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REPUBLIK INDONESIA

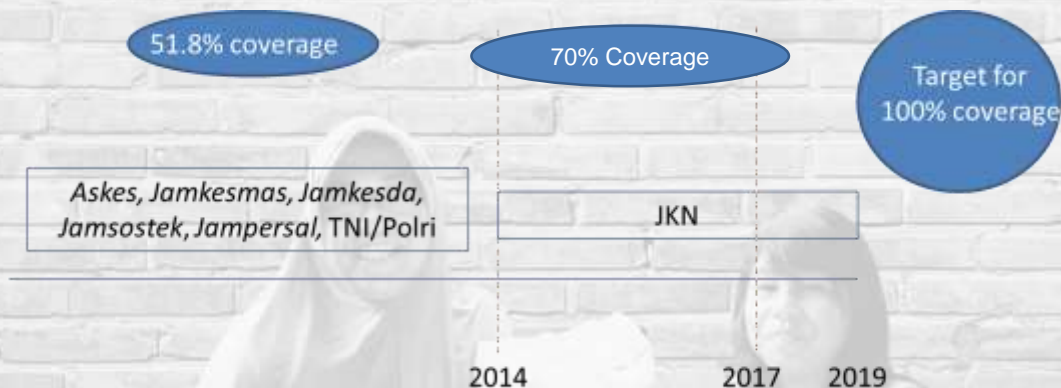


# ***Jaminan Kesehatan Nasional (JKN):*** **Delivering the biggest social health** **insurance program in the world**

Sekretariat Wakil Presiden Republik Indonesia

Tim Nasional Percepatan Penanggulangan Kemiskinan (TNP2K)

21 November 2017



Aim: to provide access to healthcare services for all Indonesians regardless of economic status and geographical location



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# The impact of JKN on total health expenditure

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# Objective

- To evaluate the impact of JKN on total health expenditure
  - ❖ As we move towards public health system, total health expenditure becomes an increasingly important quantity to monitor as it has direct implication on fiscal budget
  - ❖ Feedback on milestones achieved during its first few years of implementation can provide valuable inputs to the design of the program for years to come
  - ❖ Provide evidence-based policy advocate for JKN as a social program to allow access to health care services by all Indonesians

# Data

- The sample is derived from the national socio-economic survey (SUSENAS) 2011-2016, supplemented with community-level data (PODES) in years 2011 and 2014
  - ❖ SUSENAS is an annual cross-section household-level survey, with about 300,000 households every year
  - ❖ Nationally-representative, covering all 34 provinces
  - ❖ The only micro-level data that covers long-enough period to evaluate JKN's impact
  - ❖ Primary data source for National Health Account and government reports

Table 1A: Distribution of social health insurance by year and wealth quintile

Quintile	2011	2012	2013	2014	2015	2016
1 (poorest)	24.07	23.10	24.40	24.52	22.21	21.59
2	19.67	19.38	20.95	21.54	19.35	19.21
3	16.98	17.58	18.34	17.73	18.36	18.45
4	17.54	17.75	16.82	17.05	18.21	19.00
5 (richest)	21.74	22.19	19.48	19.17	21.86	21.75

Note: figures in the table are the percentage of households covered by any form of social health insurance in a given wealth quintile. The wealth quintiles are computed from the entire sample of households in SUSENAS in each year with frequency weights to reflect the population wealth distribution in each year. Wealth variables include ownership of motor vehicle, house, other valuable goods and housing characteristics (e.g., type of flooring and roofing, utility connections, etc).

**Table 1B: Distribution of insurance for the poor/near-poor by year and wealth quintile**

Quintile	2011	2012	2013	2014	2015	2016
1 (poorest)	37.94	36.89	33.38	33.62	32.90	31.75
2	28.24	27.63	27.09	27.87	25.97	25.39
3	19.15	19.92	20.70	19.51	20.89	20.60
4	11.13	11.68	13.37	13.55	13.49	15.06
5 (richest)	3.55	3.89	5.46	5.44	6.75	7.20

