Analysing tax and pension policy: examples from Latin America

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Analysing tax, benefits and pensions policy

- Quantitative analysis of tax, benefits and pensions policy is important input in policy-making and evaluation process

  - Assessing the distributional impact of system or reforms

  - Assessing impact on behaviour and economic efficiency

- IFS analysis of tax policy in UK relies a lot on this

- IFS researchers have also been involved in analysing policy in middle income countries:

  - Study of tax reforms in Mexico and El Salvador (funded by World Bank)

  - Study of the impact 2008 Chilean pension reforms (funded by Chilean Government)

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Why are Latin American examples important?

- Turkey shares much in common with, especially Mexico

  - Relatively big, similar GDP per capita, large informal economy

  - Both next to big developed markets (EU /US)

- Latin America at leading edge of reforms to tax, social security and welfare systems

  - e.g. Conditional cash transfers

  - e.g. Funded pension systems, now considering "universal" social security

  - Some of these trends influenced Turkey

- Latin America seeing expansion of tax analysis and social policy evaluation

  - Institutions like CONEVAL in Mexico

  - Big projects by UNDP, World Bank and others on analysing tax and redistribution

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What kinds of analysis are possible?

- Static models simulate impact of reform at single moment

  - e.g. Short-run effect of a higher rate of VAT

- Dynamic models simulate the impact of a reform over time

  - e.g. Effect of pension rule changes on scheme receipts and payments, and individual accruals and pensions

- No-behavioural-response models

- Models that include particular behavioural responses

  - e.g. Effect of change in income tax on how much people work

- "General Equilibrium" models that aim to capture overall effect of a reform on the economy

  - Allows less detailed modelling of a particular behaviour

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What are the challenges in analysis?

- Measurement issues

  - Researchers' access to administrative data is limited

  - Income and spending often under-reported in household surveys

  - Some phenomena are intrinsically difficult to measure (e.g. Informality)

- Little is known about behavioural response to changes in taxes in middle income countries

  - Labour supply (hours, participation, formality)

  - Consumption responses to changes in relative prices

  - Do firms pass through changes in taxes to prices and wages?

  - How does saving respond to tax treatment?

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Two case studies

- Study of Mexico's 2010 tax reforms
  - Development of a static tax microsimulation model
  - Assess distributional, revenue and behavioural response

- Study of Chile's 2008 pension reforms
  - Dynamic microsimulation model of pensions accrual and participation in formal labour market
  - Assess distributional and behavioural response

- Purpose of these is substantive and methodological
  - What can we learn from the reforms themselves?
  - How were methodological issues addressed?

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Case 1: Mexico's 2010 Reforms

Abramovsky, Attanasio, Emmerson and Phillips (2011)

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Mexico's 2010 tax reforms (I)

- Increases in tax rates in 2010 to reduce government deficit

- Initial proposals included

  - Substantial expansion in indirect (VAT) base (new 2% uniform VAT on top of existing VAT)

  - Increases in various income tax and duties rates

- Approved reform was a much reduced version of this, in particular replacing new 2% uniform VAT with 1% increase in existing VAT

  - Part of reason proposals rejected is seen as "regressive"

  - Proper quantitative analysis can help assess whether this was the case

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MEXTAX – our simulator (I)

- We developed a tax microsimulation model for Mexico called MEXTAX

  – Included income tax, indirect taxes and social security contributions

  – Simulate these and other reforms to the tax system

- Want to use this to

  – Estimate revenues from tax increases

  – Estimate the distributional impact

  – Model the impact on work, consumption

  – Allow for less-than-full pass through of VAT to consumer prices

  – Take into account the fact that informality means much activity is not taxed

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MEXTAX – our simulator (II)

- But had to deal with a number of problems

- How to assess distributional impact of different types of reforms?

- Household income and spending under-recorded in survey data
  - Test sensitivity of results to different adjustments to data to account for this under-recording
  - Do not model taxes on non-labour income (over 90% of non-labour income is unrecorded!)

