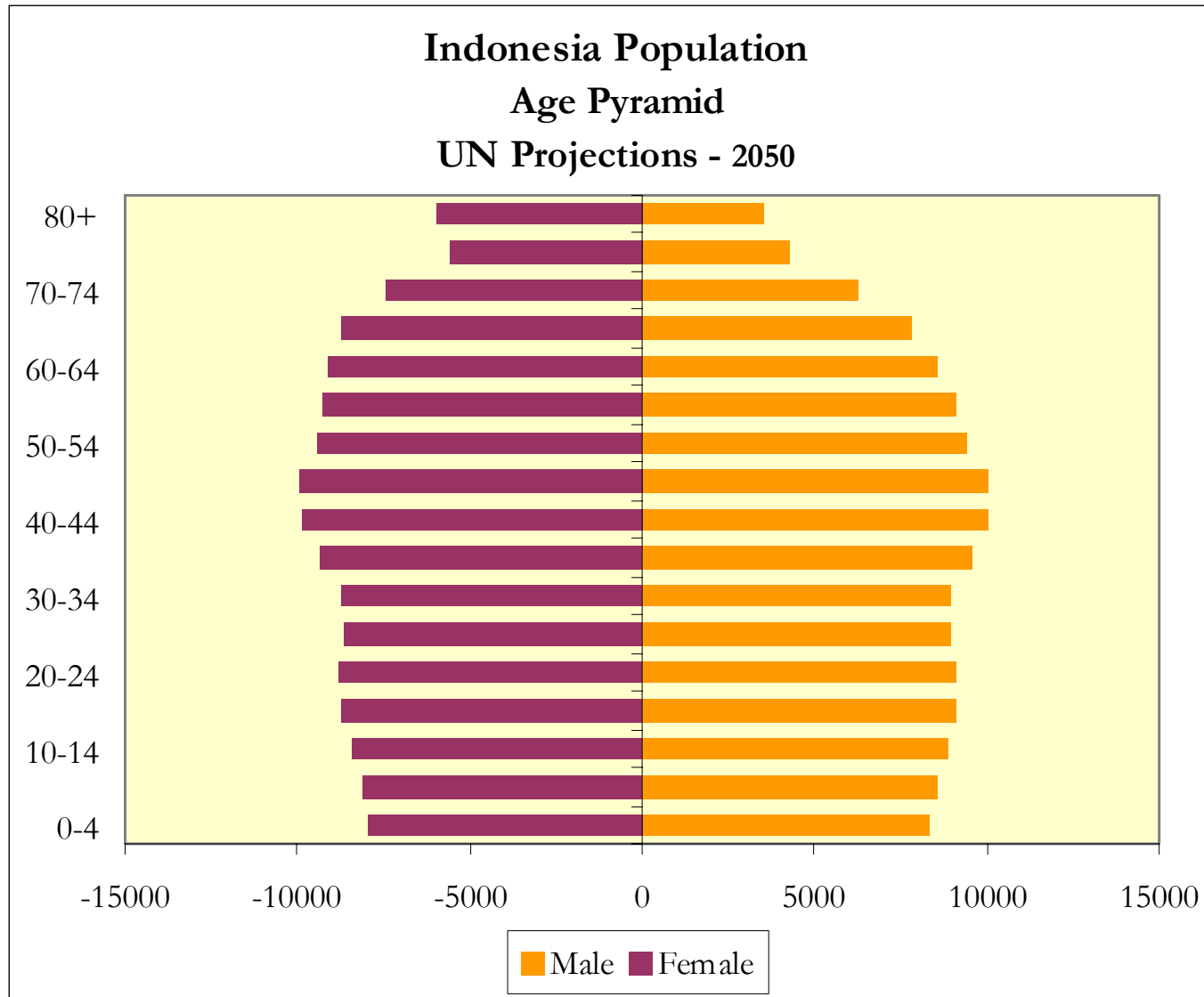
- UN projections
 - ◆ LE @ Birth = 77 in 2050
 - ◆ TFR medium variant = 1.85 and low variant = 1.35 by 2025
 - ◆ Migration => negative but very small



2000 Population Age Pyramid



2050 Population Age Pyramid – UN Projections



Economic Assumptions

(For Illustrative Purposes Only)

- ◆ **Real wage/productivity growth**
 - 3% decreasing to 2% over 40 years

- ◆ **Real GDP growth**
 - Linked to productivity and employment

- ◆ **Real interest rate**
 - 5% decreasing to 3.5% over 30 years

- ◆ **Inflation**
 - Implicit (All values in constant Rp)



Work Force /Coverage Assumptions

(For Illustrative Purposes Only)

- ◆ **Labour participation rates**
 - Constant or variable over time

- ◆ **Unemployment rates**
 - Constant or variable over time

- ◆ **Effective coverage rate**
 - Constant or variable over time



Illustrative Performance Assumptions

(For Illustrative Purposes Only)

- ◆ **Collection rate**
 - 90% => 97% over 20 years

- ◆ **Administrative expenses as % of benefits paid**
 - 30% => 8% over 20 years

- ◆ **Real rate of return as % of benchmark**
 - 75% => 95% over 15 years

- ◆ **Asset management expenses**
 - 0.4% => 0.2% over 20 years