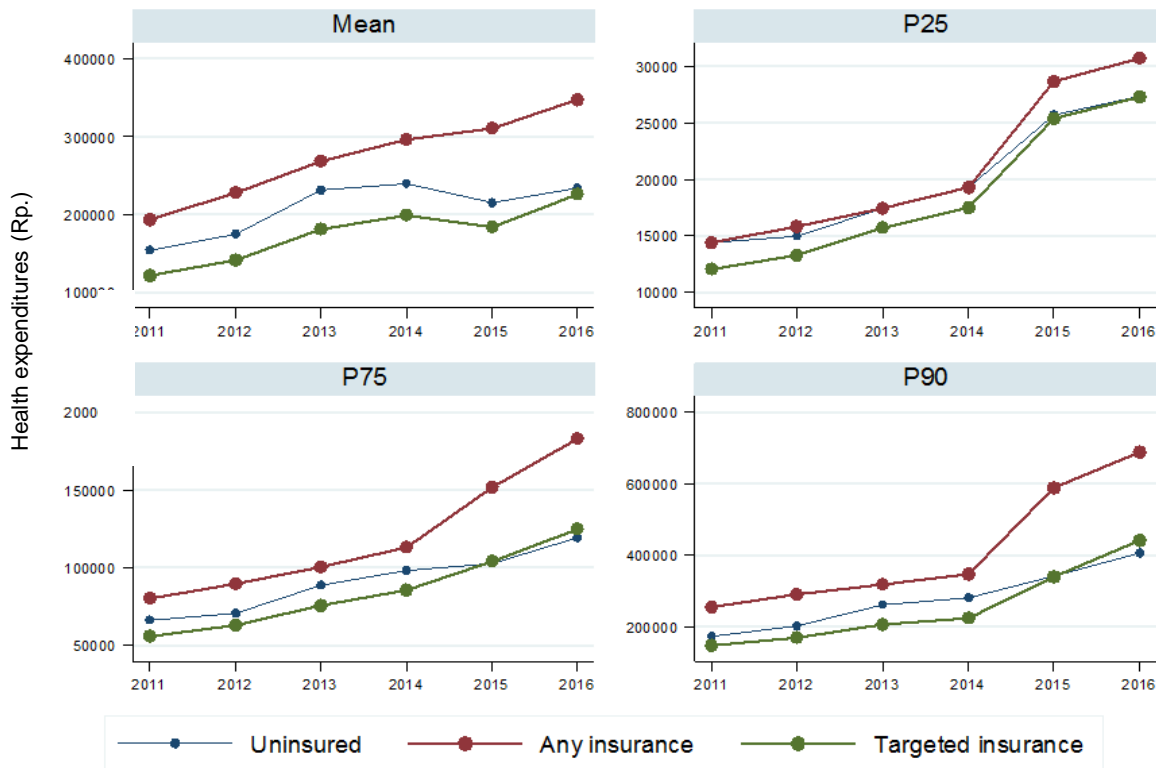
Note: figures in the table are the percentage of households covered by targeted social health insurance for the poor in a given wealth quintile. The wealth quintiles are computed from the entire sample of households in SUSENAS in each year with frequency weights to reflect the population wealth distribution in each year. Wealth variables include ownership of motor vehicle, house, other valuable goods and housing characteristics (e.g., type of flooring and roofing, utility connections, etc).

# Sample

- Population of interest: household users of formal health services
  - ❖ 'Formal' means not traditional healers
  - ❖ Defined as households with total health expenditure > 0 in the last 3 months, excluding over-the-counter medicines and insurance premium
  - ❖ Total health expenditure = OOP + subsidy
- Exclude households with private insurance (and double insurance) and employer-sponsored health insurance (2-7%)
- In any given year, 65% of households use at least one health service in the last 3 months



## Total health expenditure by insurance status over time



## Summary statistics of health expenditure by insurance and time

Outcome	2011-2013			2015-2016		
	Insured	Uninsured	Difference	Insured	Uninsured	Difference
Mean	231,484	185,599	45,885	330,028	223,793	106,235
(s.d.)	(1,355,874)	(1,277,498)		(1,458,979)	(1,035,346)	
P25	16,028	15,627	401	30,000	26,628	3,373
P75	91,357	74,841	16,516	167,664	110,345	57,319
P90	288,006	208,724	79,282	642,599	372,648	269,951
N	218,181	227,583		198,005	116,085	

## Summary statistics of health expenditure by targeted insurance and time

Outcome	2011-2013			2015-2016		
	Insured	Uninsured	Difference	Insured	Uninsured	Difference
Mean	153,201	185,599	-32,398	204,064	223,793	-19,730
(s.d.)	(966,265)	(1,277,498)		(856,259)	(1,035,346)	
P25	14,137	15,627	-1,490	26,316	26,628	-312
P75	66,514	74,841	-8,327	113,844	110,345	3,499
P90	177,167	208,724	-31,557	386,250	372,648	13,602
N	135,816	227,583		111,274	116,085	

# Estimation of JKN's impact

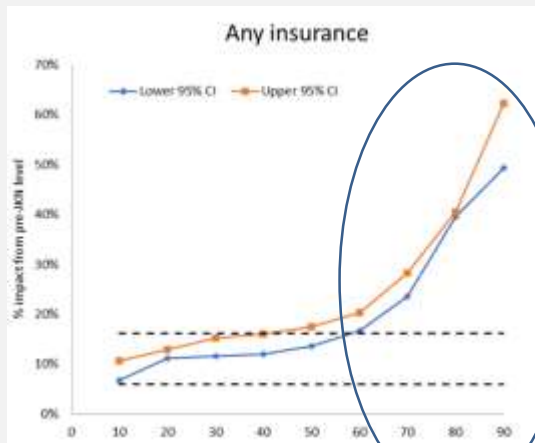
- We use regression-adjusted before-and-after analysis, with household and village characteristics as control variables
- The control group is uninsured households in the pre-JKN period
  - ❖ Including uninsured control for changes in health expenditure that happen to everybody, not just to insured households (e.g., due to macro changes or changes in survey instruments in pre- and post-JKN 2014)
- Explore impact heterogeneity using quantile regressions