- Like Turkey, little evidence on behavioural response in Mexico
  - Estimate a model of households' demand for different goods
  - Test sensitivity of results to different assumptions about how responsive working decisions are to tax changes and how much of VAT rises firms pass through to prices

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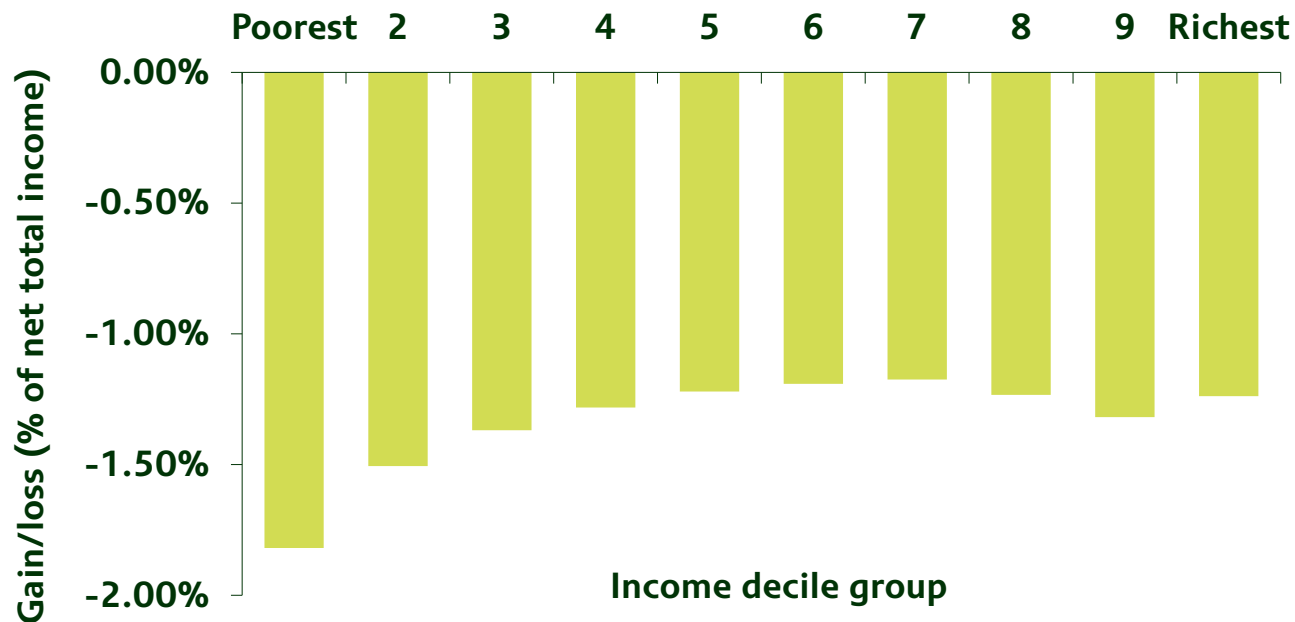# Issue 1: How do we assess distributional impacts?

- Should income or expenditure be used to rank households as rich or poor?

  - Measured income not always good indicator of living standards (measurement error, borrowing and saving temporarily or to smooth spending over lifetime e.g. students or retired)

  - Because spending picks up effect of borrowing and saving does it get closer to long run living standards? But measurement error here too.

  - No clear winner (worthwhile looking at both)

- Should income or expenditure be used to assess the proportional gains/losses due to tax changes?

  - When looking at direct taxes, divide gains/losses by income

  - When looking at indirect taxes, divide gains/losses by expenditure

  - Doing otherwise can lead to misleading conclusions.

  - Do both when assessing changes to direct and indirect tax together

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Issue 1: How do we assess distributional impacts?

- Imagine a uniform expenditure tax
    - E.g. the 2% tax initially proposed for the 2010 Budget
    - Over a lifetime this must be distributionally neutral
    - Dividing taxes paid by expenditure shows this neutral pattern

- But it will look regressive as a fraction of income over the income distribution
    - Income is less than spending (on which 2% tax is levied) for low income, and more than spending for high income

