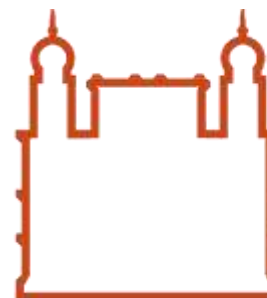


cidacs
Centro de Integração de Dados
e Conhecimentos para Saúde



Ministério da Saúde

FIOCRUZ

Fundação Oswaldo Cruz

Instituto Gonçalo Moniz

2024 IDM Symposium

Financial transfers for PHC and socio-economic deprivation in Brazil (2010-2017)



Primary Health Care
and its Effects on
Population Health

BILL & MELINDA
GATES *foundation*

1st October 2024

Overview

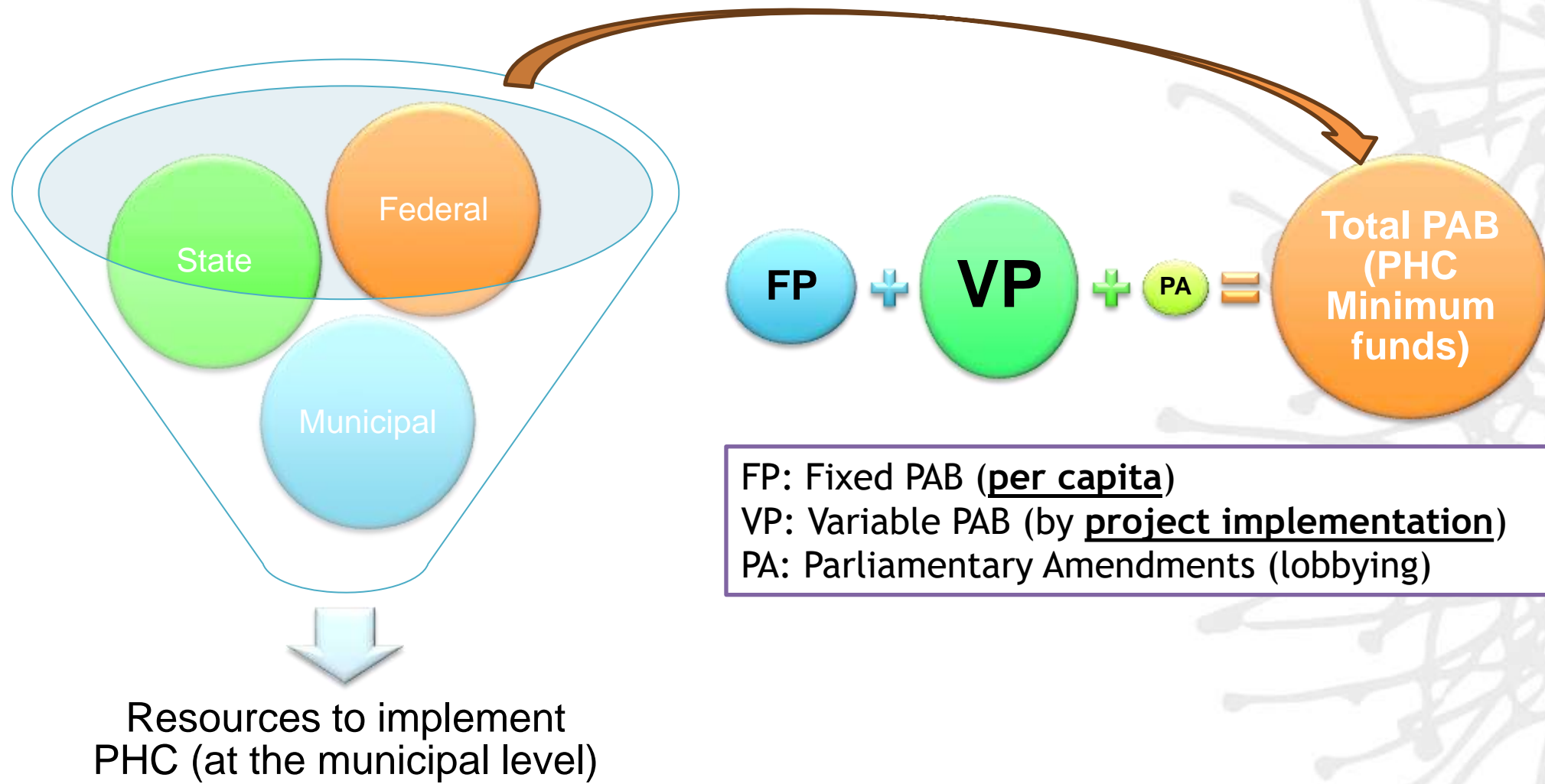
- a. How PHC financing is organized in Brazil
- b. Our data sources
- c. Descriptive results
- d. Scale mixtures of skew-normal (SMSN) modelling results
- e. Key takeaways



