# Health Financing equity in the context of health system financing reforms in Tanzania

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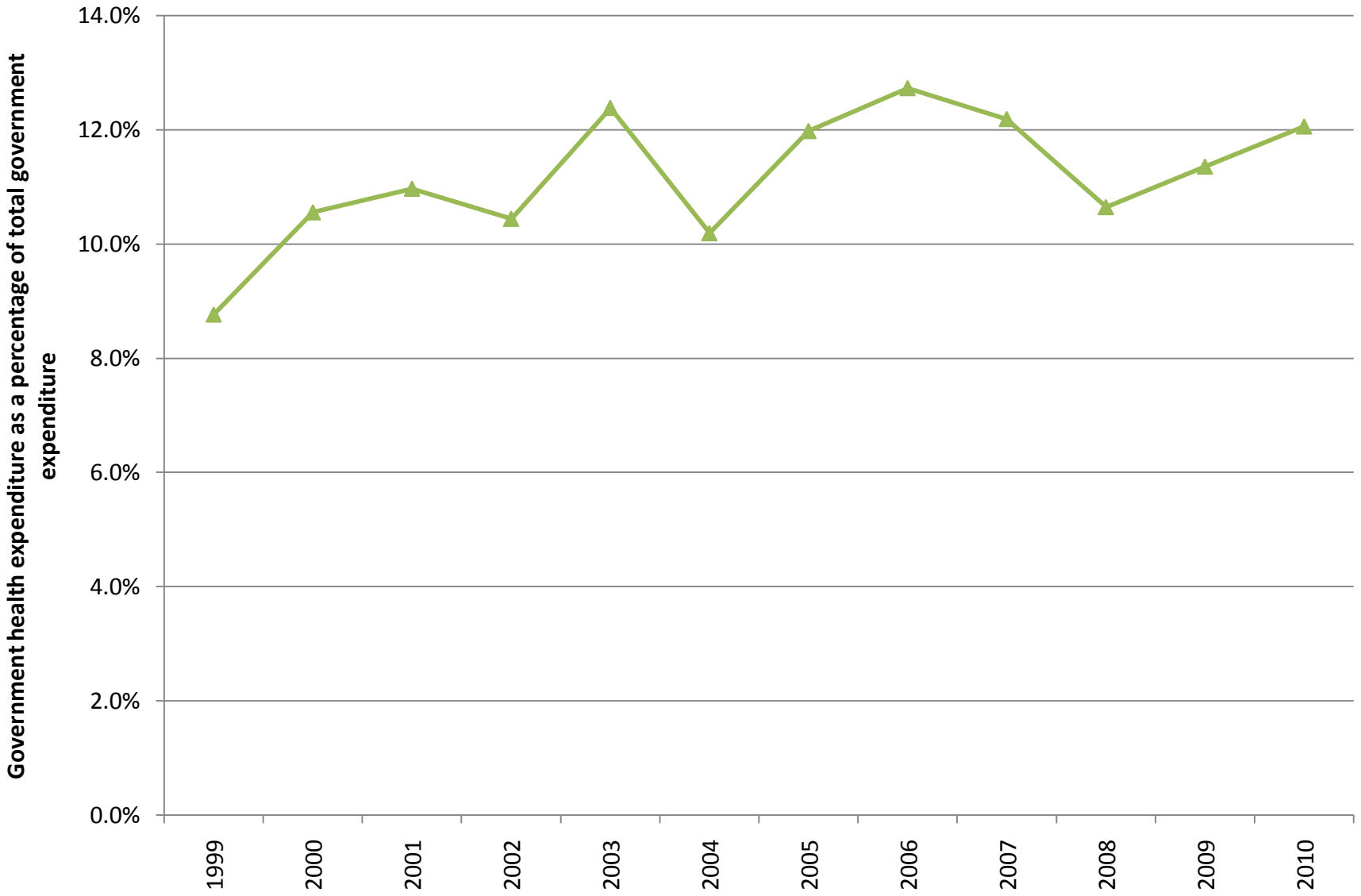
# Background