- And it will look progressive as a fraction of income over the spending distribution
    - Income is more than spending (on which 2% tax is levied) for low spenders, and less than spending for high spenders
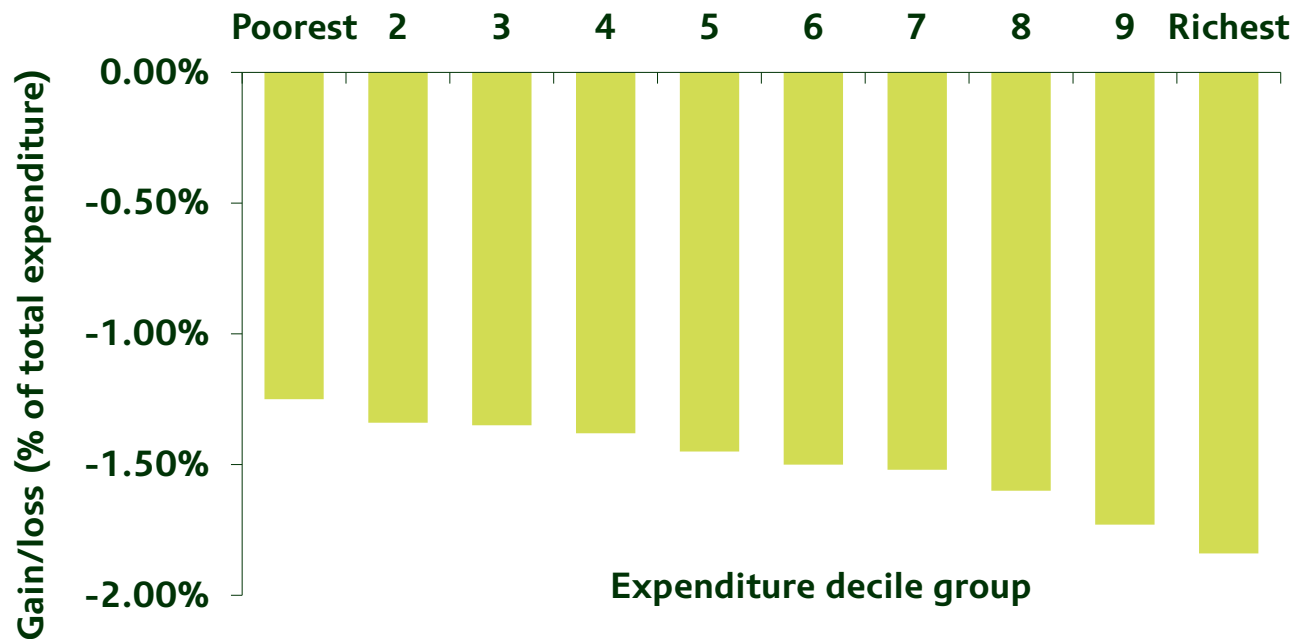
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Issue 1: How do we assess distributional impacts?

Proposed reforms: losses measured as % of income

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Issue 1: How do we assess distributional impacts?

Proposed reforms: losses measured as % of expenditure

Issue 1: How do we assess distributional impacts?

- Measured as a fraction of income / expenditure the approved reforms look more progressive than the proposed reforms

- But rich households gained much more in cash terms from the amendments to the reform plan
    - e.g. 24-26% of the reduction in the size of the tax increase goes to the richest tenth of households
    - e.g. Only 3-4% of it goes to the poorest tenth of households

- In cash terms, the amendments do not look a very good way to make the proposals more progressive!

- Worthwhile looking at a number of metrics when analysing reforms

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Issue 2: Coping with poor quality income data

- Household surveys often fail to pick up all income sources or all types of spending

  – Especially the case for savings/investments income

  – Or spending on things like alcohol or tobacco

- Researchers in Latin America typically responded by multiplying reported incomes by fixed factors so match National Accounts

  – What if under-reporting is concentrated amongst certain people? (e.g. the rich)

  – What if some people do not under-report but completely forget about a source of income?

- We tested sensitivity of results to these assumptions

- Provides info but not solve problem – need better data

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Issue 2: Coping with poor quality income data