# Results

	Any insurance			Targeted insurance		
	[1]	[2]	[3]	[1]	[2]	[3]
OLS	60,391*** (7.50)	42,381*** (5.33)	38,250*** (4.79)	12,706* (1.74)	-5,485 (0.76)	-12,658* (1.73)
GLM	61,545*** (7.59)	29,518*** (4.18)	23,463*** (3.38)	12,585* (1.69)	-709 (0.12)	-7,049 (1.16)
HH control	x	√	√	x	√	√
Village control	x	x	√	x	x	√
N	759,811	759,801	759,801	590,615	590,660	590,660

- On average, JKN increases total expenditure by Rp.23,400 (or 10% from pre-JKN's mean)
- On average, PBI has no impact (confidence bound includes 0)
- Not accounting for environmental factors tend to overestimate JKN's impact

## Impact at every 10<sup>th</sup> percentile of total health expenditure (as % of pre-JKN's level)



Source: TNP2K, 2017.



Dashed: lower/upper bound of JKN's impact at the mean  
Coloured: lower/upper bound of JKN's impacts at every 10<sup>th</sup> percentile of total health expenditure

- JKN's impact is larger for insured households with high total health expenditure (up to 56% at P90)
- PBI also has significant positive impact at the upper part of the total health expenditure distribution (about 14% at top 20%)

# Conclusion (1)

- JKN has a positive impact on total health expenditure
  - ❖ Total health expenditure of insured households increases by about 10% from the pre-JKN level, on average
  - ❖ The impact is larger at the top of the health expenditure distribution, increasing health expenditure by 29% and 57% at the 75<sup>th</sup> and 90<sup>th</sup> percentiles from their respective pre-JKN levels
- PBI has no significant impact at the mean, but it has significant positive impact at the top of health expenditure distribution, increasing expenditure by 14% at the 75th percentile and above

## Conclusion (2)

- Although at this stage, we are not yet able to provide evidence that JKN provides financial protection due to the absence of nationally-representative OOP data at micro-level, we have shown that JKN provides health protection
  - ❖ Larger impact for those with high health care needs
- One drawback from this analysis is that we are unable to tell apart real health care need from induced consumption as people take advantage of the free services



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# Access inequity, health insurance & the role of supply factors

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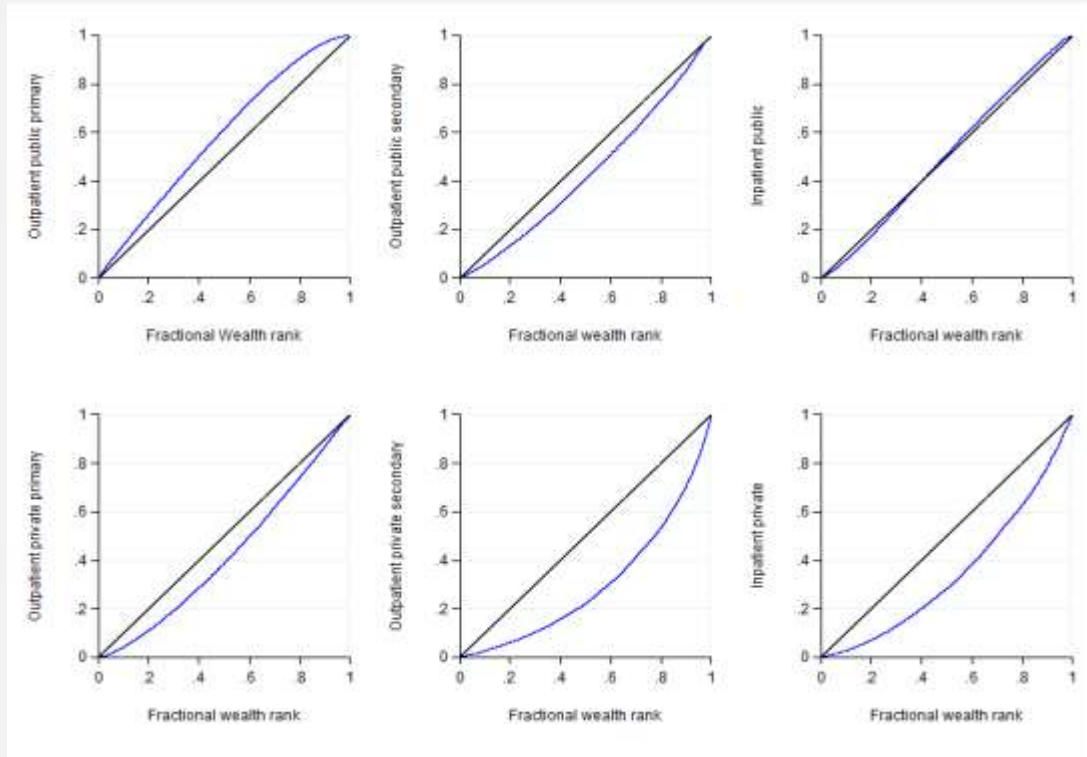
# Objectives

- Analyse inequity in access to various health care in Indonesia
  - ❖ Produce concentration curves and concentration indices, which summarise the extent of the access inequity
  - ❖ Test whether access inequities narrow down with JKN
- Investigate sources of access inequity
  - ❖ Decomposition analysis: inequity in access is a weighted sum of inequities in its determinants
  - ❖ Examine whether the roles of access determinants change post JKN