a. How PHC financing works in Brazil



a. i. PHC financing in Brazil: an overview of PHC financing composition



a. iii. PHC financing in Brazil: zoom on Federal transfers

The creation of the PAB was an innovation for federal health financing, enabling greater autonomy for municipalities in allocating federal resources.

Fixed
component
(PAB)

It refers to a per capita amount to be allocated to PHC based on municipal population.

Variable
Component
(PAB)

- Federal financial incentives upon joining programs and strategies related to PHC.
- One of the most dynamic and predominant transfers.



b. Our data sources

b. i. Our data source for PHC financing



- *Fundo Nacional de Saúde* – FNS (National Health Fund)
 - Information system **administered AND filled** by the MoH
 - Relates the **financial transfers made by the MoH** directly to Municipal Health Funds (for PHC, among other things)
 - Pros:
 - Almost no missing values*
 - Entries are traceable, as they include bank account numbers and transfer codes – i.e. We have confidence that it is **good quality data**
 - Entries categorized **coherently with programatic theory/legislation** (e.g. Fixed PAB, Variable PAB, PMAQ, etc.) – i.e. Facilitates interpretation of findings
 - Cons:
 - **Only relates REVENUE** – i.e. No information on spending
 - Only relates the part of the revenue **provided by the federal level** (depending on the region, that represents 40-70% of total financing available for PHC)

b. ii. Our data source for the Brazilian Deprivation Index (IBP)

- *2010 Census (Brazilian Institute of Geography and Statistics – IBGE)*

- Calculated based on 2010 census data for the smallest possible geographic area level: census tracts (also calculated for municipalities, used in this study)

- It combines three variables into a single measurement:

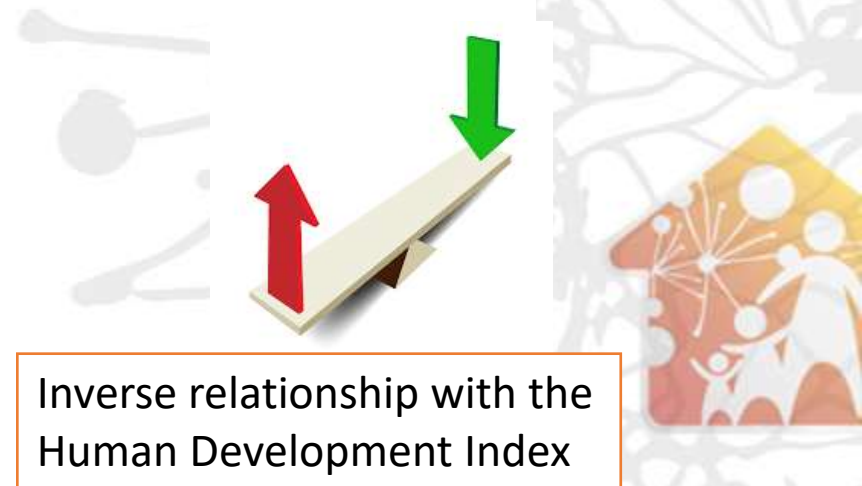
(1) The proportion of households with per capita income $\leq 1/2$ minimum wage;



(2) The proportion of illiterate people aged 7 or over; It is



(3) Average proportion of people with inadequate access to: sewage, water, garbage collection and bathroom with bathtub/shower.