Proposed reforms: losses measured as % of expenditure
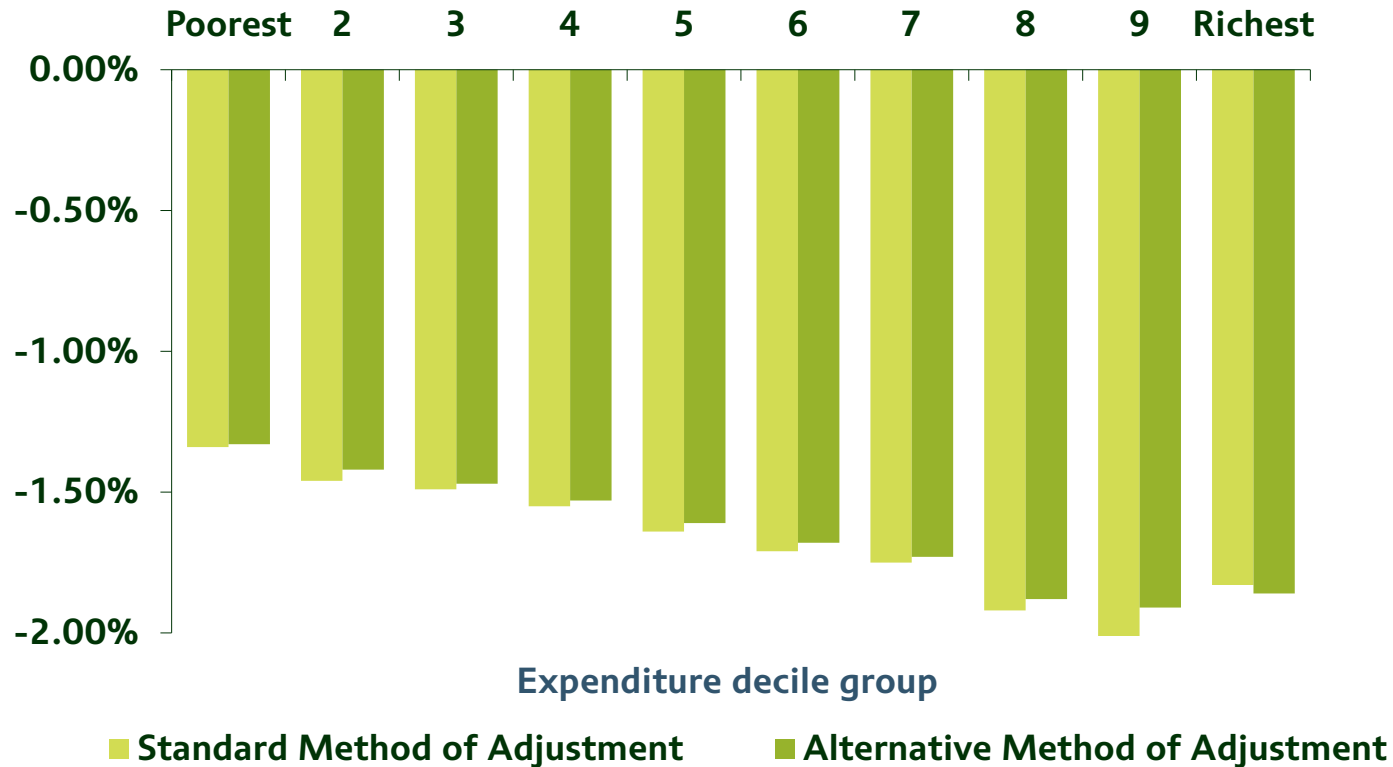
Issue 2: Coping with poor quality income data

- Method of adjusting for under-recording not make a major difference to distributional effects

  – But does have an impact on revenue yields

- Improved modelling of income tax policy requires access to anonymous tax-record data

  – Granting access to researchers is OECD best practise

  – Better estimates of revenue and distributional impact help inform public debate

  – And hence, help improve tax policy

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Issue 3: What happens to behaviour?

- People may work less or shift to the informal sector when their taxes go up
  - Tax increase raise less revenue or even reduce revenue

- No good estimates of labour supply responses to taxation for Mexico
  - Assess how much revenue would be raised under different assumptions about how responsive people are

Reform	Baseline Revenue	"Low" Response	"Medium" Response	"High" Response
Total	50,550	48,710	46,880	43,180

- Similar approach could be used in Turkey until more evidence on how responsive people actually are
  - Taking account of reductions in work effort can make important differences to results

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Issue 3: What happens to behaviour?

- Changes in VAT rates on different goods may cause people to change their spending patterns

    – e.g. buy more food because of lower rate of VAT on it

- We estimated how spending patterns respond to changes in taxes using info on how spending patterns related to changes in prices over time and across Mexico

    – Spending patterns do respond

    – But only a small effect on revenue and distributional impact of reforms

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Case 2: Chile's 2008 Reforms

Attanasio, Meghir and Otero (2011)

Chile's 2008 pension reforms (I)

- Chile one of the first countries to introduce a funded pension system based on private accounts

- Original compulsory system had 2 components
  - Basic non-contributory means-tested tier
  - Compulsory defined contribution pension based on individual contributions.