- Tanzania adopted free health care policy immediately after independence
  - The objective was to achieve the goal of health care access to all as also stipulated in the Alma Ata declaration of 1978
- In 1994 cost sharing policy was re-introduced
  - Due to poor economic performance
- User fee introduction was accompanied by decrease in government share to health financing
  - OOPs became the major source of financing health care
- From mid 1990s to early 2000 there were major reforms in the tax structure
  - E.g. Introduction of Tanzania Revenue Authority (TRA) in 1995 and Value Added Tax (VAT) in 1998
- Tax reforms led to increase in revenue collection hence increase in general tax budget allocated to health financing in 2000s

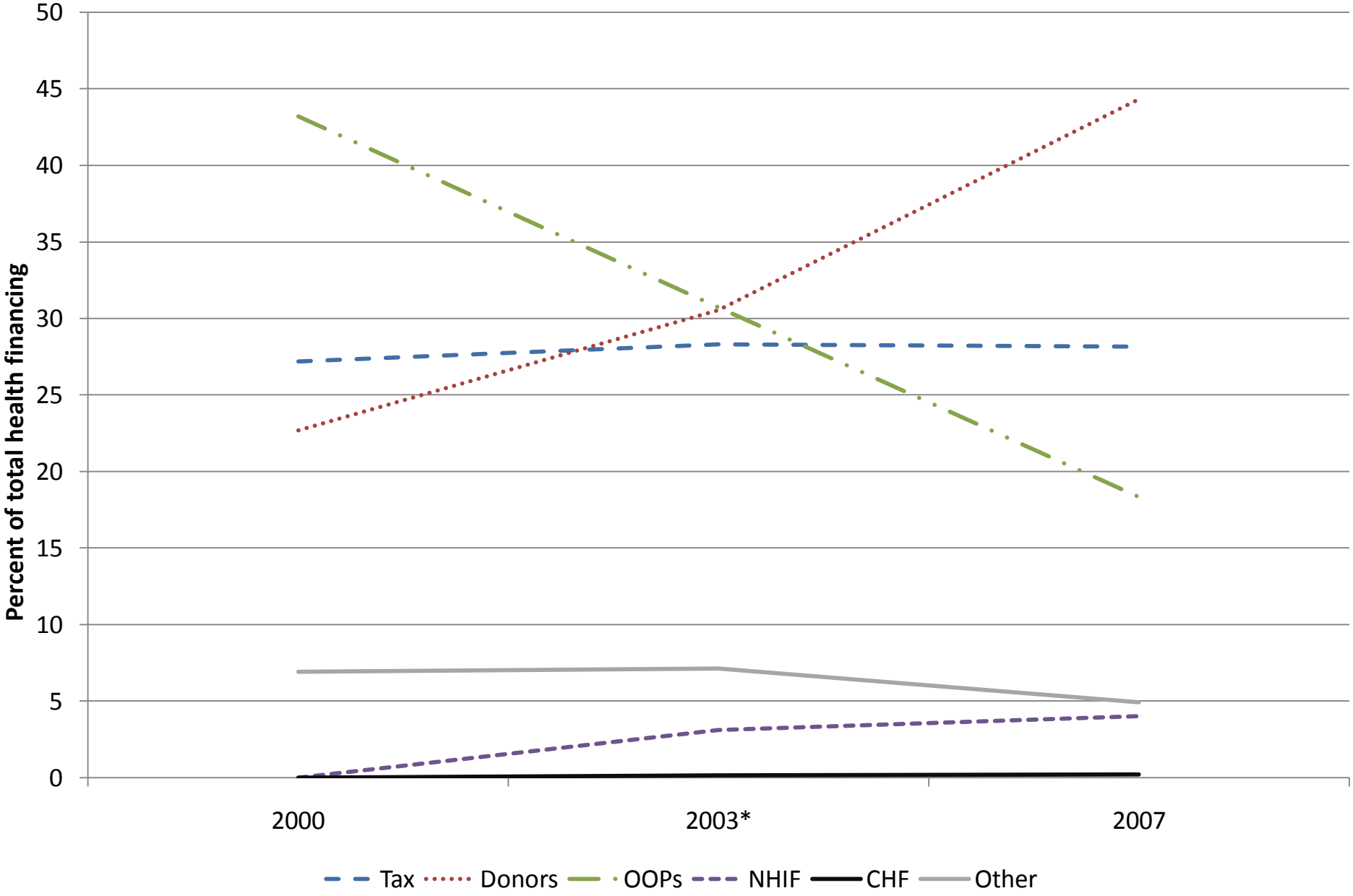
# Public expenditure to health



# Prepayment schemes

- In 2001 prepayment schemes (CHF and NHIF) effectively introduced at a large scale
  - There was a small pilot of CHF in 1996 in one district (Igunga)
- CHF cover informal sector and is limited to outpatient services in primary health facilities and has fixed contribution amount
- NHIF is mandatory for formal public sector and has wider choice of providers up to referral care
  - Private formal sector employees are also allowed to join on voluntary basis
- There are also private for profit insurance schemes (about 7 firms in 2011) and other micro health insurance schemes (about 12 schemes in 2007 and 43 in 2010)
- CHF and NHIF overall coverage was about 9% in 2008 (CHF 4%, NHIF 5%) and 15% in 2011 (CHF 7.9, NHIF 7.1)
- Other insurance schemes covers about 1% of the population
- Contribution of prepayment schemes in total health financing is small

# Contributions of different health care financing sources



# Objectives

- Explore the equity implication of the adopted health financing reforms and changes in health system financing mixture

- Explore the association between health insurance and out of pocket progressivity and financial protection

# Methodology-I

- Tanzania National Household Budget Survey (HBS) data for 2000 and 2007 used to explore the incidence of Tax sources and out of pocket payments
    - HBS 2001- sample size 22178 households
    - HBS 2007- sample size 10752
- The incidence of health insurance contribution was analyzed using SHIELD 2008 data
    - Sample size 2234 households
- Tax sources analysed were
    - Personal income tax, Corporate income tax, Value Added Tax, Excise tax and Import duty
- Health insurance incidence analysis limited to NHIF and CHF

# Methodology-II

- The analysis of the incidence of out of pocket payments disaggregated by type of payment
- Changes in progressivity explored using
    - Graphs, Concentration curves and Kakwani index
- Dominance test was also conducted

