



# **WHEN MARKET ESTIMATION GOES ASTRAY**

**Purchase intent over-estimation for  
technology goods**

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# WHEN MARKET ESTIMATION GOES ASTRAY



# Forecasting: the agenda



- Forecasting
- Context
- The record:
  - Example 1
  - Example 2
  - Example 3
- Causes
- Hypotheses
- Data & Method
- Case 1
- Case 2
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- Calibration tips
- Sizing the gap
- Conclusions

- **How to interpret actual consumers feedback?**
- **Can we believe at face-value what consumers reply they will do?**
- **Can we expect no change between preference revelation and follow-up behaviors?**
- **Do purchase intentions work the same way across all technology goods?**
- **What hints to avoid going astray with intention data?**



# The context: technological innovations in emerging markets

- **characteristics:**
  - **No long time-series data of past purchases**
  - **Limited sample size tracking studies**
  - **Low record of panel studies**
  - **Insufficient CRM data for inferences**
  - **High volatility of offer & demand**
  - **No digital culture**
- **15 years of discussions on how to foretell future behavior...elsewhere**

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# The record: Mispredictions for technology goods & services in Brazil

## Example 1: Internet usage



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– 2002: IDC & E-marketer predicted **recovery**

Results pointed to **stagnation** in active usage

– 2003: **1.3m difference** bt. Census vs Ibope

1/'04: Projections were bt. **17.4m-<20.1m**

Result= **~20.6m**

Prediction **10/'04=25.1m**

Result= **18.7m**



## Example 2: Mobile Telephony



- Surpassing all expectations, it doubled from 15m in 1999 to nearly 35m in 2002
- Q. 4, 2004 = reached **59.7m.**
- IDC projected **49m users only in 2007.**
- Yankee group forecasted **49m by 2005.**
- Pyramid research ballparked **62m by 2007**



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# Example 3: Personal Computers



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## PREDICTIONS

2002: IDC estimated **+10%**

2003: Gartner foresaw **+7.9%**

## RESULTS

Gartner confirmed  
**- 5.3%** in sales

IDC confirmed  
**- 12%**





# Mispredictions for technology goods and services in Brazil

- **What causes?**

- **Measurement errors**

- **Conceptual flaws**

- **Cultural biases**

- **Contextual uncertainties**

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# Hypotheses

- **Consumer purchase dissonance (Overestimation and underestimation) for tech products can be measured and achieves significant volumes**
- **Varies across tech products**
- **Reveals specific demo profiles**
- **Product familiarity does not reduce prediction error**
- **Calibration rely on product-related financial stress & tech attitudes**

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# Data & Method

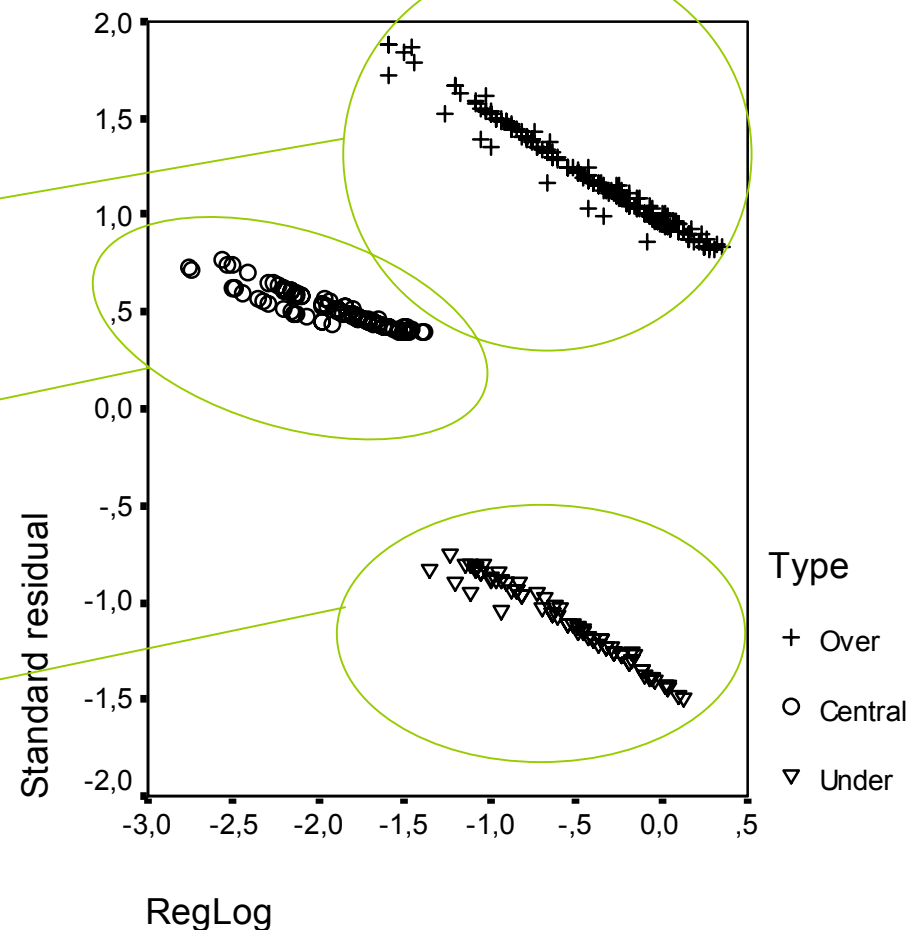
- **Test 1 basic demographic model across 3 tech products**
- **Case 1:**
  - mobile phone handsets (n=1,200 - 2001)
- **Case 2:**
  - PC (n=5,408 - 2001)
- **Case 3:**
  - mobile phone handsets (w/ variable “financial sacrifice” n=500 - 2004)
- **Panel study on mobile phone:**
  - Assess validity of demo model
  - Size consumer dissonance