- System was reformed in 2008 to encourage formal work and reduce pensioner poverty, particularly amongst women
  - IFS economists assessed whether it will have intended impact
  - Result: trade-off between raising pension coverage to reduce poverty and encouraging formal sector work
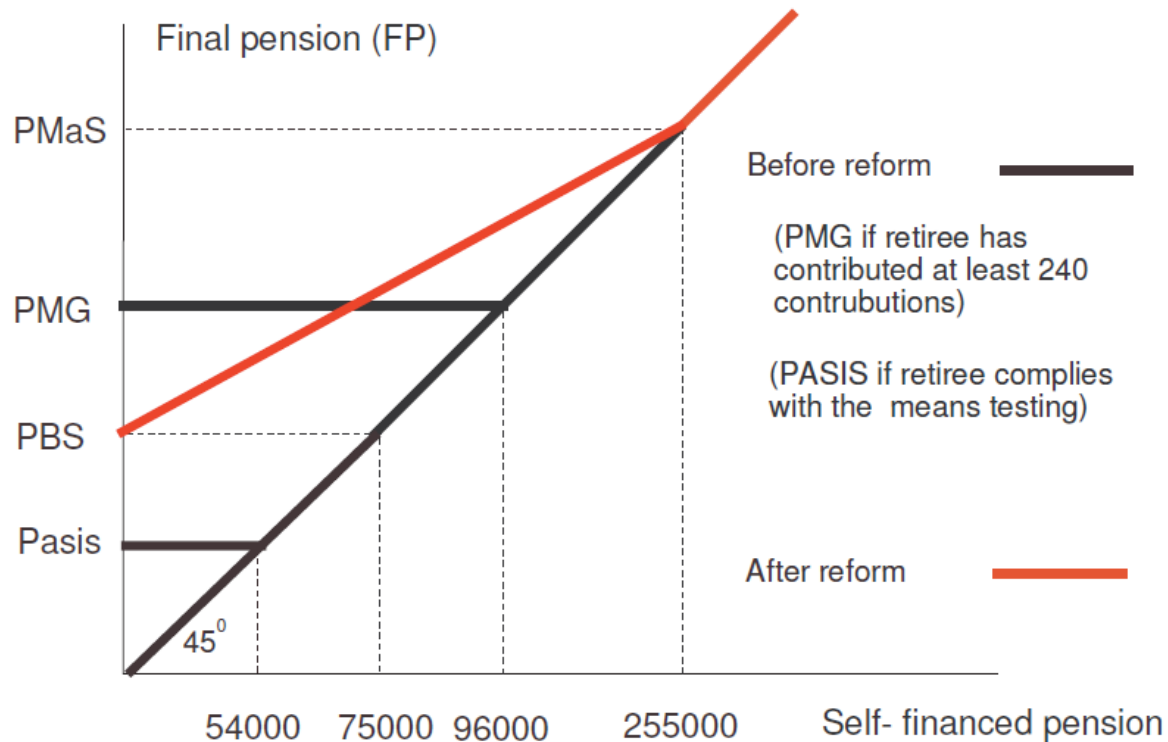
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Chile's 2008 pension reforms (II)

- Old System

  - Minimum Pension (PASIS) for those meeting means test

  - If >240 months contributions, receive at least certain amount (PMG)

  - Otherwise receive return on contributions made

- New System

  - New unified minimum pension (PBS) with boost to pensions tapered away as pension fund increases

  - Extra pension for women when have child

  - Sharing of pension on divorce

  - Survivor benefits

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Chile's 2008 pension reforms (III)

Figure 1

Pre and Post Reform First Tier

Final pension (FP)

PMaS

PMG — Before reform

(PMG if retiree has contributed at least 240 contrubutions)

(PASIS if retiree complies with the means testing)

PBS

Pasis

After reform

45°

54000   75000 96000   255000   Self- financed pension

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Evaluating the pension reforms (I)

- Reform affected different types of people differently

  – Can estimate the impact of reform on pension wealth and income by comparing those affected and unaffected by reforms

- Then establish the effects of this on whether people work formally or not

  – IFS economists assessed whether it will have intended impact

- Only possible due to ability to link survey data and administrative data on pension contributions

 – Again emphasises importance of good data to research and policy making process

Evaluating the pension reforms (II)

- Predicting pension wealth means need to model future

  - Earnings

  - How many years working formally and contributing

  - How many children

  - Marriage and divorce

- Only possible due to ability to link survey data and administrative data on pension contributions