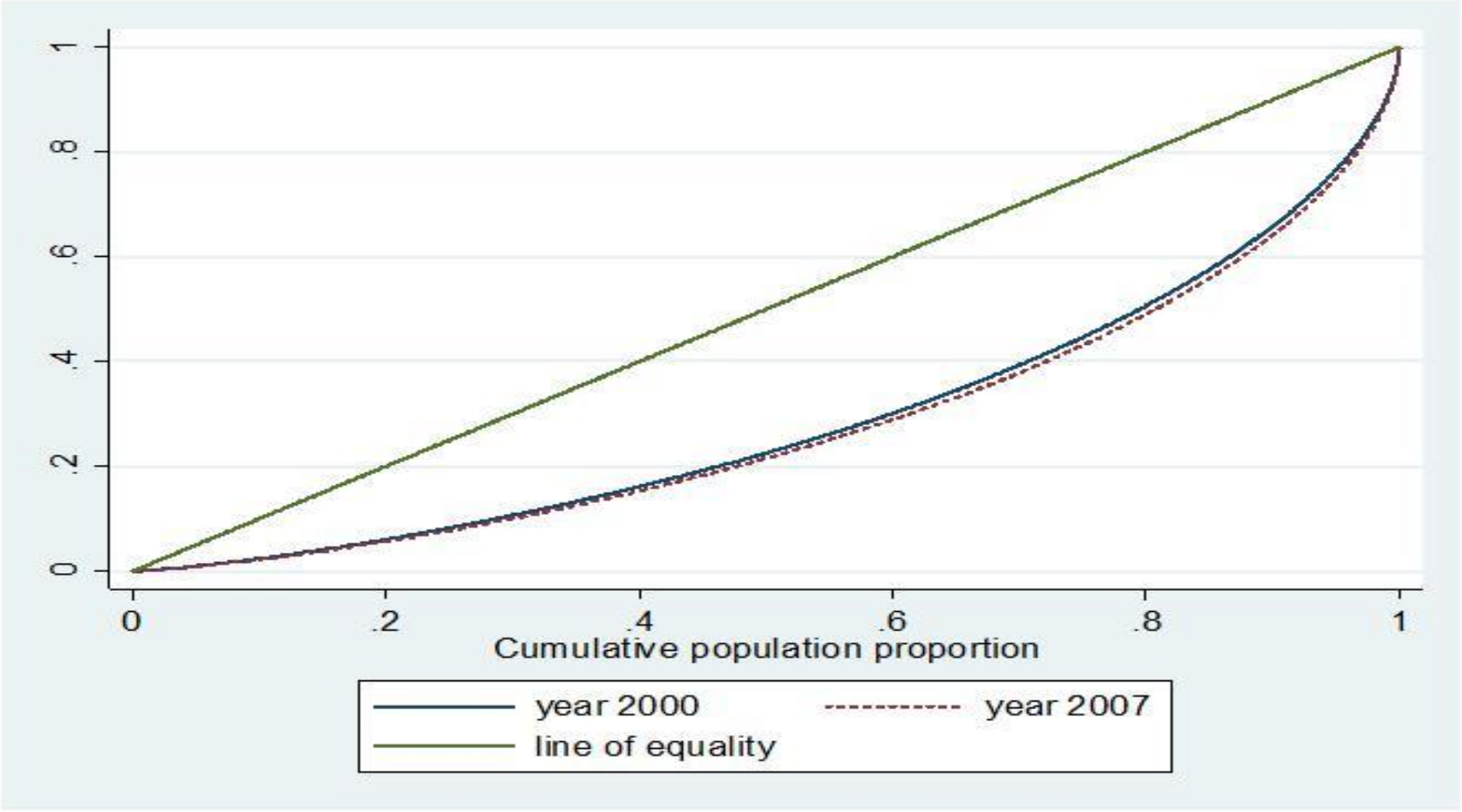
- Adult equivalent consumption used as a measure of living standards

- Changes in risk protection explored using threshold method (10% of total consumption and 40% of non food consumption)

- Two Part Model used to explore the association between insurance and OOPs progressivity and catastrophic effect

# FINDINGS

# Changes in income distribution




**Gini indices: 2000=0.421; 2007=0.432**

# Changes in Tax progressivity

| 2000 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Quintile** | **PIT** | **CIT** | **VAT** | **EXCISE** | **IMPORT** | **DIRECT TAXES** | **INDIRECT TAXES** | **ALL TAXES** |
| Poorest 20% | 0.48% | 2.28% | 5.13% | 3.16% | 5.45% | 1.08% | 4.66% | 3.96% |
| 2nd quintile | 1.54% | 3.67% | 8.80% | 5.12% | 9.09% | 2.25% | 7.85% | 6.76% |
| Middle | 7.57% | 5.68% | 12.85% | 7.85% | 12.47% | 6.94% | 11.43% | 10.56% |
| 4th quintile | 7.82% | 15.74% | 20.03% | 12.58% | 18.86% | 10.47% | 17.82% | 16.39% |
| Least poor 20% | 82.60% | 72.63% | 53.19% | 71.29% | 54.13% | 79.26% | 58.23% | 62.35% |
| KI | 0.410 | 0.367 | 0.145 | 0.266 | 0.146 | 0.394 | 0.175 | 0.221 |
| Std. Err | 0.452 | 0.409 | 0.026 | 0.043 | 0.025 | 0.322 | 0.027 | 0.073 |
| Dominance against Lorenz curve | D- | D0 | D- | D- | D- | D- | D- | D- |