# Concentration Curve

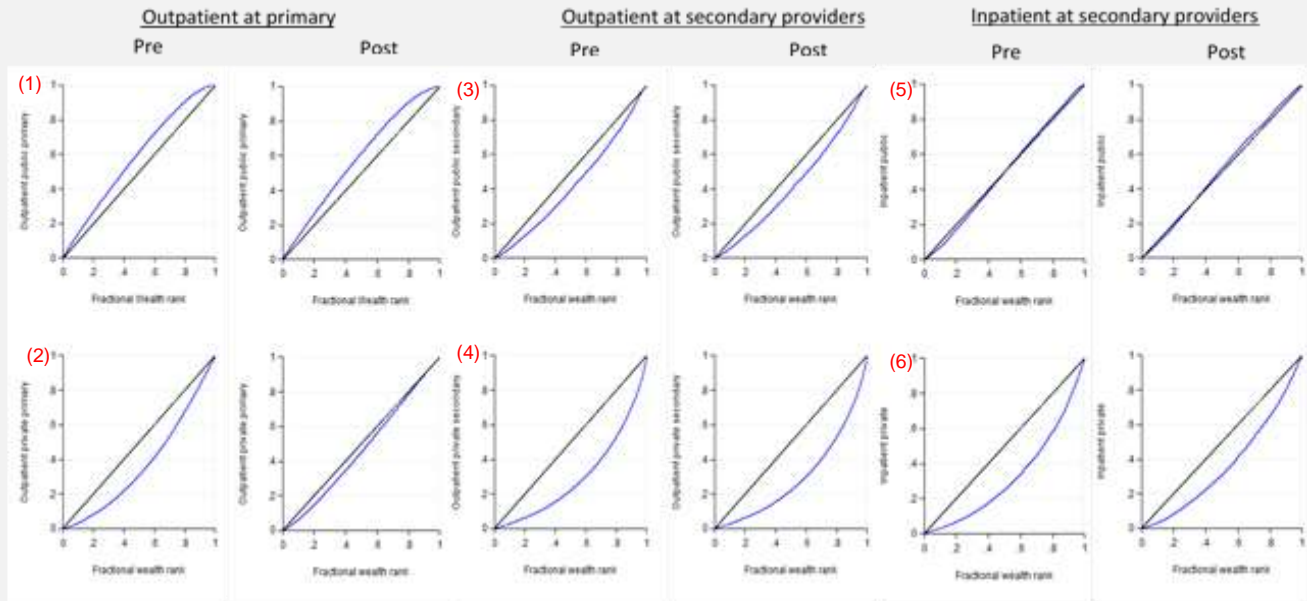
- Plots the cumulative distribution of health care use as a function of the cumulative distribution of the population ranked by its economic status
  - ❖ We use wealth as the measure of economic status
- Health services are equally distributed if their concentration curves coincide with the 45 degree line
- A curve that lies below the 45 degree line indicates service use that is more concentrated among the rich

# Concentration curve for various health services in Indonesia 2011-2016



Source: TNP2K, 2017

# Concentration curves of various types of health care pre- and post-JKN

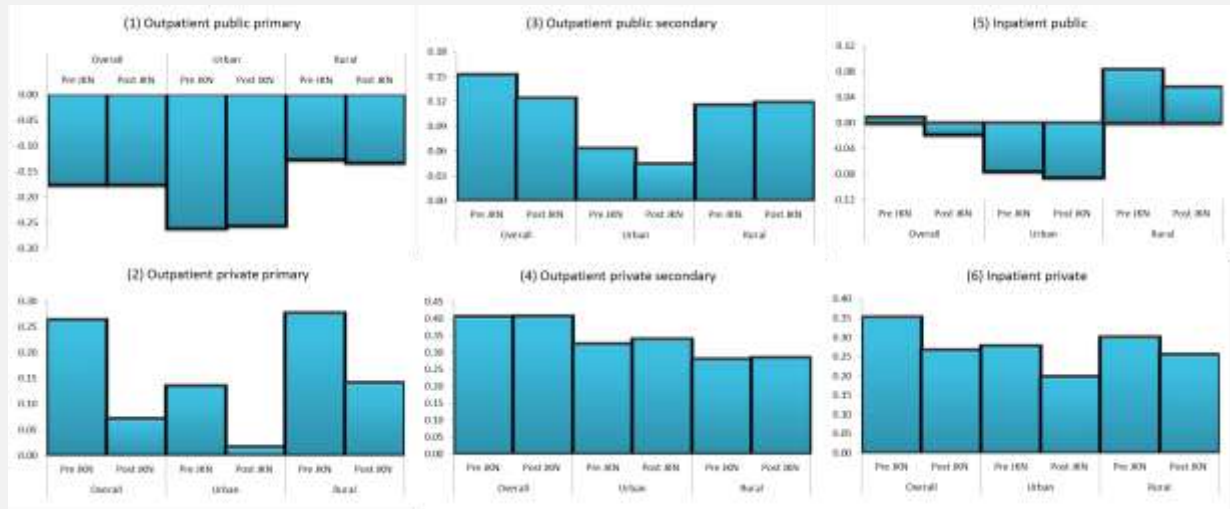


- 1) Access to outpatient care at public primary (*puskesmas*) is pro-poor and remains pro-poor (no change)
- 2) Access to outpatient care at private primary (doctors' clinics) is pro-rich but becoming more pro-poor post-JKN (by about 50%)
- 3) Access to outpatient care at public secondary (hospital) is pro-rich but becoming more pro-poor post-JKN (by about 19%)
- 4) Access to outpatient care at private secondary (hospital) remains pro-rich (no change)
- 5) Access to inpatient care at public secondary (hospital) turns from slightly pro-rich to slightly pro-poor (very close to equity)
- 6) Access to inpatient care at private secondary (hospital) is pro-rich but becoming more pro-poor post-JKN (by about 24%)