  - Again emphasises importance of good data to research and policy making process

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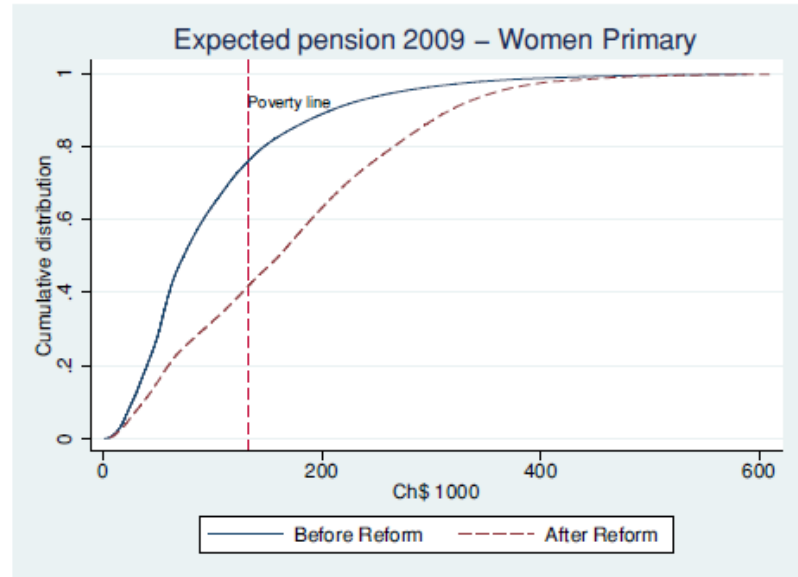Fiscal Studies

Impact on pension wealth
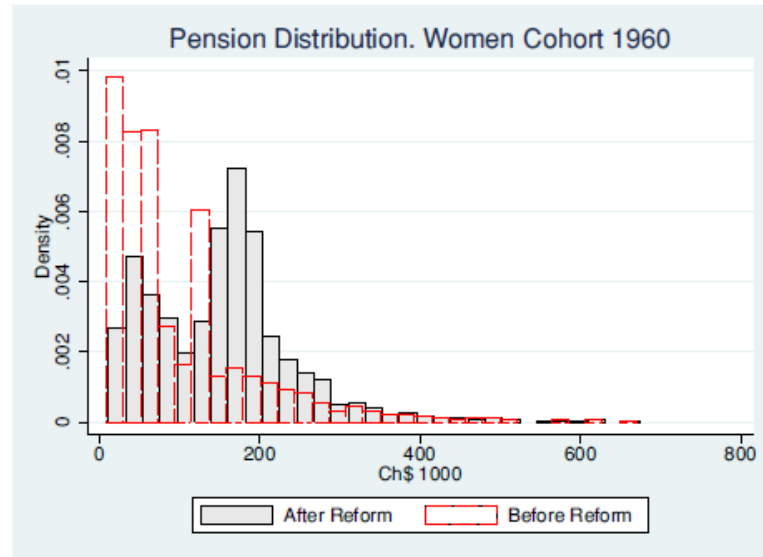
(a) Pension distribution 1040 Cohort

