

DISCRETE CHOICE EXPERIMENT:

STATED PREFERENCE STUDY ON RELEVANT ATTRIBUTES TO ATTRACT AND RETAIN PHYSICIAN IN REMOTE AND UNDERSERVED AREAS IN BRAZIL

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3RD GLOBAL FORUM ON HUMAN RESOURCES FOR HEALTH,
10-13 NOVEMBER 2013
RECIFE, BRAZIL

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Background

- The shortage of doctors, especially in remote and insecure areas, is a serious and persistent problem in Brazil.
- Brazil has a ratio of 1.9 doctors per 1000 inhabitants. This ratio is extremely uneven across regions of the country, ranging from 0.59 doctors per 1000 in the state of Maranhão (Northeast) to more than 3 doctors per 1000 inhabitants in the Federal District, the country's capital.
- A study aimed to construct an index on physician shortage (by EPSM –NESCON UFMG), showed that in 2012 there were 1156 municipalities with shortage of physicians in Brazil, ranging from severe ,high, moderated , low and traces of shortage .
- Two recent national initiatives adopted by the federal government addresses the problem of shortage in Brazil :

PROVAB – Programa Valorização da Atenção Básica created in 2011

MAIS MEDICOS – Lei 12.871 enacted in Oct. 2013

Methods

- Sample: 2517 physicians enrolled at the PROVAB 2011, 620 responded the DCE (24,7%).
- Data collection strategy: Online Questionnaire that contained two parts. The first addressed socio-demographic profile and the second was the DCE itself. Visual cards were developed to help illustrate the job attributes. Each card corresponded to a job scenario.
- Attributes and levels selection: In-depth interviews with health professionals and municipal managers (Shortage Route). In addition we conducted, telephone survey with health professionals and municipal managers, focal groups, online convention and literature review.

Attributes and Levels

Attributes	Levels
Work Location	Urban: large and medium size cities
	Unsecure and violent areas of the metropolitan region
	Remote arid / inhospitable
	Remote with difficult access
	Remote border with other countries
Monthly Salary (in R\$)	7.000,00
	9.000,00
	13.000,00
Access to medical residency programs	Guaranteed access
	10 to 20 scores for access to residency
	No score
Work Conditions	Inadequate
	With some inadequacies
	Appropriate
Type of contract	Permanente/stable
	For a specified time (temporary employment)
	No link (self-employed)
Housing	No housing supply
	Shared (dorm)
	Individual (family)
Work load	40 hours per week
	From 20 to 30 hours per week
	Per production / No. of visits per day
Referral Network	Lack of access to specialists / hospital care / exams
	Some access to specialist / hospital care / exams
	Access to specialist / hospital care / exams

CARTÃO 2				
<u>Condições de trabalho</u>	<u>Tipo de vínculo</u>	<u>Rede de referência</u>	<u>Localização do trabalho</u>	<u>Remuneração</u>
Inadequadas	Nenhum Vínculo (Temporário, autônomo)	Com alguma facilidade de acesso a especialistas / atenção hospitalar / exames	Áreas inseguras/ violentas de Região Metropolitana	R\$ 9.000,00
				

CARTÃO 70				
<u>Tipo de vínculo</u>	<u>Jornada de trabalho</u>	<u>Acesso a Residência Médica</u>	<u>Localização do trabalho</u>	<u>Remuneração</u>
Vínculo estável (Estatutário, CLT) – Com Carreira de Estado	Horário integral 40 horas semanais	Acesso e vaga garantidos	Áreas remotas áridas/inóspitas	R\$ 13.000,00
				

Methods

➤ Experimental design:

Factorial design $3^7 \times 5$, consisting of 7 attributes with 3 levels and 1 attribute with 5 levels.

The technique of Fractional Factorial Design was used to reduce the experiment to 90 alternatives, divided in 60 choice sets, with 6 alternatives each (job scenarios). The participants were asked to rank the 6 alternatives in accordance to their preferences.