# Concentration index

- Measures the area between the concentration curve and the 45 degree line
- $CI < 0$ : concentration curve lies above 45<sup>0</sup> line
  - ❖ disproportionate concentration of the health care use among the poor (pro-poor)
- $CI > 0$ : concentration curve lies below 45<sup>0</sup> line
  - ❖ disproportionate concentration of the health care use among the rich (pro-rich)

## Concentration indices of various types of health care pre- and post-JKN: overall and by remoteness



Source: TNP2K, 2017

- 1) Access to outpatient care at public primary remains pro-poor in all areas
- 2) Access to outpatient care at private primary is pro-rich but becoming more pro-poor in all areas
- 3) Access to outpatient care at public secondary is pro-rich but becoming more pro-poor in urban areas
- 4) Access to outpatient care at private secondary remains pro-rich
- 5) Access to inpatient care at public secondary is pro-poor in urban but pro-rich in rural, although becoming more pro-poor post-JKN
- 6) Access to inpatient care at private secondary is pro-rich but becoming more pro-poor post-JKN

# Determinants of health care utilisation

Suppose a linear additive relationship

$$y = \beta_0 + \beta_1 * \text{health care need} + \beta_2 * \text{non-health factors} + \beta_3 * \text{health insurance} + \beta_4 * \text{geography} + \beta_5 * \text{health infrastructure} + e$$

- Health care needs: sex-age interaction, # sick days
- Non-health factors: wealth, household head's characteristics (capture earning ability), marital status
- Health insurance: SHI (non PBI), SHI (PBI), private/dual
- Geo: urban/rural, village socio-economic index, province fixed effects
- Health infrastructure: primary, secondary, maternal
- e: other unobserved characteristics

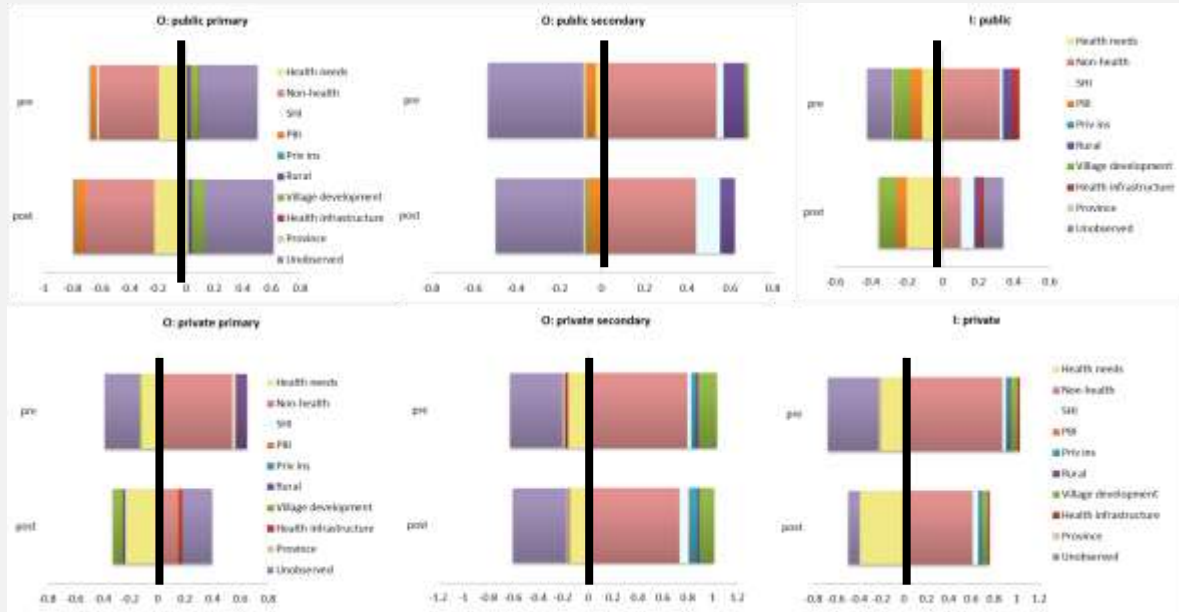
# The Roles of Determinants On Access Inequity

