Comprehensive Homeowner's Microinsurance in Brazil: Estimation of Pricing and Market Potential

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Objectives

Calculate premiums for different coverages and insured amounts;

Analyze the viability of this kind of microinsurance (consumers and insurance companies)

Estimate the potential market size in Brazil

Key findings:

Premiums for comprehensive homeowner's microinsurance may be very low, varying from US$ 1.03 to US$ 2.16 per month;

Premiums are smaller than 1% of average household income;

Market size is about US$ 830 million per year

Landmarks of microinsurance in Brazil

- 2006 – Susep (government regulatory agency) becames member of IAIS
- 2008 – Susep sets up its own Microinsurance Work Group
- 2008 – Susep defines microinsurance potential consumers: families with per capita income up to 2 Minimum wages

  2007 : 1 MW = R$ 380 = US$ 205
  2008: 1 MW = R$ 415 = US$ 222
  2009: 1 MW = R$ 465 = US$ 260

Data:

Brazilian National Household Survey (PNAD 2007);
Data gathered every year (except for census years) since 1976;

Extensive survey of socioeconomic characteristics of brazilian households (+/- 100,000) and individuals (+/- 400,000);

More than 300 questions (individuals) and 65 questions (households)

Methodology:

1. Count the number of households with per capita income up to 2 MW;
2. Divide these households by income range;
3. Evaluate households' risk profile based upon the type of external wall;
4. Calculate premiums;
5. Estimate market size;

A brief look at the target population

Table 8: Number of homes eligible for microinsurance in terms of type of external walls and monthly domestic per capita income range

Income range (Y)	Material						Total
	Brick	Planed wood	Uncovered bricks	Used wood	Straw	Other	
0 ≤ *Y* ≤ 0.25 MW	3,447,884	427,272	275,908	70,798	17,004	26,196	4,265,062
0.25 MW < *Y* ≤ 0.5 MW	7,595,733	910,234	181,949	82,464	13,154	23,657	8,807,191
0.5 MW < *Y* ≤ 1.0 MW	13,754,605	1,406,168	135,237	95,759	11,641	27,148	15,430,558
1.0 MW < *Y* ≤ 2.0 MW	12,775,149	1,062,705	29,843	35,730	1,976	13,749	13,919,152
Total	37,573,371	3,806,379	622,937	284,751	43,775	90,750	42,421,963
% of total	88.57	8.97	1.47	0.67	0.10	0.21	100.00

Source: PNAD (2007). Author's tabulations.

How to evaluate the insured amount? The rent paid

Table 2: Number of homes and mean monthly rent paid according to per capita income range

Income range (Y)	Number of homes	Monthly rent (US$)
No income	167,290	117
$0 \leq Y \leq 0.25$ MW	431,966	76
0.25 MW $< Y \leq 0.5$ MW	1,260,694	87
0.5 MW $< Y \leq 1.0$ MW	2,465,375	116
1.0 MW $< Y \leq 2.0$ MW	2,563,148	159
2.0 MW $< Y \leq 3.0$ MW	930,911	212
3.0 MW $< Y \leq 5.0$ MW	711,570	299
$Y > 5.0$ MW	630,509	529
No declaration	205,878	431
Total	9,367,341	

Source: PNAD (2007). Author's tabulations.

How many homes?

Table 4: Mean monthly domestic income according to per capita income range (rented homes)

Income range (Y)	Number of homes	Monthly domestic income (US$)
No income	168,157	0
$0 \leq Y \leq 0.25$ MW	433,075	87
0.25 MW $< Y \leq 0.5$ MW	1,262,480	167
0.5 MW $< Y \leq 1.0$ MW	2,471,595	269
1.0 MW $< Y \leq 2.0$ MW	2,566,905	432
2.0 MW $< Y \leq 3.0$ MW	933,328	676
3.0 MW $< Y \leq 5.0$ MW	712,015	1,011
$Y > 5.0$ MW	631,193	2,043
No declaration	0	0
Total	9,178,748	

Source: PNAD (2007). Author's tabulations.