All the experiment design, sampling, validation tests and data analysis was performed in the software LMPC – Logit Multinomial with Conditional Probability, developed by Souza (1999). Method Newton Raphson; Pseudo $R^2 = 0,1820$; Log-likelihood (χ^2) = 1247; $p < 0,001$

DCE Results

➤ Relative importance of attributes:

The t test indicated that all parameters are significant at 95% level of confidence. This means that all the attributes influences the choice of respondents.

The attributes that have greater power in determining the choice of the participants are in this order:

1°. Salary

2°. Work location

3°. Work conditions

4°. Access to medical residency programs

5°. Housing

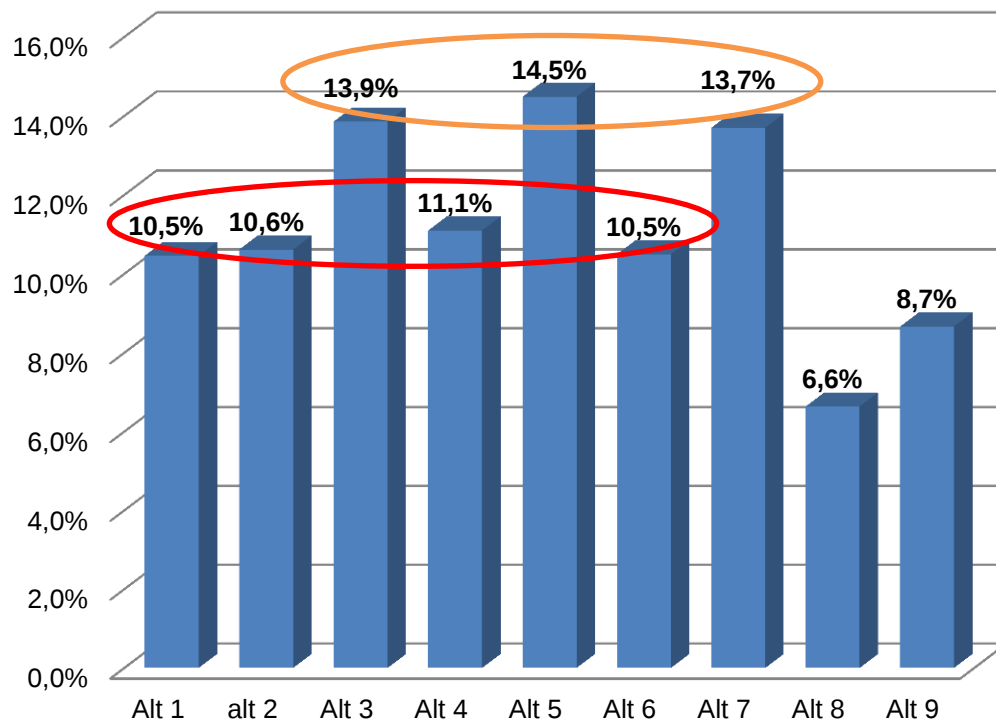
6°. Workload

7°. Type of contract

8°. Referral network

Policy simulations

Alternatives	Location	Salary
1	Urban: large and medium size cities	R\$ 7.000,00
2	Unsecure and violent areas of the metropolitan region	R\$ 9.000,00
3	Unsecure and violent areas of the metropolitan region	R\$ 13.000,00
4	Remote arid / inhospitable	R\$ 9.000,00
5	Remote arid / inhospitable	R\$ 13.000,00
6	Remote with difficult access	R\$ 9.000,00
7	Remote with difficult access	R\$ 13.000,00
8	Remote border with other countries	R\$ 9.000,00
9	Remote border with other countries	R\$ 13.000,00