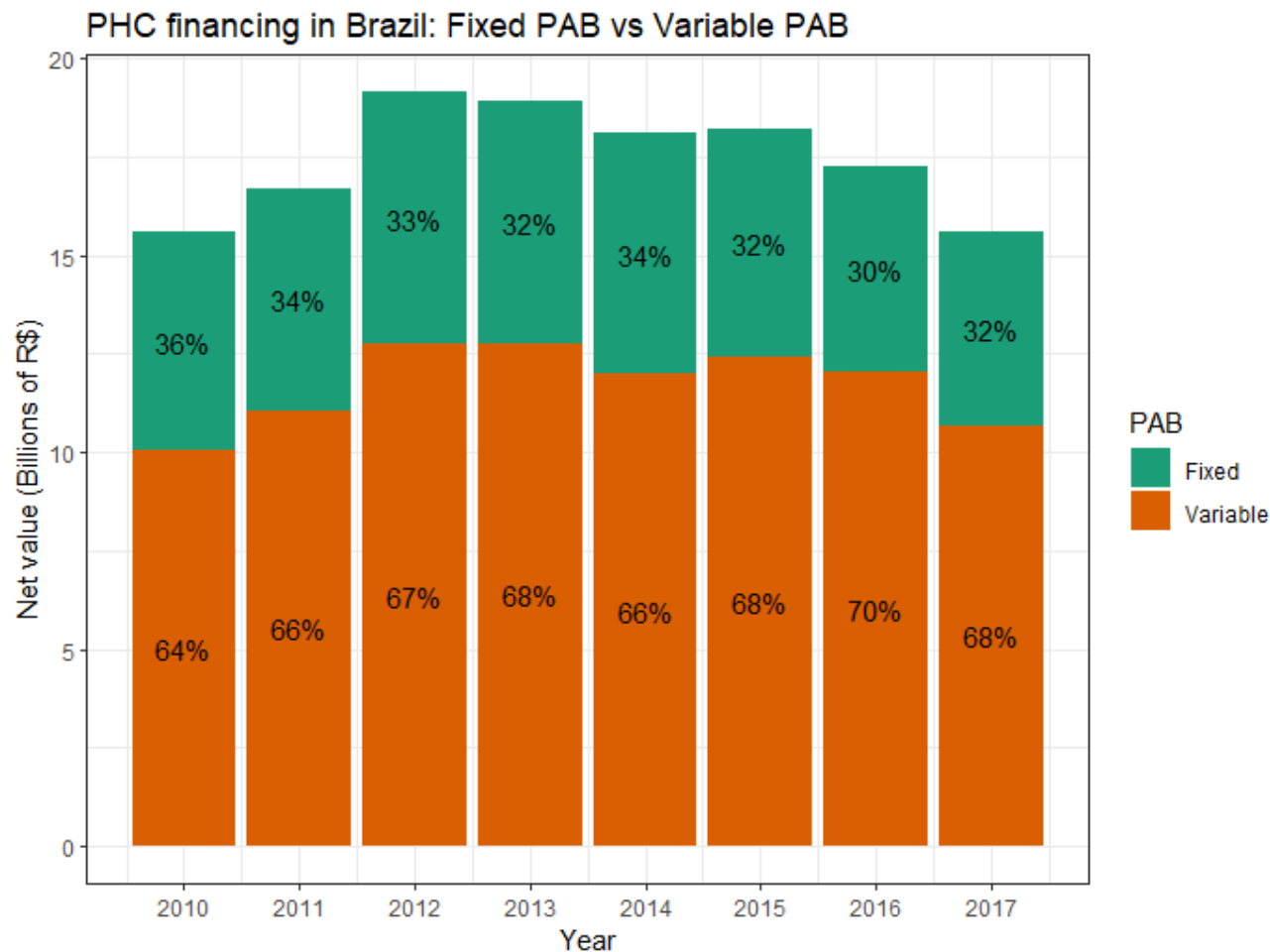


c. Descriptive results

- i. Distribution of Fixed vs Variable PAB (in Brazil and in the Regions)
- ii. Composition of Variable PAB
- iii. Distribution of our data (by Region and by IBP quintile)

c. i. Distribution of Fixed vs Variable PAB

→ Overall, in Brazil, the **Fixed PAB** represents, approximately, 1/3 of the total PAB