| 2007 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Quintile** | **PIT** | **CIT** | **VAT** | **EXCISE** | **IMPORT** | **DIRECT TAXES** | **INDIRECT TAXES** | **ALL TAXES** |
| Poorest 20% | 0.53% | 1.90% | 5.64% | 1.82% | 7.29% | 1.07% | 4.74% | 3.66% |
| 2nd quintile | 1.35% | 3.26% | 8.93% | 3.74% | 11.08% | 2.11% | 7.69% | 6.05% |
| Middle | 2.70% | 5.50% | 13.55% | 6.95% | 16.02% | 3.81% | 11.94% | 9.54% |
| 4th quintile | 11.62% | 14.89% | 22.45% | 16.05% | 23.13% | 12.92% | 20.63% | 18.35% |
| Least poor 20% | 83.79% | 74.46% | 49.43% | 71.44% | 42.47% | 80.10% | 55.01% | 62.40% |
| KI | 0.410 | 0.294 | 0.138 | 0.320 | 0.062 | 0.369 | 0.183 | 0.236 |
| Std. Err | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.123 | 0.026 | 0.048 |
| Dominance against Lorenz curve | D- | D- | D- | D- | D- | D- | D- | D- |
| %Change in KI | 0.0% | -19.8% | -4.7% | 20.4% | -57.9% | -6.2% | 4.6% | 6.6% |

# Out of pocket and Insurance progressivity

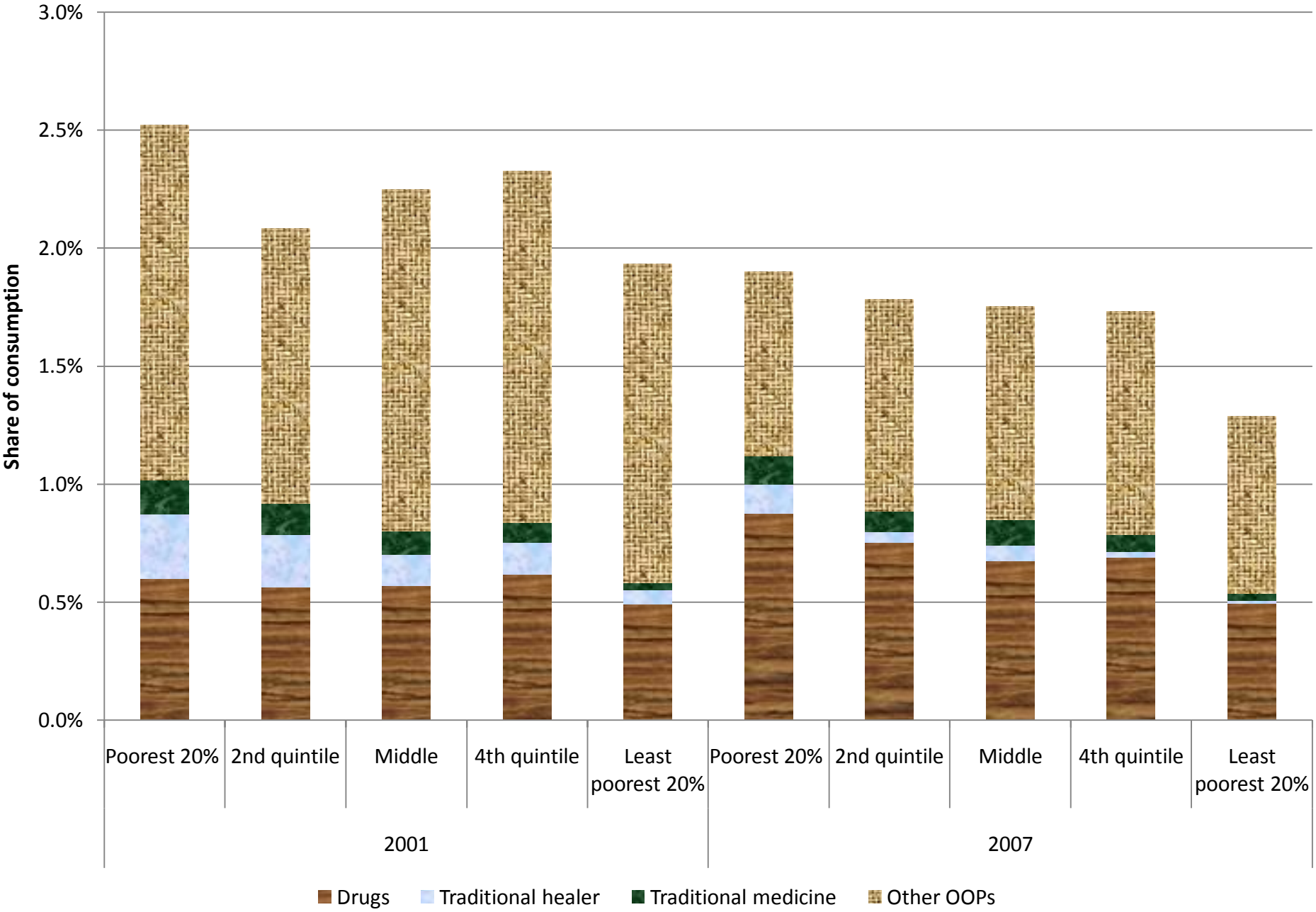
| 2000 | | | | | |
|---|---|---|---|---|---|
| **Quintile** | **OOPs** | **NHIF** | **CHF** | **Total insurance** | **ALL*** |
| Poorest 20% | 10.41% | N/A | N/A | N/A | 7.92% |
| 2nd quintile | 13.01% | N/A | N/A | N/A | 10.60% |
| Middle | 17.88% | N/A | N/A | N/A | 15.05% |
| 4th quintile | 21.49% | N/A | N/A | N/A | 19.52% |
| Least poor20% | 37.20% | N/A | N/A | N/A | 46.91% |
| KI | -0.028 | N/A | N/A | N/A | 0.07 |
| Std. Err. | 0.026 | N/A | N/A | N/A | 0.03 |
| Dominance against Lorenz curve | D+ | N/A | N/A | N/A | D- |