- Wagstaff et al (**JECMT**, 2003): access inequity is a function of inequities of its determinants
- Let  $CI_h$  be the CI of variable  $h$
- We can replace all variable in the previous equation by their CIs and the  $\beta$ s by elasticities  $\theta_h = \bar{h}/\mu \times \beta_h$  ( $h=1,2,3,4,5$ )

$$\begin{aligned}
 CI_y = & \theta_0 + \theta_1 * CI_{\text{health need}} + \theta_2 * CI_{\text{non-health}} \\
 & + \theta_3 * CI_{\text{health insurance}} + \theta_4 * CI_{\text{geo}} + \theta_5 * CI_{\text{health infrastructure}} \\
 & + CI_e
 \end{aligned}$$



# Sources of access inequity pre- & post-JKN



Source: TNP2K, 2017

- The biggest contributors of access inequity are health needs, non-health (economic) factors and unobserved factors
- Health needs are always pro-poor; PBI is pro-poor at public facilities
- Remoteness (rural) is mostly pro-rich; non-health and SHI are pro-rich except for accessing *puskesmas*

# The role of unobservables in access inequities

- Pro-poor unobserved factors
  - ❖ May suggest the presence of excess capacity or other supply advantages in areas where rich people use many health services
- Pro-rich unobserved factors
  - ❖ May suggest supply disadvantage (e.g., overcrowding) which in turn lead to prioritisation of patients that disfavour the poor
- Pro-poor contributions of unobservables to access gap in private clinics and public beds turn to pro-rich post JKN.

# Changing roles of observed determinants

2 sources: changing inequities ( $\Delta CI$ ) and changing elasticities ( $\Delta elas$ )

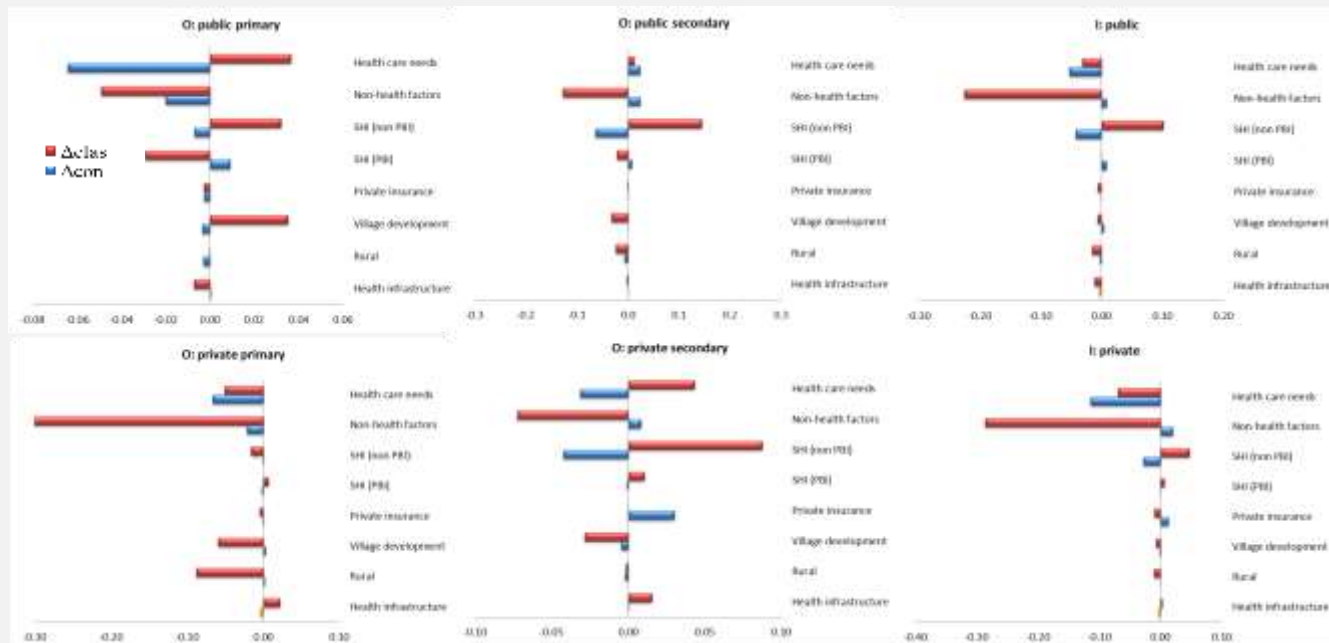
The decomposition equation becomes

$$\Delta CI_y = \sum_h \theta_{ht} (CI_{ht} - CI_{ht-1}) + \sum_h CI_{ht-1} (\theta_{ht} - \theta_{ht-1}) + \Delta(GCI_{\varepsilon t} / \mu_t)$$