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# Case 1: Purchase intention for new mobile phone

## 3 groups

- **Overestimators:**  
**16%**
- **Central:**  
**81%**
- **Underestimators:**  
**3%**



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# Case 1: Purchase intention for new mobile phone - Demographic profile

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Demos	Overestimators (15.9%)	Underestimators (3.2%)
Male	28.6%	<b>81.8%</b>
Female	<b>71.4%</b>	18.2%
≥ 60 years old	<b>71.4%</b>	2.0%
≤ 24 years old	3.9%	<b>63.6%</b>

# Case 1: Purchase intention for new mobile phone - Demographic profile cont'd

Demos	Overestimators (15.9%)	Underestimators (3.2%)
SEC A= Upper class	14.3%	9.1%
SEC B= Middle class	14.3%	<b>40.9%</b>
SEC C= Lower middle class	<b>42.9%</b>	<b>50.0%</b>
SEC D/E= Lower class	<b>28.6%</b>	-
User (Primary)	14.3%	<b>40.9%</b>
User (Secondary)	28.6%	9.1%
Non-User	<b>57.1%</b>	<b>50.0%</b>

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# Case 2: Purchase intention for PC

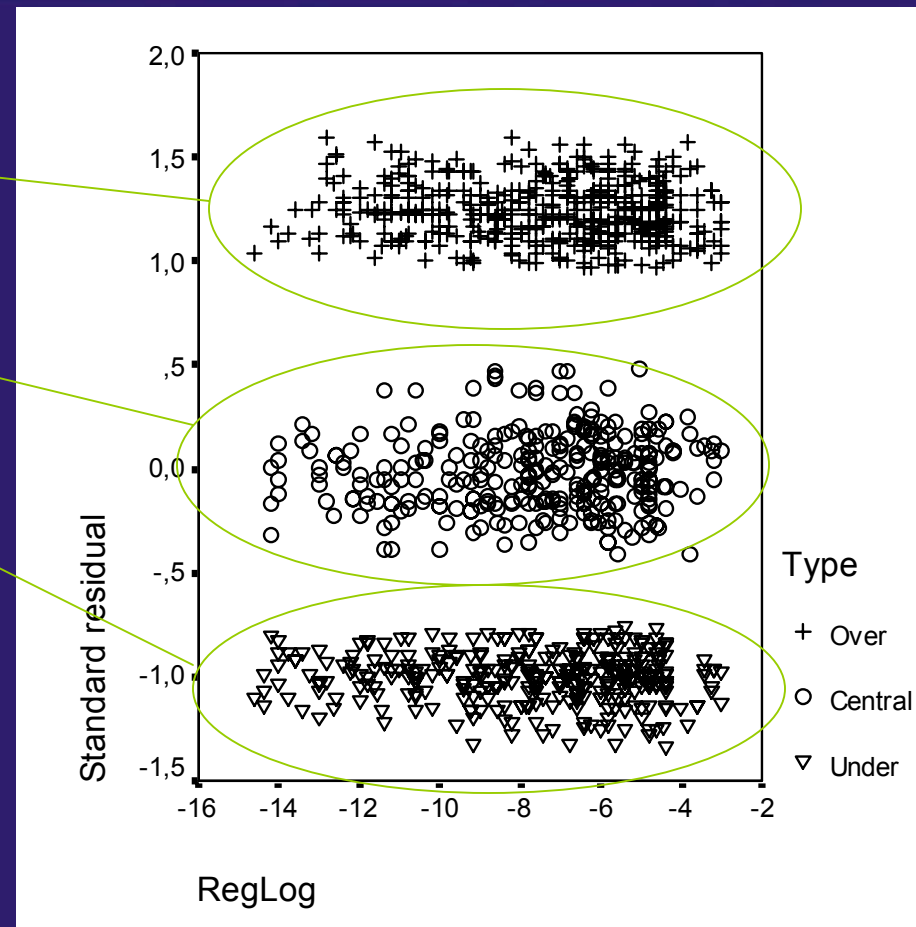
## 3 groups

- **Overestimators: 3%**
- **Central: 58%**
- **Underestimators: 39%**

**W/ added info on financial stress**

**$R^2 = 0.96$**

**(previous was  $R^2=0.67$ )**



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# Case 2: Purchase intention for PC - Demographic profile