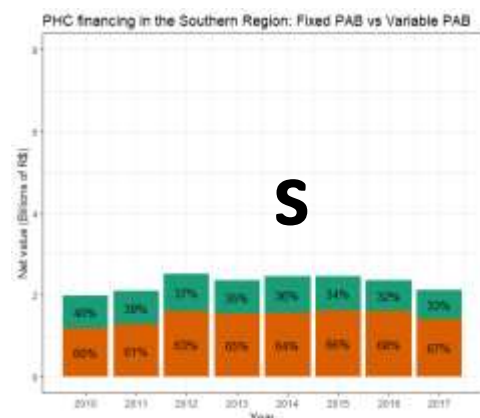
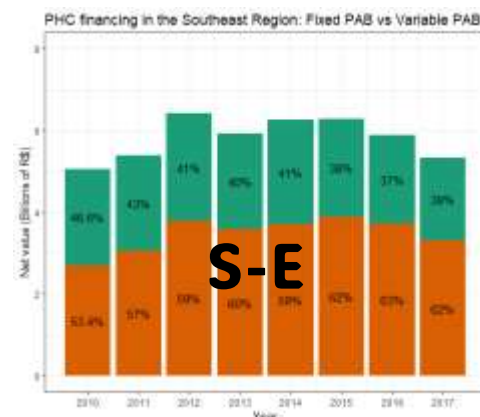
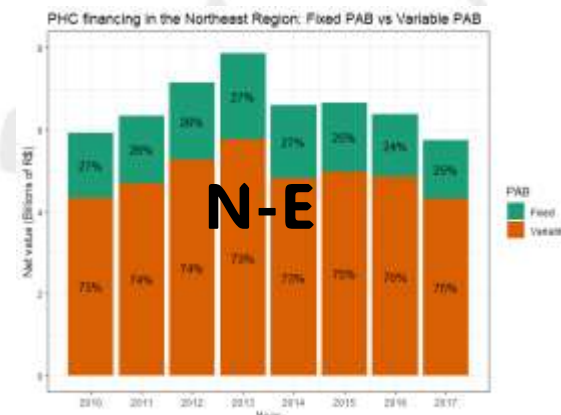
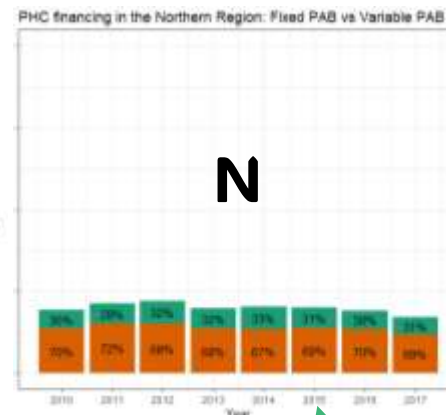
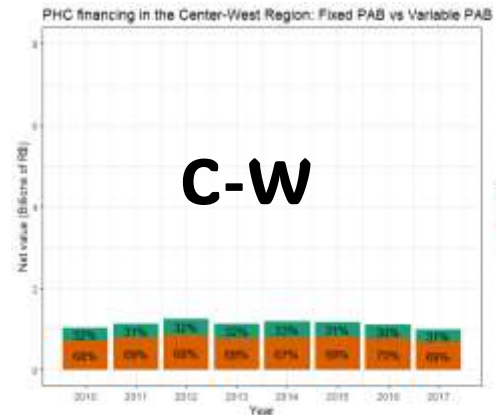


*all values corrected for inflation

c. ii. Distribution of Fixed vs Variable PAB (by Region)

Significant regional variations:

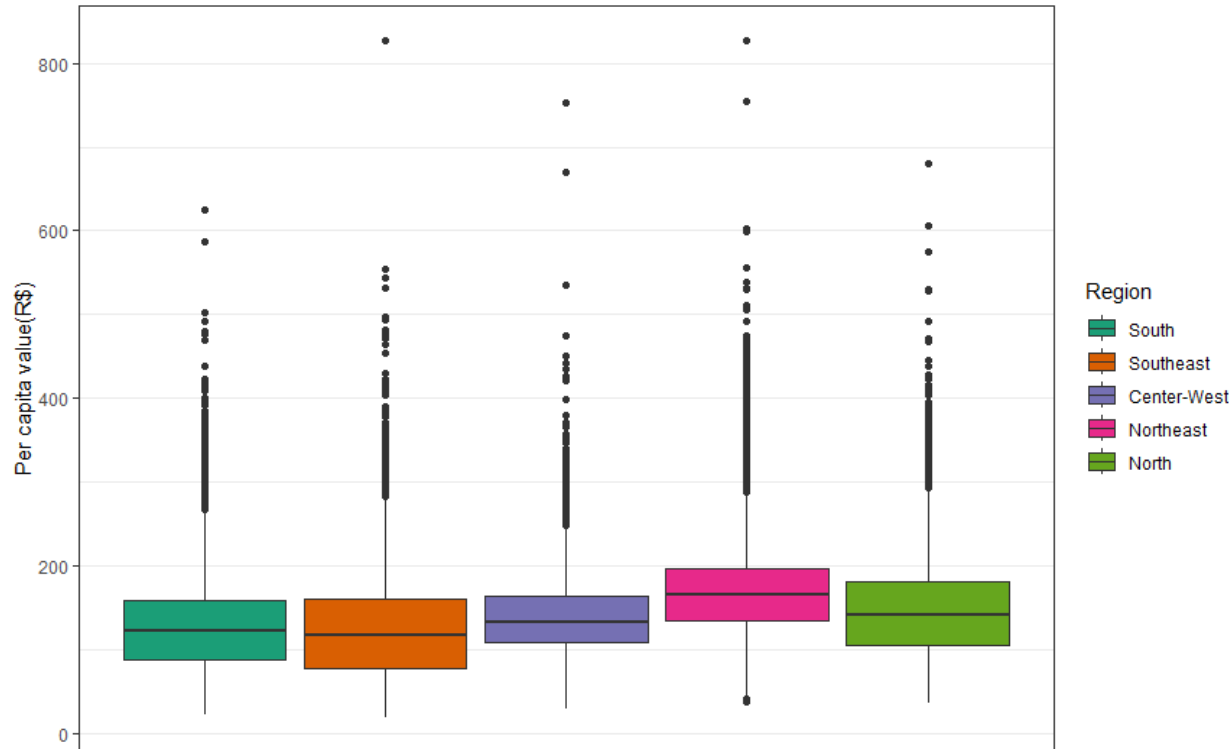
- ➔ Northeastern region (53 million inhab) predominantly Variable PAB ≈ 75
- ➔ Southeastern region (80 million inhab) greatest Fixed PAB dependency ≈ 40%
- ➔ Centre-West (14 million inhab.) lowest (absolute) PAB transfers



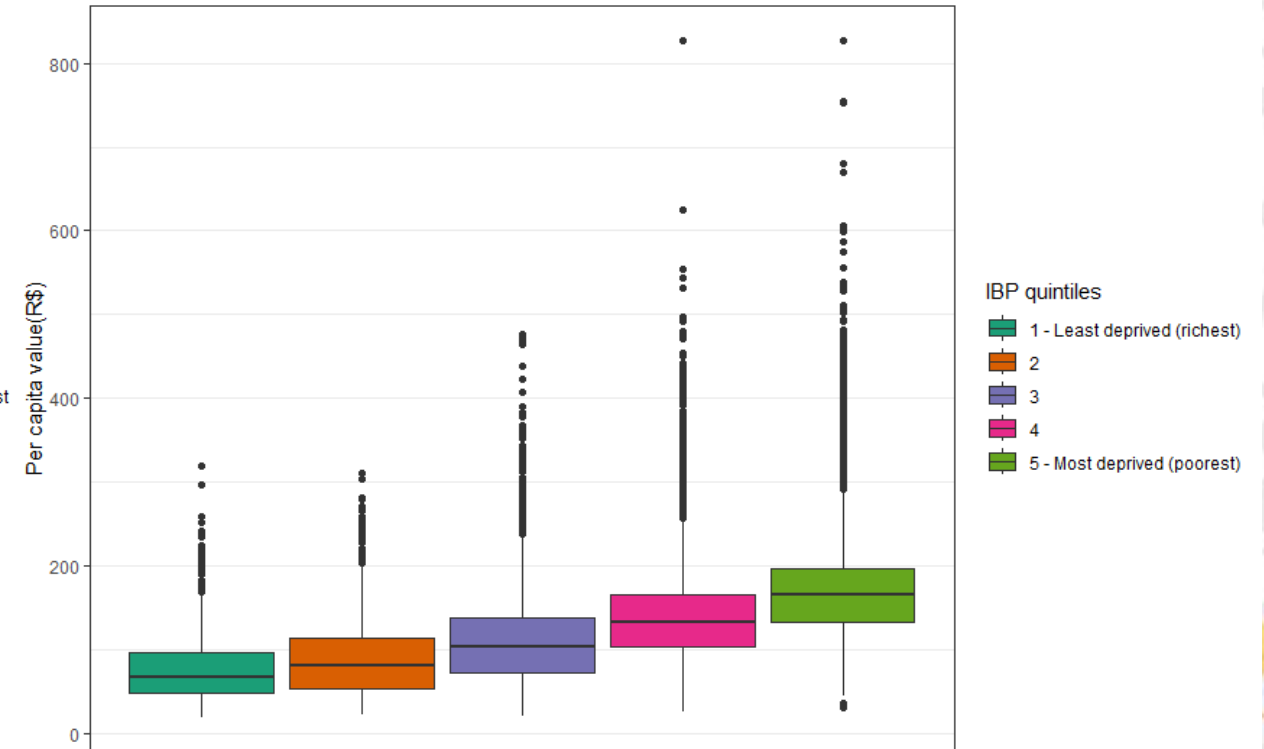
*all values corrected for inflation; **all graphs on the same scale