Change in the CIs of  
access determinants

Change in the elasticities  
of access determinants

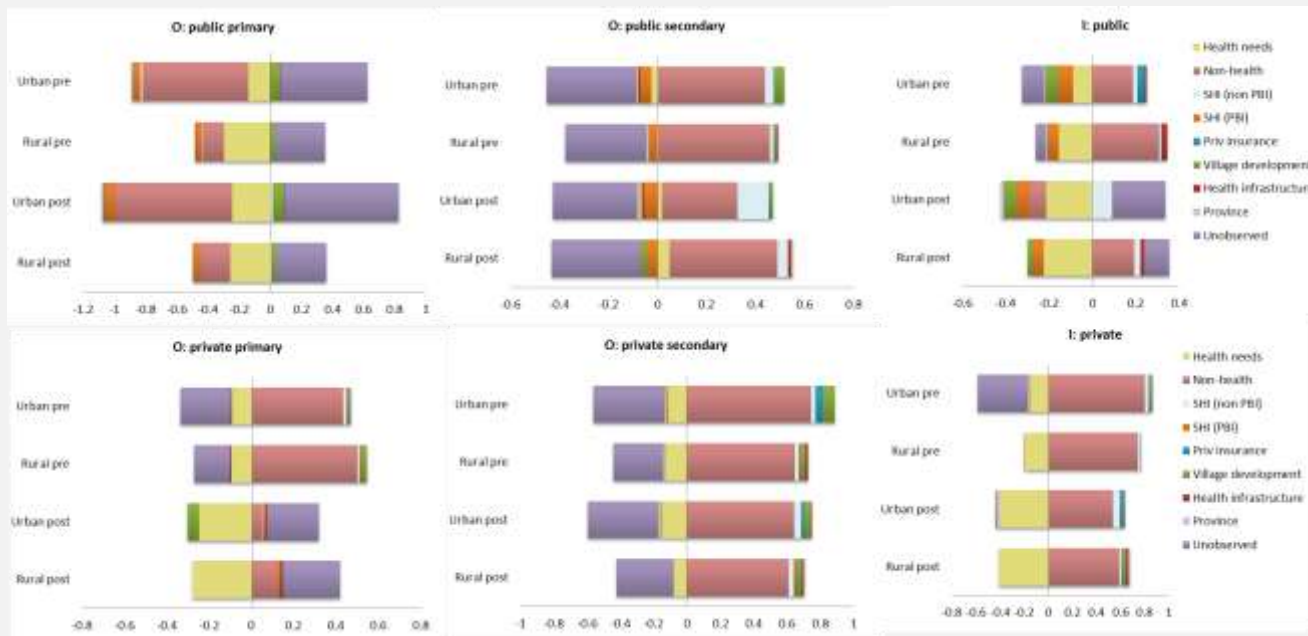
# Sources of changing access inequity pre- & post-JKN



Source: TNP2K, 2017

- Changing contributions are driven by changing elasticities more than changing inequities
- Weaker pro-rich economic factors is due to falling elasticity (weaker utilisation-economic factor relationship)
- SHI is pro-rich although a part of it being counteracted by wider coverage (more pro-poor)
- No evidence of falling inequity in distribution of health infrastructure post-JKN

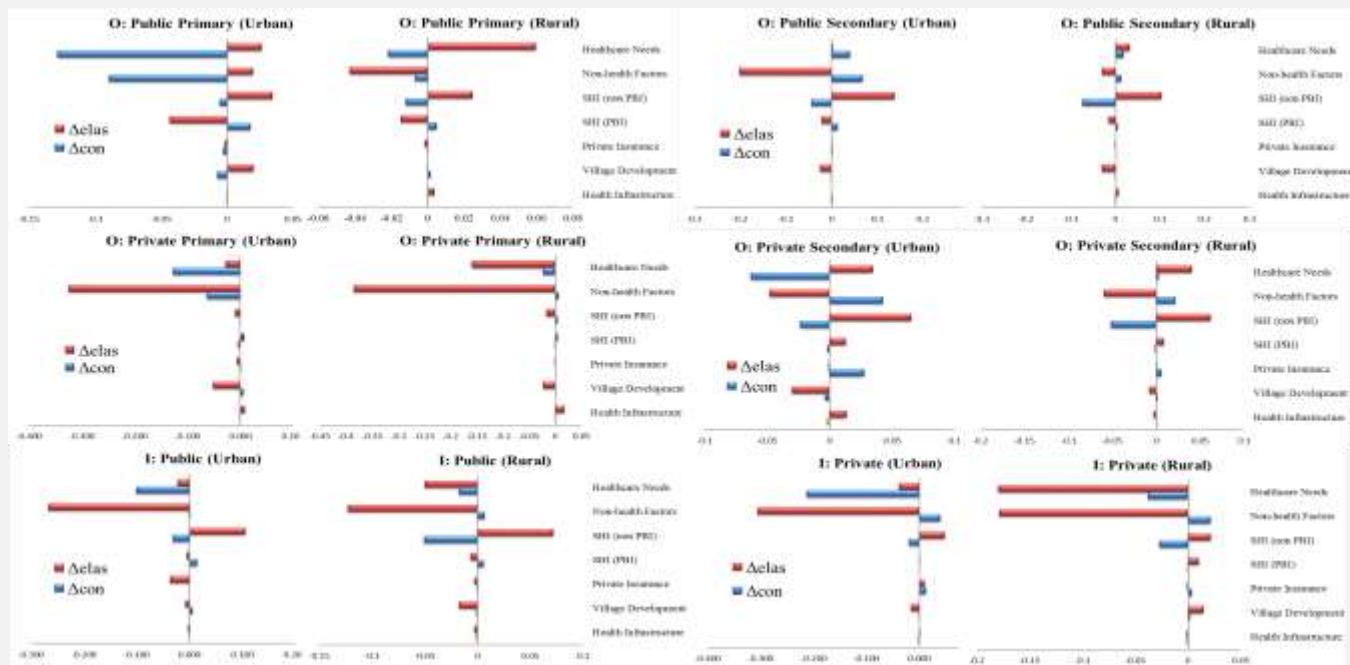
# Sources of access inequity pre- & post-JKN: by remoteness



