

IMSERSO / European Centre / UNECE

# Workshop

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## **Sustainable Ageing Societies: Indicators for Effective Policy-Making**

### **Thematic session 2**

Sustainability of social security schemes  
and pension systems

Madrid, Spain, 14-16 April 2004

## **Financial Balance & Inter-Generational Fairness In Pay-As-You-Go Pension Systems**

*Ole Settergren*

ISSA-Paper

# Financial Balance & Intergenerational Fairness

in

## Pay-As-You-Go Pensions Systems

Boguslaw Mikula - National Social Insurance Board, Sweden  
Ole Settergren - National Social Insurance Board, Sweden



... demographic sensitivity of PAYG pension systems

... how to reduce this sensitivity

... main determinants of life-cycle contribution rate

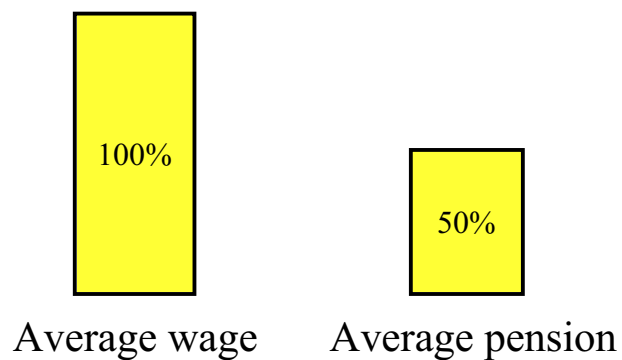


UN – population data

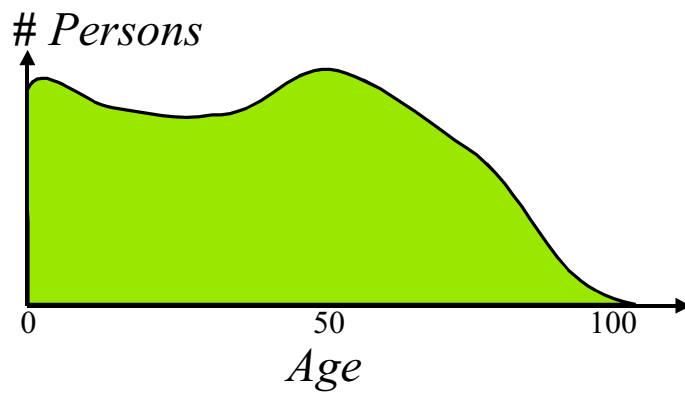
ILO – labor force participation data

229 countries  41 countries

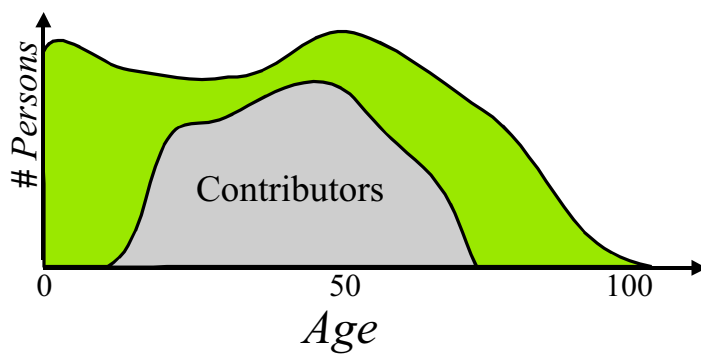
50 % – overall replacement rate



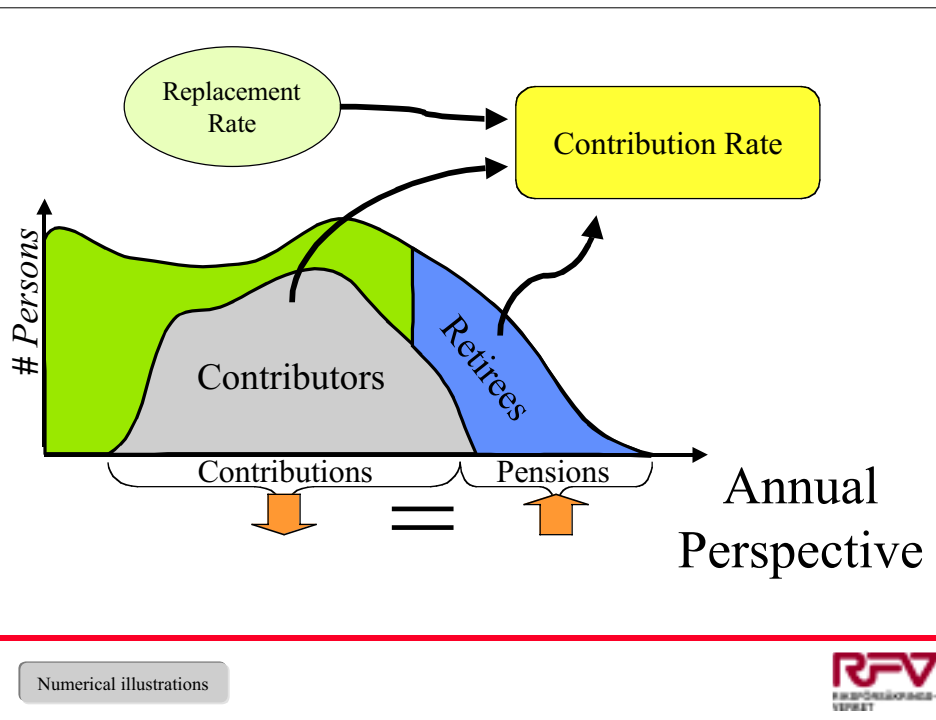
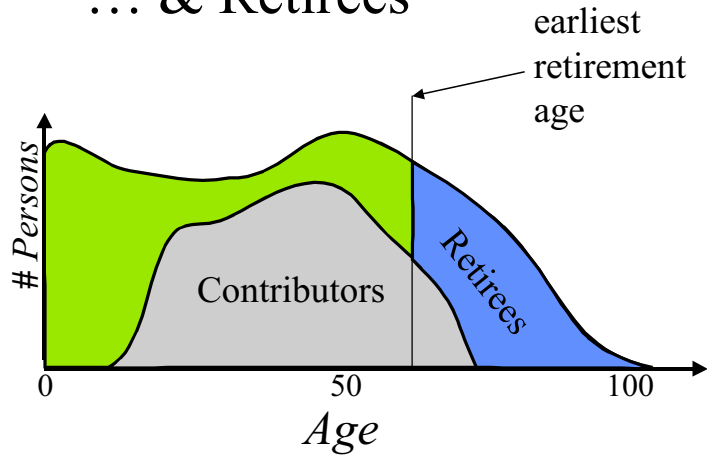
## Population



## Population of Contributors



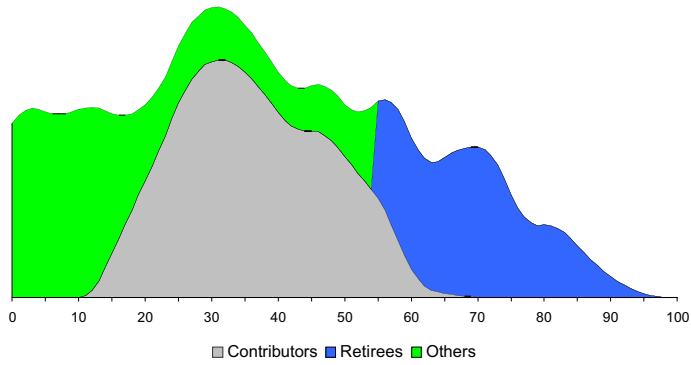
# ... & Retirees



## Contribution Rate – Annual Perspective

Austria (1996)