c. iv. Distribution of our data

Distribution of per capita Total PAB by Brazilian region (2010-2017)



Distribution of per capita Total PAB by IBP quintiles (2010-2017)

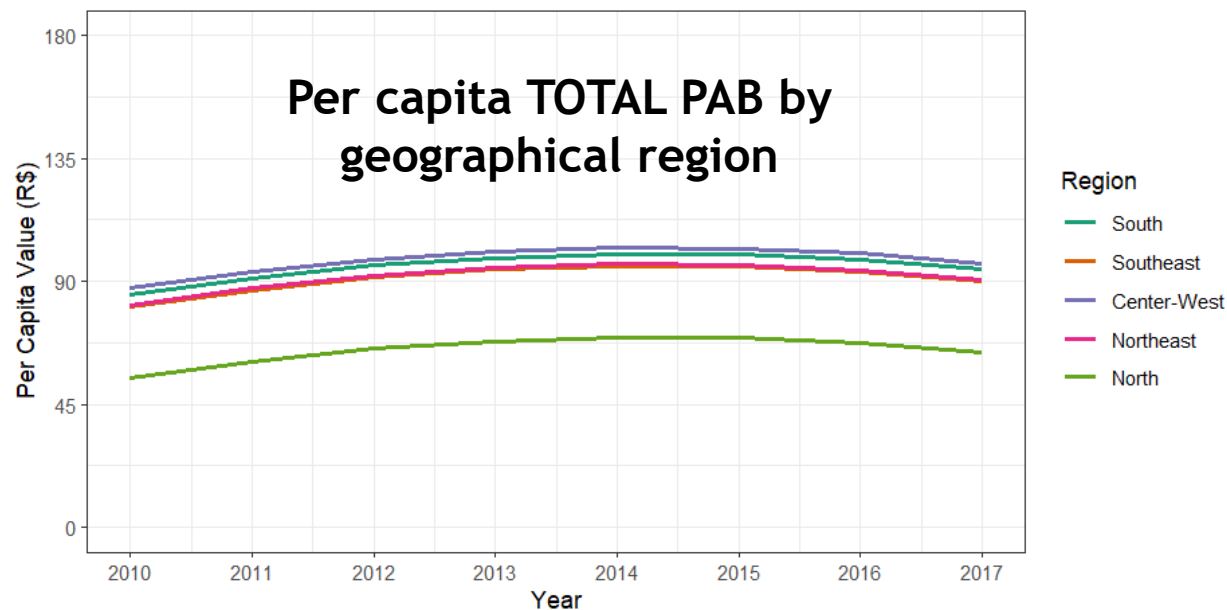


- Highly dispersed
- Extreme outliers
- IBP analysis identifies a pattern

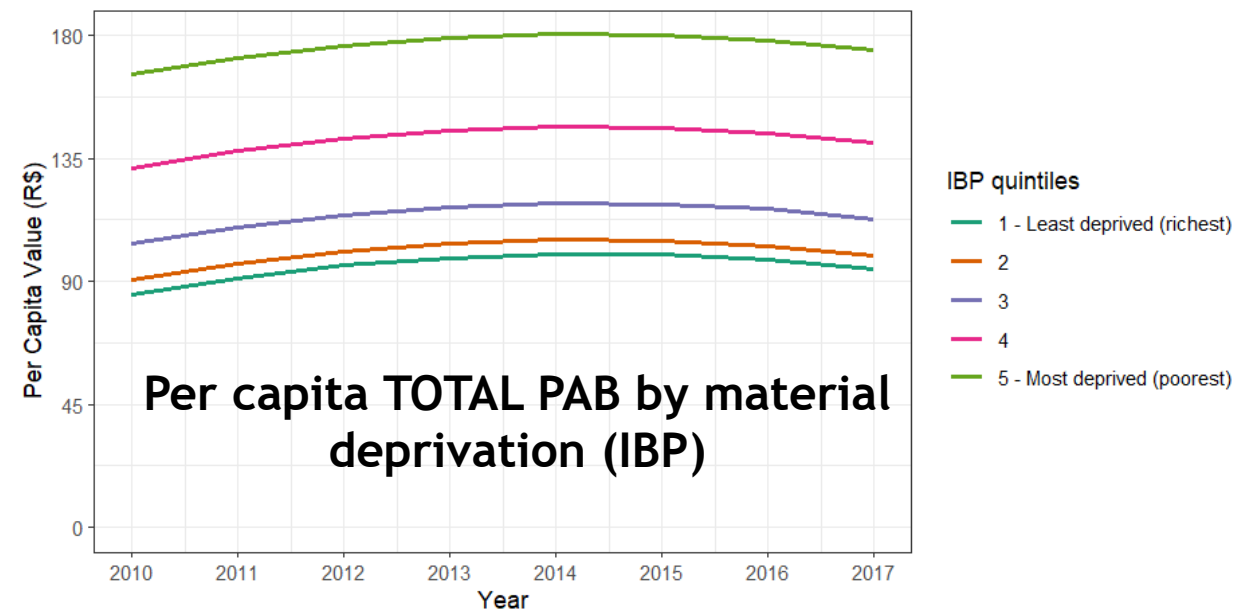
d. Scale mixtures of skew-normal (SMSN) modelling

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Total PAB predicted per capita values by Brazilian region



Total PAB predicted per capita values by IBP quintiles



- Modelling Per Capita Federal Transfers (Total PAB) with scale mixtures of skew-normal (SMSN) approach shows significance of material deprivation (IBP) as explanatory variable for PHC financing – more so than geographical region

e. Key takeaways

e. Key takeaways

- ✓ SMSN modelling allows us to study highly variable measures, with extreme outliers