(b) Pension distribution 1960 Cohort
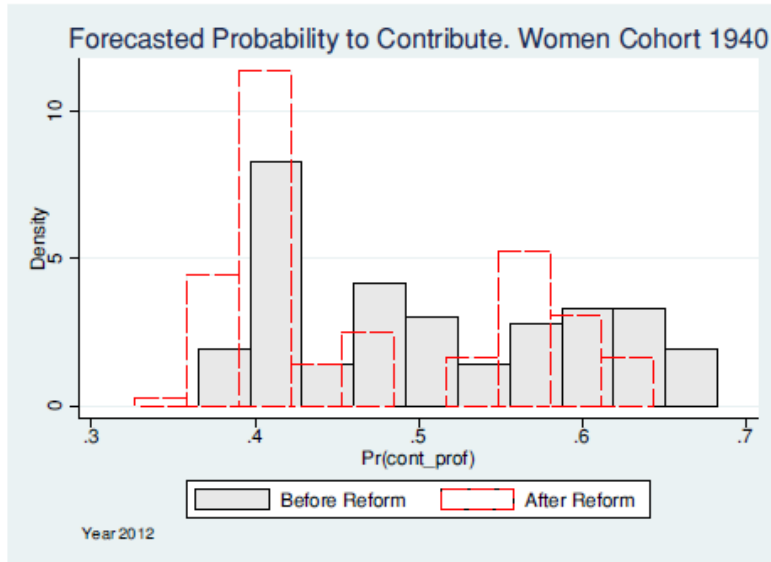
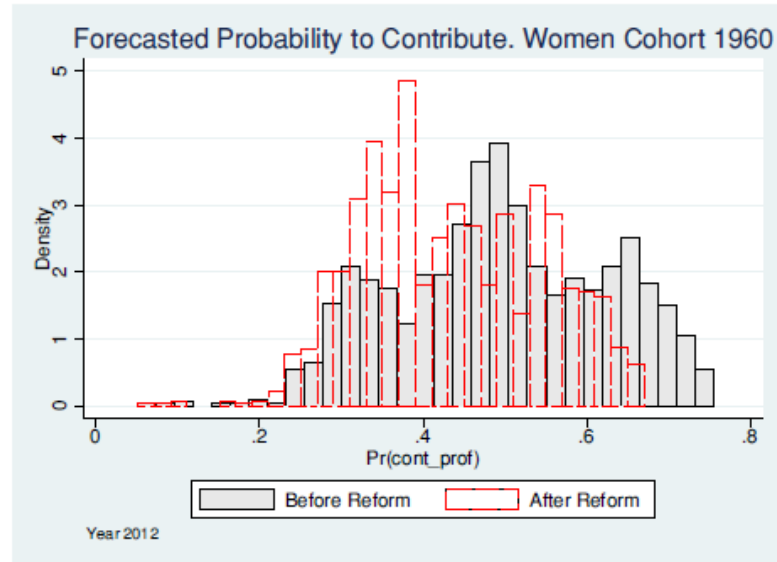# Impact on pensioner poverty
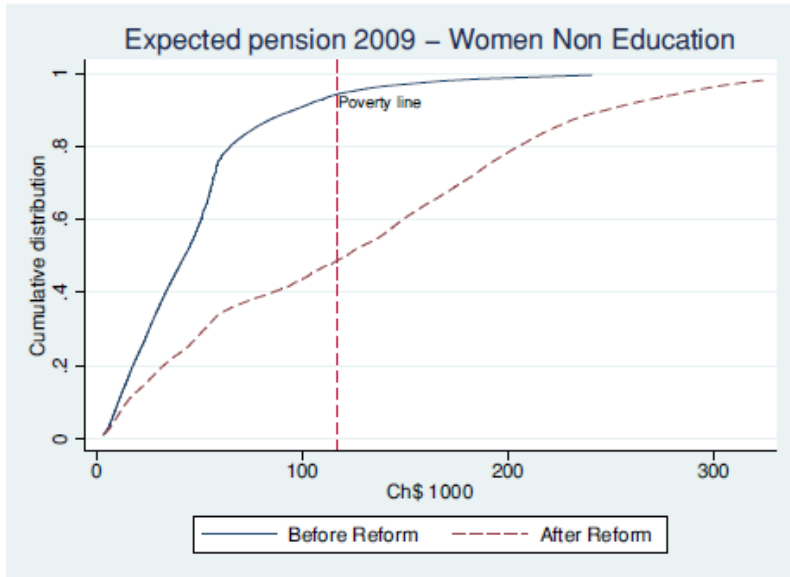
(a) No education

(b) Primary education

Impact on contribution/formality

(a) Women cohort 1940

(b) Women cohort 1960

What can be learned from this exercise?

- Important to analyse policies as can have perverse effects
    - Reforms reduce rather than increase formal employment by women

- Trade-offs between efficiency and equity are important
    - Does redistribute more but at the expense of formal employment

- OECD (2006) identifies Turkey's pension system as encouraging informality
    - Early retirement incentives under the old system
    - Very high replacement rates mean very high contribution rates
    - This kind of approach could be used to assess impact of reforms

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Conclusions

Conclusions

- Proper quantitative analysis of tax policy can change view of a policy

  - e.g. VAT is actually slightly progressive, not regressive

  - e.g. Making formal sector pensions more generous may reduce formal employment

- Evidence on behavioural responses to taxation is important

  - Labour supply and consumer demand models

  - A few papers on Turkey but relatively limited

- Data is key

  - Administrative tax payments or contributions records

  - Panel data following individuals for significant periods

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