Source: TNP2K, 2017

- Most observed variables contribute in the same direction to access inequities in rural and urban areas
- Inpatient care at public hospital is pro-rich in rural areas due to strong pro-rich economic factors; in urban areas, pro-rich economic factors are counteracted by pro-poor PBI distribution and village development

# Two-way decomposition of changes in access inequity by remoteness



Source: TNP2K, 2017

- In urban areas, falling inequity is driving the more pro-poor contribution of health care needs post-JKN
- In urban *puskesmas*, falling inequity drives the more pro-poor contribution of non-health factors post-JKN
- No evidence of falling inequity in health infrastructure distribution in any area

# Three-way decomposition: separating changing elasticities due to changing means and changing association with utilisation

$$\Delta C_y \approx -\frac{C_y}{\mu}(\alpha_t - \alpha_{t-1}) + \sum_h \frac{\bar{x}_h}{\mu}(C_h - C_y)(\beta_{ht} - \beta_{ht-1}) + \sum_h \frac{\beta_h}{\mu}(C_h - C_y)(\bar{x}_{ht} - \bar{x}_{ht-1}) +$$

Changing elasticities

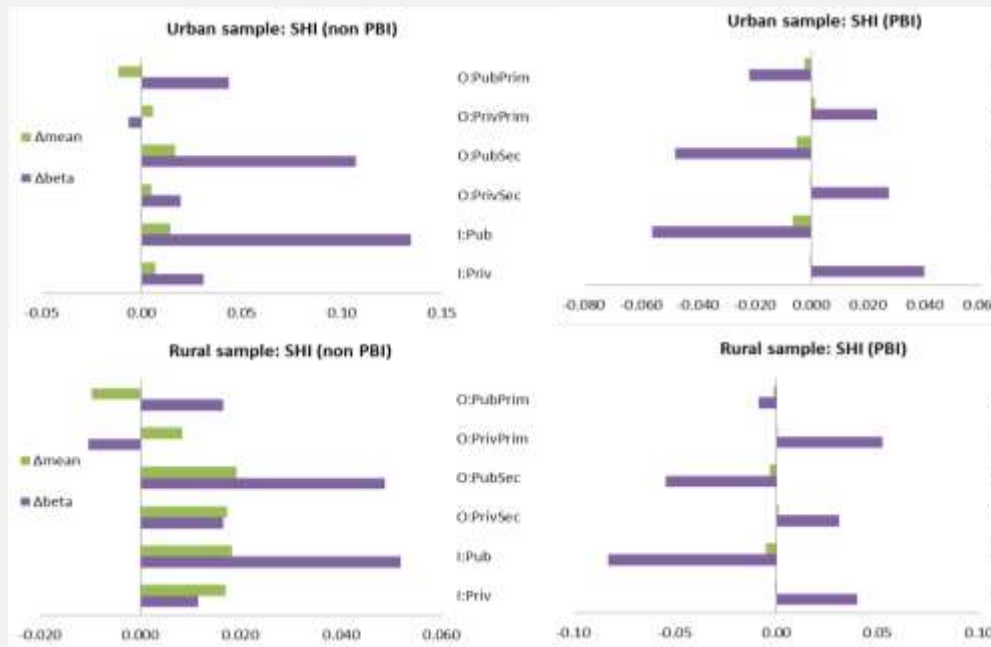
$\downarrow$  Changing betas       $\downarrow$  Changing means

$$\sum_h \frac{\beta_h \bar{x}_h}{\mu}(C_{ht} - C_{ht-1}) + \left( \frac{GC_{\varepsilon t}}{\mu_t} - \frac{GC_{\varepsilon t-1}}{\mu_{t-1}} \right)$$

$\downarrow$  Changing inequities – as before in two-way decomposition

Weighted by whether that determinant is more/less equally distributed than health care use

## Decomposing changing elasticities (three-way decomposition): insurance variables



Source: TNP2K, 2017

SHI: except at private clinics, pro-rich contribution is driven by higher propensity of us  
PBI: changing elasticity is almost solely driven by changing beta >> higher propensity  
to use public care but lower propensity to use private care



# Conclusion (1)

- Access to *puskesmas* is pro-poor whilst access to other health care are pro-rich
- Post-JKN, access to *puskesmas* remains pro-poor while access to other services become more pro-poor, especially private clinics and private hospital beds
- The main reason for this narrower access gaps is much weaker association between health care utilisation and households' economy
  - ❖ Consistent with the fundamental of JKN as consumption-smoothing mechanism and JKN's philosophy to provide financial protection against high medical spending

## Conclusion (2)

- Urban areas see bigger improvements in access gap reduction
- PBI distribution is less pro-poor post-JKN and PBI beneficiaries have lower propensity to use private facilities
- No evidence of substantial improvement in the distribution of health infrastructure that favours access to care by the poor

**Thank you**

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