- ✓ IBP is a significant covariable to employ to understand PHC financing in Brazil, especially due to its dose-response effect → high interpretability
 - ✓ Possible pro-equity effect of PHC financing in Brazil

OUR TEAM



Elzo Pereira Pinto
Junior (Cidacs)



Valentina Martufi
(Cidacs)



Maria del Pilar Flores
Quispe (Cidacs)



Eduarda Ferreira dos
Anjos (Cidacs)



Maurício Lima
Barreto (Cidacs)



Maria Yury Ichihara
(Cidacs)



Rosana Aquino
(UFBA)



Acácia Mayra Pereira de
Lima (Cidacs)



Naiá Ortelan
(Cidacs)



Josemir Ramos de
Almeida (Cidacs)



Michelle Pereira Vale
dos Passos (Cidacs)



Leila Denise Alves
Ferreira Amorim (UFBA)



Anya Pimentel Gomes
Fernandes Vieira-Meyer
(Fiocruz Ceará)



Fernanda
Revorêdo de
Sousa (Cidacs)



Gustavo Peixoto de
Oliveira (Cidacs)



Leandro Alves da Luz
(Secretaria Municipal de
Saúde de Salvador)



Amana Santana
(Ministério da Saúde)



Laura de Almeida Botega

OBRIGADA! THANK YOU!