24.4%



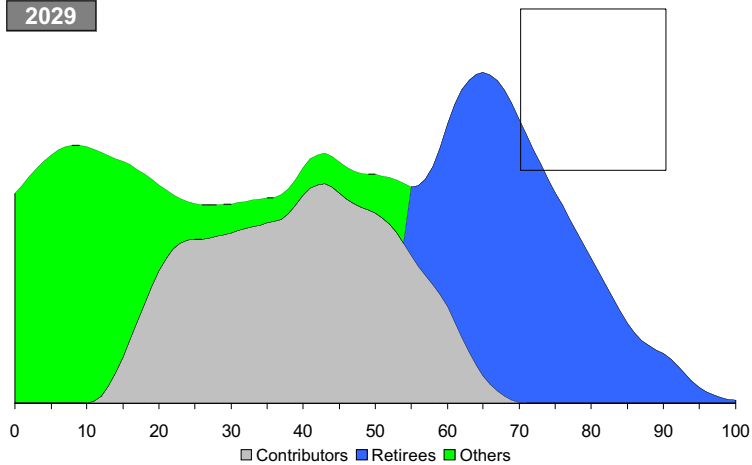
**RFV**  
RISIKOPRÄVENZ-  
VEREIN

## Simulated Development, Germany

2029

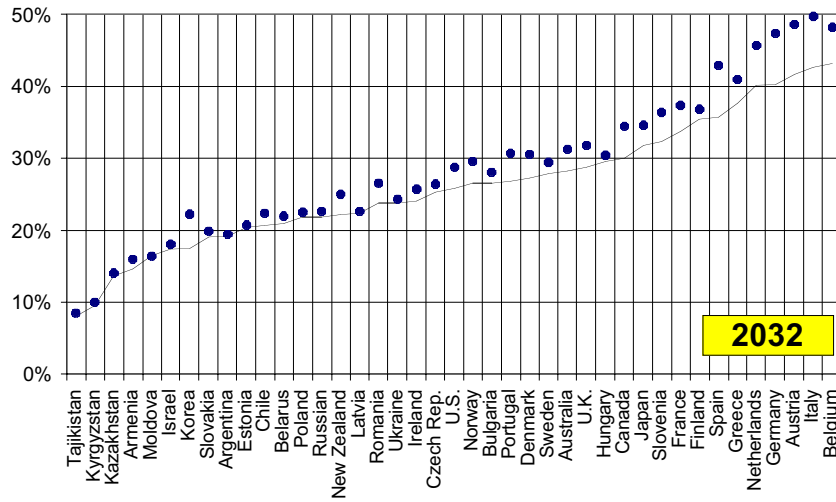
Expected Contribution Rate

41.9%



**RFV**  
RISIKOPRÄVENZ-  
VEREIN

### Expected Contribution Rate



Life Cycle Contribution Rate

+

Demographic Buffer Fund

=

Expected Fixed Contribution Rate

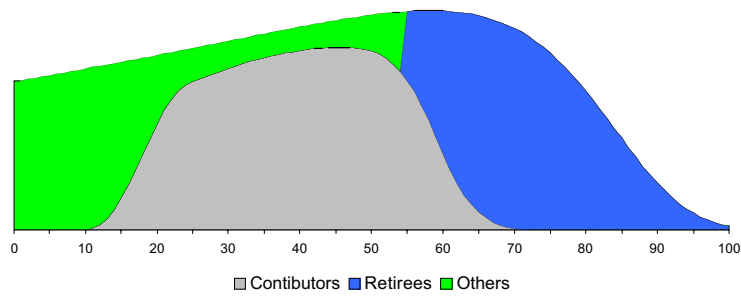
Life Cycle Perspective an illustration



## Life Cycle Perspective

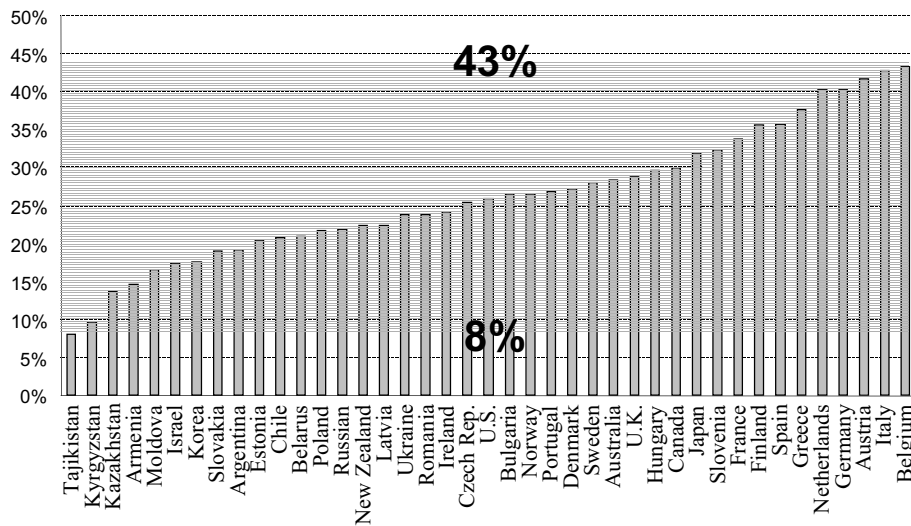
Germany (1994)

40.3%



**RFV**  
RESPONSIBLE  
VERKEER

## Contribution Rate - Life Cycle Perspective



**RFV**  
RESPONSIBLE  
VERKEER

*Now...*

life cycle c.r.  $>$  annual perspective c.r.

*Then...*

life cycle c.r.  $<$  annual perspective c.r.