Homes are very different

Table 6: Characteristics of homes

Variable	Not eligible for microinsurance	Eligible for microinsurance
Brick (%)	96.48	88.51
Number of rooms	7.05	5.36
Bathroom (%)	99.65	94.46
Stove with two or more plates (%)	99.24	97.79
Radio (%)	95.58	85.96
Color TV (%)	98.89	91.98
Black-and-white TV (%)	0.09	1.18
Refrigerator (%)	98.68	88.56
Freezer (%)	31.40	11.85
Washing machine (%)	73.79	29.43
Fixed telephone (%)	78.55	35.69
Mobile telephone (%)	87.09	62.18
Microcomputer (%)	61.13	16.83
Internet access (%)	52.37	10.95
No of people living	2.66	3.53
Urban area (%)	4.78	18.57

Source: PNAD (2007). Author's tabulations.

Insured amounts and coverages

Table 9: IA per domestic per capita income range (Values in US$)

Income range (Y)	Mean monthly rent (US$)	Mean value of real estate (US$)	IA (80% of real estate value) (Fire, lightning and explosion)	IA (Loss of rent)
$0 \leq Y \leq 0.25$ MW	76	7,622	6,097	3 x 76 = 229
0.25 MW $< Y \leq 0.5$ MW	87	8,703	6,962	3 x 87 = 261
0.5 MW $< Y \leq 1.0$ MW	116	11,622	9,297	3 x 116 = 348
1.0 MW $< Y \leq 2.0$ MW	159	15,892	12,714	3 x 159 = 477

Source: PNAD (2007). Author's tabulations.

Frequency and severity

Table 10: Comprehensive homeowner's insurance: general data

Coverages	Number of policies	Premiums issued (US$)	Total IA (US$)	Nº of claims	Amount of claims (US$)
Fire/Lightning/Explosion	3,561,013	149,874,116	216,104,932,888	11,751	23,096,240
Loss of Rent	1,499,158	6,644,415	7,092,161,301	125	187,606

Source: SUSEP (2005). Nominal values for December 2005 corrected to September 2007 using IGP-M.

Table 11: Frequency and mean severity calculations

Coverages	NER Nº of policies	IAT Total insured amount (US$)	NC Nº of claims	AC Total indemnities (US$)	NC/NER Frequency	AC/NC Mean severity (US$)	IAT/NER Mean IA (US$)
Fire/Lightning/Explosion	3,561,013	216,104,932,888	11,751	23,085,429	0.0032999	1,965	60,686
Loss of Rent	1,499,158	3,833,600,703	125	187,606	0.0032999	1,501	2,557

Source: SUSEP (2005). Nominal values for December 2005 corrected to September 2007 using IGP-M.

Calculating premiums: two coverages

Table 12: *SP* and *PP* per mean *IA* coverage for fire, lightning, and explosion

IA (US$)	Mean Severity (US$)	Weighted Mean Severity (US$)	Frequency	Annual Statistical Premium (US$)	Annual Pure Premium (US$)
6,097	197	933	0.0032999	3.08	3.23
6,962	225	1,065	0.0032999	3.51	3.69
9,297	301	1,423	0.0032999	4.70	4.93
12,714	412	1,946	0.0032999	6.42	6.74

Source: Authors' calculations.

Table 13: *SP* and *PP* per mean IA coverage for loss of rent

IA (US$)	Mean Severity (US$)	Weighted Mean Severity (US$)	Frequency	Annual Statistical Premium (US$)	Annual Pure Premium (US$)
229	134	146	0.0032999	0,48	0,51
261	153	166	0.0032999	0,55	0,58
349	205	223	0.0032999	0,74	0,77
477	280	304	0.0032999	1,01	1,05

Source: Authors' calculations.