| 2007 | | | | | |
|---|---|---|---|---|---|
| **Quintile** | **OOPs** | **NHIF** | **CHF** | **Total insurance** | **ALL*** |
| Poorest 20% | 10.06% | 0.06% | 22.45% | 1.14% | 5.87% |
| 2nd quintile | 14.09% | 0.34% | 26.87% | 1.62% | 8.64% |
| Middle | 18.77% | 2.30% | 28.73% | 3.58% | 12.34% |
| 4th quintile | 25.06% | 12.23% | 15.47% | 12.39% | 19.56% |
| Least poor 20% | 32.01% | 85.06% | 6.48% | 81.27% | 53.59% |
| KI | -0.070 | 0.498 | -0.478 | 0.285 | 0.121 |
| Std. Err. | 0.001 | 0.122 | 0.087 | 0.078 | 0.035 |
| Dominance against Lorenz curve | D+ | D- | D+ | D- | D- |
| %Change in KI | 152.1% | N/A | N/A | N/A | 72.8% |

*All includes taxes

- Without insurance (i.e. Taxes plus OOPs) Kakwani index in 2007=0.115

# Disaggregated OOPs progressivity analysis



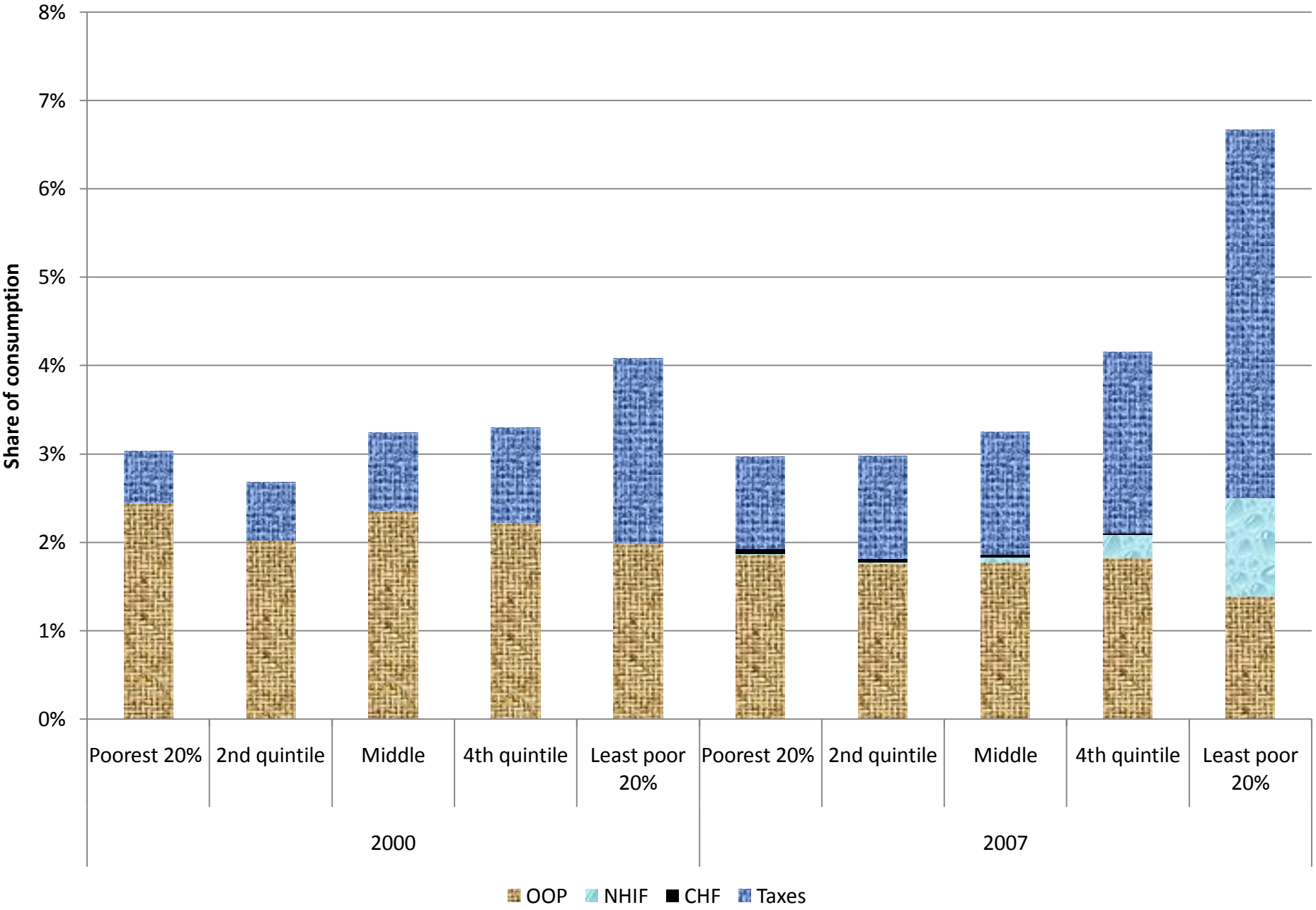
# Disaggregated OOPs-Kakwani indices

| | 2000 | | | 2007 | | |
|---|---|---|---|---|---|---|