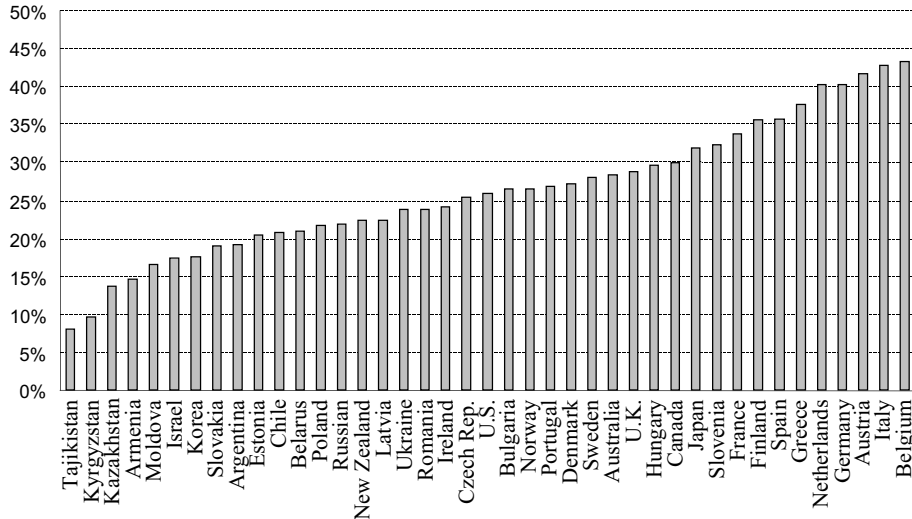
*demographic sensitivity*

...risk for inter-generational unfairness

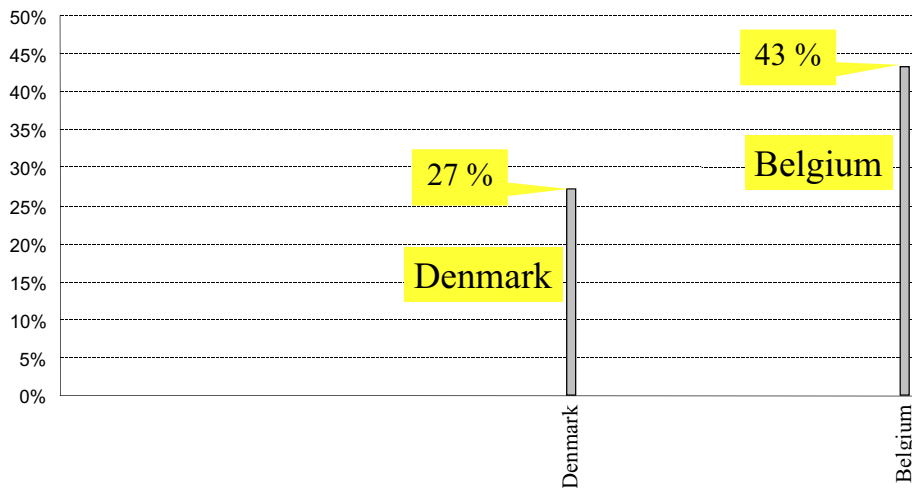
*can be reduced*

... life cycle perspective & buffer fund

## Contribution Rate - Life Cycle Perspective



## Contribution Rate - Life Cycle Perspective



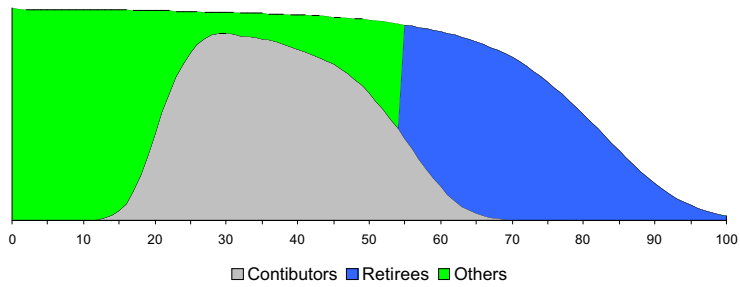
Denmark vs Belgium



# Belgium vs Denmark

Belgium (1994)  