Annual and monthly premiums Product 1

	Product 1: 0 ≤ Y ≤ 0.25 MW	
	Coverage	Limit
	Rent	3 x 76 = 229
	Fire / Lightning / Explosion	6.097
a	Total pure premium	3.74
b	Claim expenses	0.56
c	Subtotal (a+b)	4.30
d	Direct investments	10.00%
e	AE	10.00%
f	Profit	10.00%
g	Taxes	2.72%
h	Commissions	30.00%
i	Total expense loading (d+e+f+g+h)	62.72%
	Net premium [(c/(1-i)]	11.54
	IOF	7.38%
	Annual Premium	12.38
	Monthly Premium	1.03

Annual and monthly premiums Product 2

	Product 2: 0.25 ≤ Y ≤ 0.5 MW	
	Coverage	Limit
	Rent	3 x 87 = 261
	Fire / Lightning / Explosion	6.962
a	Total pure premium	4.27
b	Claim expenses	0.64
c	Subtotal (a+b)	4.91
d	Direct investments	10.00%
e	AE	10.00%
f	Profit	10.00%
g	Taxes	2.72%
h	Commissions	30.00%
i	Total expense loading (d+e+f+g+h)	62.72%
	Net premium [(c/(1-i)]	11.54
	IOF	7.38%
	Annual Premium	14.14
	Monthly Premium	1.18

Annual and monthly premiums Product 3

	Product 3: 0.5 ≤ Y ≤ 1 MW	
	Coverage	Limit
	Rent	3 x 116=348
	Fire / Lightning / Explosion	9.297
a	Total pure premium	5.70
b	Claim expenses	0.85
c	Subtotal (a+b)	6.56
d	Direct investments	10.00%
e	AE	10.00%
f	Profit	10.00%
g	Taxes	2.72%
h	Commissions	30.00%
i	Total expense loading (d+e+f+g+h)	62.72%
	Net premium [(c/(1-i)]	17.69
	IOF	7,38%
	Annual Premium	18.99
	Monthly Premium	1.58

Annual and monthly premiums Product 4

	Product 4: 1 ≤ Y ≤ 2 MW	
	Coverage	Limit
	Rent	3 x 159=477
	Fire / Lightning / Explosion	12.714
a	Total pure premium	7.79
b	Claim expenses	1.17
c	Subtotal (a+b)	8.97
d	Direct investments	10.00%
e	AE	10.00%
f	Profit	10.00%
g	Taxes	2.72%
h	Commissions	30.00%
i	Total expense loading (d+e+f+g+h)	62.72%
	Net premium [(c/(1-i)]	24.18
	IOF	7,38%
	Annual Premium	25.97
	Monthly Premium	2.16

Is the homeowner's microinsurance affordable? The answer seems to be Yes

Table 15: Relationship between insurance premium and mean domestic income

Income range (*Y*)	Mean domestic income (US$)	Monthly premium (US$)	Monthly premium/ mean income (%)
0 ≤ Y ≤ 0.25 MW	162	1,03	0.35
0.25 MW < Y ≤ 0.5 MW	320	1,18	0.20
0.5 MW < Y ≤ 1.0 MW	514	1,58	0.17
1.0 MW < Y ≤ 2.0 MW	865	2,16	0.14

Source: Authors' calculations.

Is the homeowner's microinsurance interesting for insurance companies? The answer seems to be Yes

Table 16: Market potential of comprehensive homeowner's microinsurance in Brazil

Income range (Y)	Monthly premium (US$)	Annual premium (US$)	Eligible homes	Potential market (per month) (US$)	Potential market (per year) (US$)
Y ≤ 0.25 MW	1.03	12.38	4.265.062	4.403.388	52.817.606
0.25 MW < Y≤ 0.5 MW	1.18	14.14	8.807.191	10.378.203	124.538.441
0.5 MW< Y≤ 1 MW	1.58	18.99	15.430.558	24.438.668	293.013.785
1 MW< Y≤ 2 MW	2.16	25.97	13.919.152	30.095.464	361.446.520
Total			42.421.963	69.315.723	831.816.352

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