| | **Kakwani index** | **Dominance against Lorenz curve** | **Dominance against 45 degree line** | **Kakwani index** | **Dominance against Lorenz curve** | **Dominance against 45 degree line** |
| Drugs | -0.025 | D+ | D- | -0.096 | D+ | D- |
| *Std. Err.* | (.038) | | | (0.030) | | |
| Traditional healer | -0.245 | D+ | D- | -0.194 | D0 | D0 |
| *Std. Err.* | (0.065) | | | (0.075) | | |
| Traditional medicine | -0.285 | D+ | D- | -0.296 | D+ | D- |
| *Std. Err.* | (0.054) | | | (0.066) | | |
| Other | 0.004 | Dx | D- | -0.028 | D0 | D- |
| *Std. Err.* | (0.033) | | | (0.033) | | |

# Progressivity dominance test across years

| Financing source | Concentration curves dominance test | Progressivity dominance test |
|---|---|---|
| Personal income tax | ND | ND |
| Corporate income tax | ND | ND |
| Value Added Tax | ND | D07 |
| Excise tax | D00 | D00 |
| Import duty | D07 | D07 |
| Total direct taxes | ND | ND |
| Total indirect taxes | ND | ND |
| All taxes | ND | ND |
| Out-of-pocket payments | D07 | D07 |
| Taxes plus out-of-pocket payments | ND | ND |