43.2%

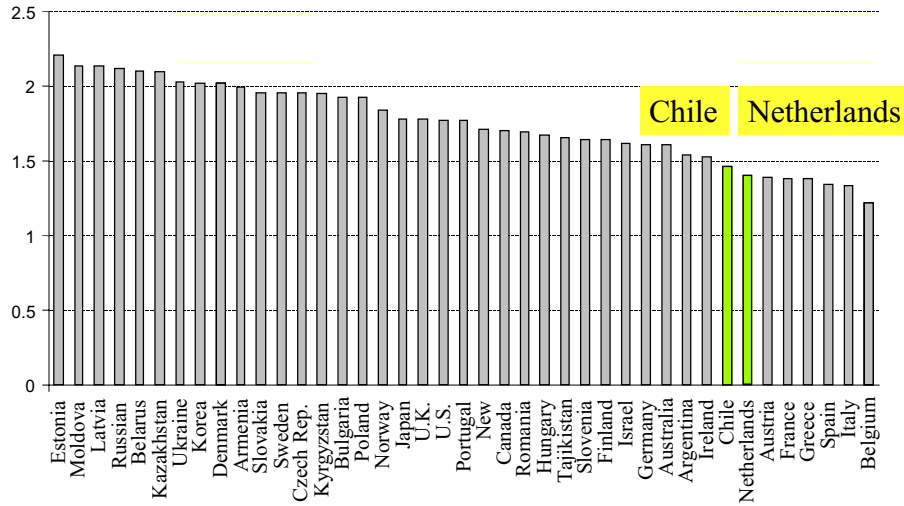
$$\frac{\text{Expected Working Years}}{\text{Expected Retirement Years}} = \frac{30}{24} = 1.2$$



## Contribution Years *per* Retirement Year



## Work Years / Retirement Years



Chile vs Holland

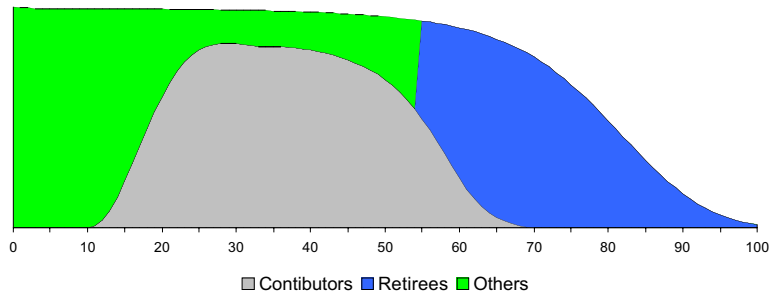


## Chile vs Holland

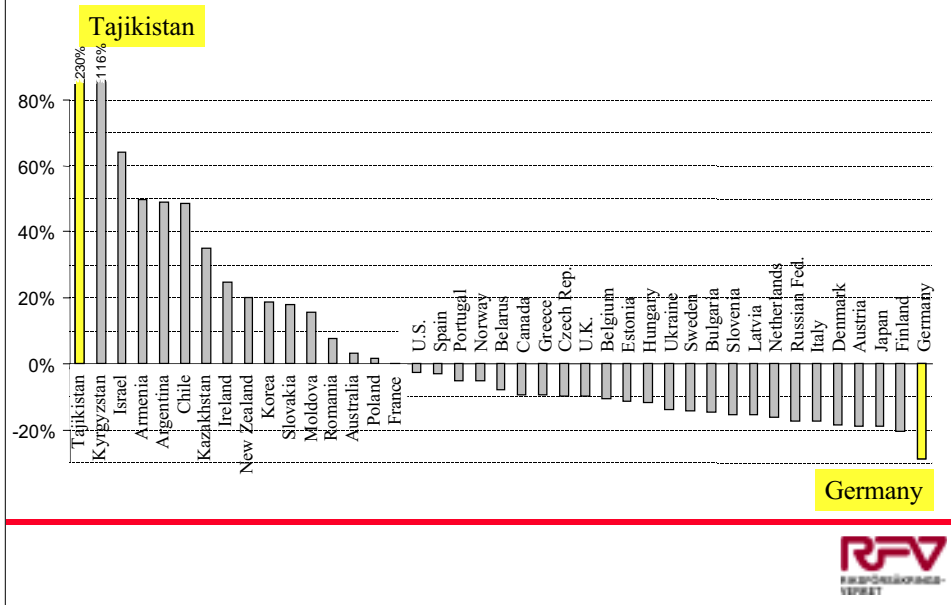
Netherlands (1995)