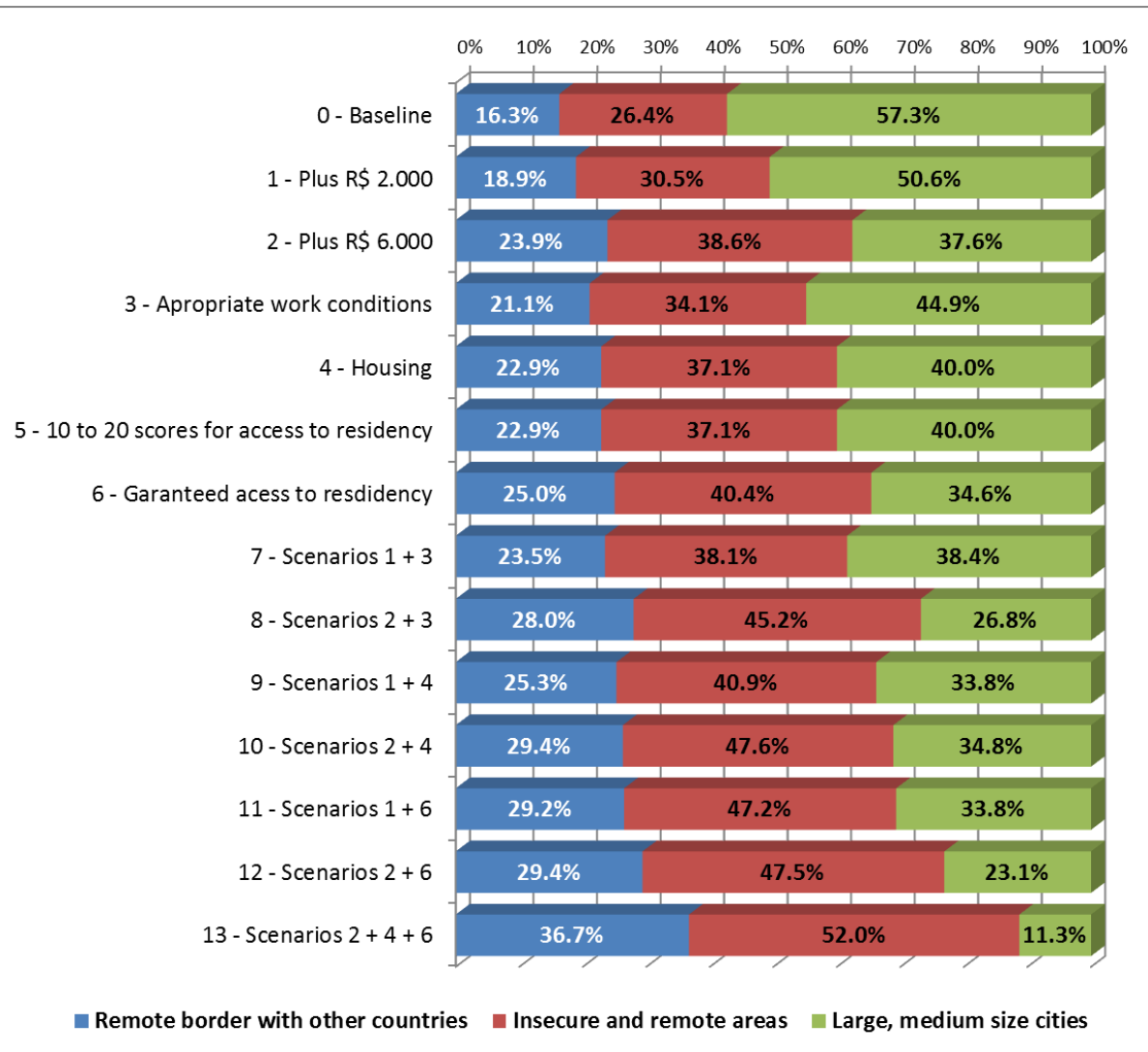


Policy simulations

These scenarios correspond to simulation when used isolated or combined attributes, in relation to baseline scenarios.

Baseline scenario:

- Salary: R\$ 7.000
- Work conditions: Inadequate
- Housing: No housing
- Access to residency: No score



Concluding remarks

Our finds showed, as others published evidences, the importance of combine financial and non-financial incentives in attracting health workers to underserved and remote areas.

The program *Mais Médicos* created in July 2013 was based on this perspective by combining different type of strategies to attract physicians to remote and underserved areas, such as educational, regulatory, financial and professional support as suggested by the “Global Policy Recommendations. Increasing access to health workers in remote and rural areas through retention”, WHO 2010.

Further investigation are required, e.g. expand the experiments to other publics and professions etc.

Thank you!

ESTAÇÃO DE PESQUISA DE SINAIS DE MERCADO

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