# Total health financing distribution



# Changes in Catastrophic payments

| Measure of catastrophe | 2000 | | 2007 | | % Change | |
|---|---|---|---|---|---|---|
| | TC | NFD | TC | NFD | TC | NFD |
| Catastrophic headcount | 2.92% | 0.96% | 1.82% | 0.39% | -37.61% | -59.09% |
| Std. Err. | 0.0031 | 0.0015 | 0.0023 | 0.0010 | | |
| Concentration index | -0.12 | -0.25 | -0.17 | -0.33 | 38.08% | 28.42% |
| Std. Err. | 0.0004 | 0.0011 | 0.0017 | 0.0071 | | |
| Catastrophic overshoot | 0.16% | 0.12% | 0.11% | 0.04% | -31.29% | -64.95% |
| Std. Err. | 0.0002 | 0.0003 | 0.0002 | 0.0001 | | |

# The association between health insurance and OOP progressivity and risk protection- Two Part model selected results

| VARIABLES | Probability of utilization | Share of out-of-pocket | Probability of catastrophic payment |
|---|---|---|---|
| Income | 0.101* | -0.063*** | -0.516*** |
| se | (0.054) | (0.019) | (0.153) |
| NHIF | 0.380*** | -0.951*** | -9.456*** |
| se | (0.098) | (0.251) | (3.083) |
| CHF | 0.381*** | -0.628** | -6.067* |
| se | (0.053) | (0.267) | (3.149) |
| NHIF interaction with income | | 0.068*** | 0.696*** |
| se | | (0.019) | (0.233) |
| CHF interaction with income | | 0.046** | 0.437* |
| se | | (0.022) | (0.259) |
| Constant | -2.518*** | 0.930*** | 6.377*** |
| se | (0.698) | (0.246) | (1.954) |
| Observations | 11,097 | 1,481 | 1,481 |
| Pseudo R-sqaure/R-square | 0.0518 | 0.168 | 0.1462 |

# Discussion I

- Government efforts to reform the health system have resulted into an increase in public funding to the health sector between 2000 and 2007
  - Mostly contributed by donor funding
- The share of out of pocket payments has decreased over this period
  - However the share of drug expenditure has increased
- Changes in the amount of general tax allocated to health financing is small
- General taxation has become more progressive
  - Mainly contributed by changes in the progressivity of Excise Tax
  - Import duty has become less progressive
    - Increase in consumption of imported commodities
- Contributions to NHIF are progressive while those to CHF are highly regressive
- The influence of health insurance on overall progressivity is small
  - Due to limited coverage, hence limited amount of funds (small pool)

# Discussion II

- Despite the observed massive increase in public funding (Tax plus Donor funding),
  - regressivity of out of pocket payments has increased
  - Possibly because
    - Increased resources are not allocated to improve health services which are consumed by the poor (especially public facilities)
      - Hence the poor purchase expensive private care
    - CHF that targets the poor is limited to primary care and does not cover catastrophic spending at hospitals and referral facilities
- There has been a decrease in the proportion of households incurring catastrophic spending, however;
  - Catastrophic payments concentrates among the poor in 2007 than was in 2000
    - Same reasons above apply here

# Discussion III

- Health insurance reduce regressivity and catastrophic risk of out of pocket payments
  - OOPs progressive among insured
  - Insurance reduce the probability of incurring catastrophic payments
- CHF has a limited protection against catastrophic risk compared to NHIF
  - CHF does not cover catastrophic expenditures except for few districts

# Conclusions

- Equity in health financing does not only imply
  - Increase in public funding and health insurance and decrease in out of pocket payments
  - But also
    - Whether increased prepayment resources are used to fund the health care needs of the poor
      - Distributional issues
- There is a need of promoting health insurance and harmonize formal and informal sector insurance schemes (to reduce fragmentation)
  - This will help the poor to enjoy wider benefit package hence protection against catastrophic risk
- Reducing fragmentation is a major ingredient towards achieving Universal Coverage

# Thank you