40.2%

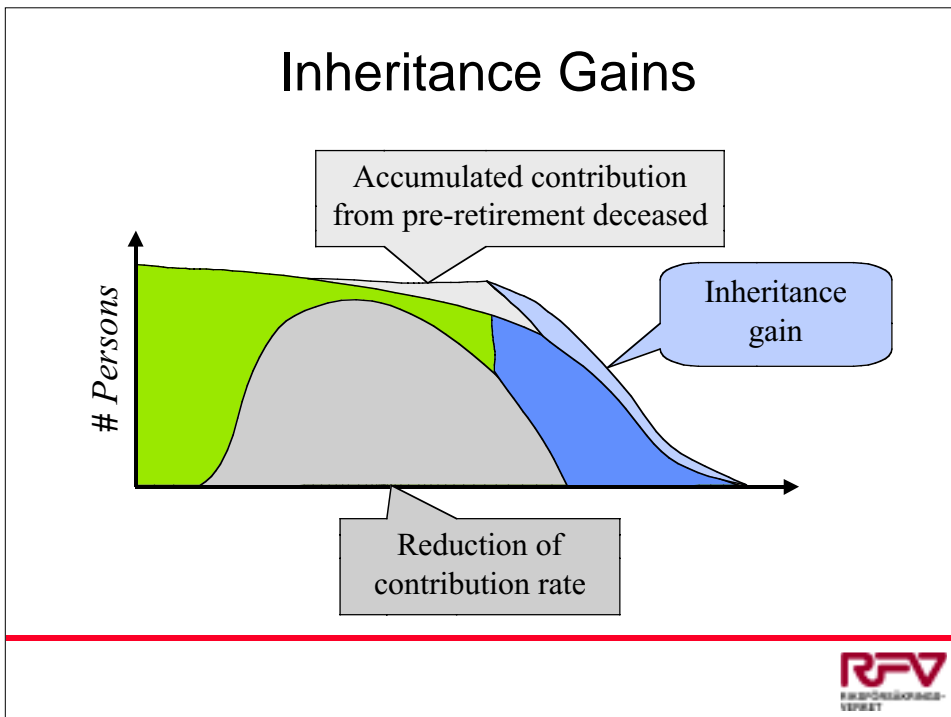
$$\frac{\text{Expected Working Years}}{\text{Expected Retirement Years}} = \frac{32}{23} = 1.4$$



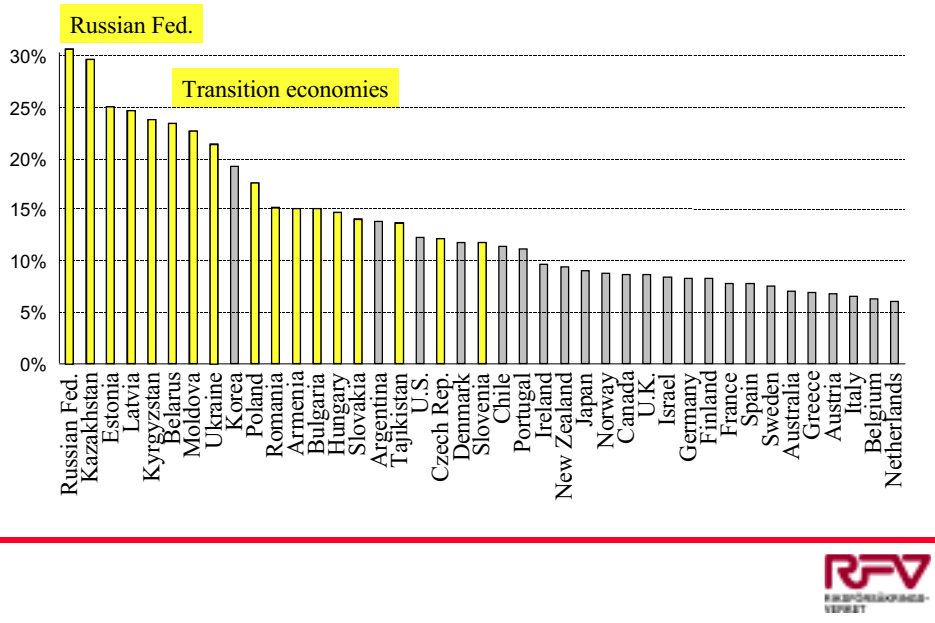
## Effect of population growth trend



## Inheritance Gains



## Effect of pre-retirement mortality



## What decides the contribution rate?

contribution years & retirement years

population (labor force) growth

pre-retirement mortality

turnover duration

## What about Sweden?

Fixed contribution rate

Buffer fund

Indexation based on average wage growth

Financial stability secured by “balancing”

balance statement

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