Demos	Overestimators (2.7%)	Underestimators (39.3%)
Male	75.0%	-
Female	25.0%	100.0%
≥ 60 years old	-	100.0%
≤ 44 years old	100.0%	-
SEC A= Upper class	50.0%	-
SEC B= Middle class	25.0%	-
SEC C= Lower middle class	25.0%	-
SEC D/E= Lower class	-	100.0%

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# Case 2: Purchase intention for PC - Demographic profile cont'd

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Demos	Overestimators (2.7%)	Underestimators (39.3%)
User /Owner	37.5%	-
Non-User/Non-Owner	62.5%	100.0%
Low financial sacrifice (none/little + moderate)	62.5%	15.4%
High financial sacrifice (great + impossible)	37.5%	77.0%

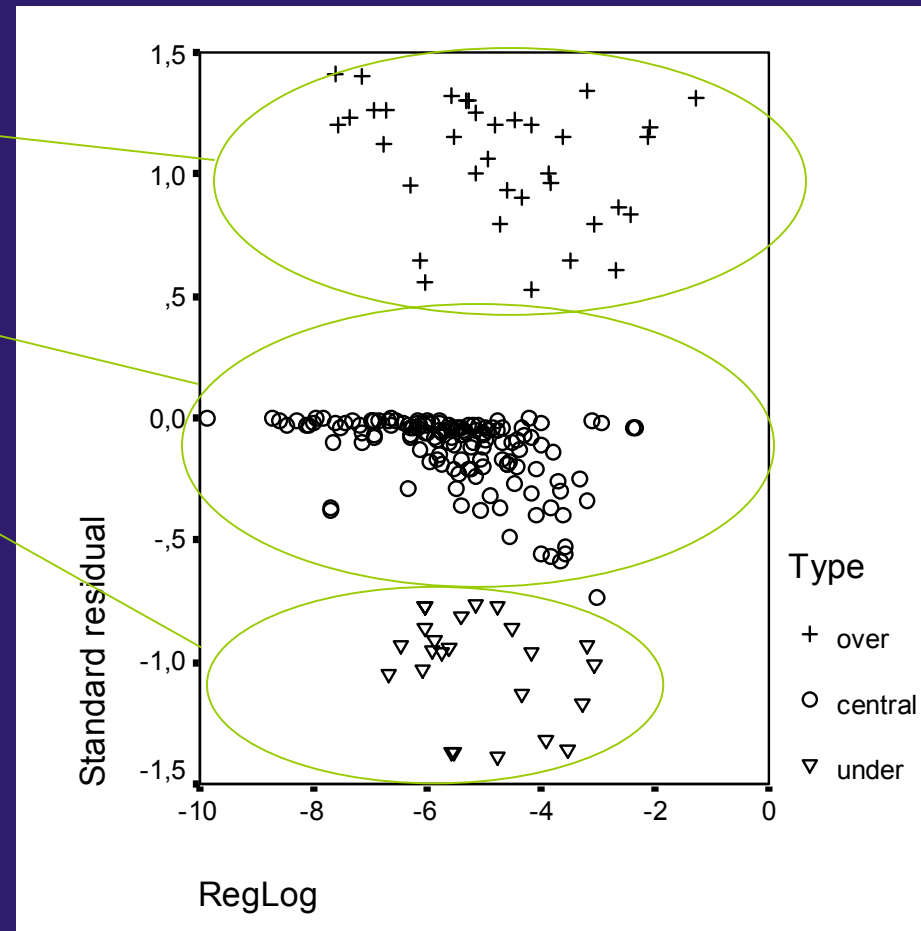
# Case 3: Purchase intention for 2G mobile phones

## 3 groups

- **Overestimators: 8%**
- **Central: 87%**
- **Underestimators: 5%**

**W/ added info on financial stress**  
 **$R^2 = 0.83$**

**(previous was  $R^2=0.51$ )**



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# Case 3: Purchase intention for 2G mobile phone – demographic model

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Demos	Overestimators (7.6%)	Underestimators (5.2%)
Male	27%	84%
Female	73%	16%
≤ 24 years old	22%	66%
≥ 55 years old	69%	-
SEC A= Upper class	27%	-
SEC B= Middle class	-	53%
SEC C= Lower middle class	55%	47%
SEC D/E= Lower class	18%	-

# Case 3: Purchase intention for 2G mobile phone – demographic model

Demos	Overestimators (7.6%)	Underestimators (5.2%)
User (Primary)	20%	57%
Non-User	80%	43%
Low financial sacrifice	56%	43%
High financial sacrifice	44%	57%

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# Panel sample results for 2G mobile phone

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Demos	Not purchase		Purchase	
Male	28%		57%	
Female	72%		43%	
≥ 55 years old	47%		11%	
≤ 24 years old	15%		54%	
SEC A= Upper class	12	46%	16	61%
SEC B= Middle class	34		45	
SEC C= Lower middle class	38	54%	34	39%
SEC D/E= Lower class	16		5	

# Intentions vs behavior: sizing the dissonance gap

		Intentions sample	Panel sample
<b>Purchase Probability</b>	<b>2G</b>	<b>Top box</b>	<b>4.0%</b>
		<b>2 top box</b>	<b>15.6%</b>
			<b>11.2%</b>



38% of 2 top box did purchase

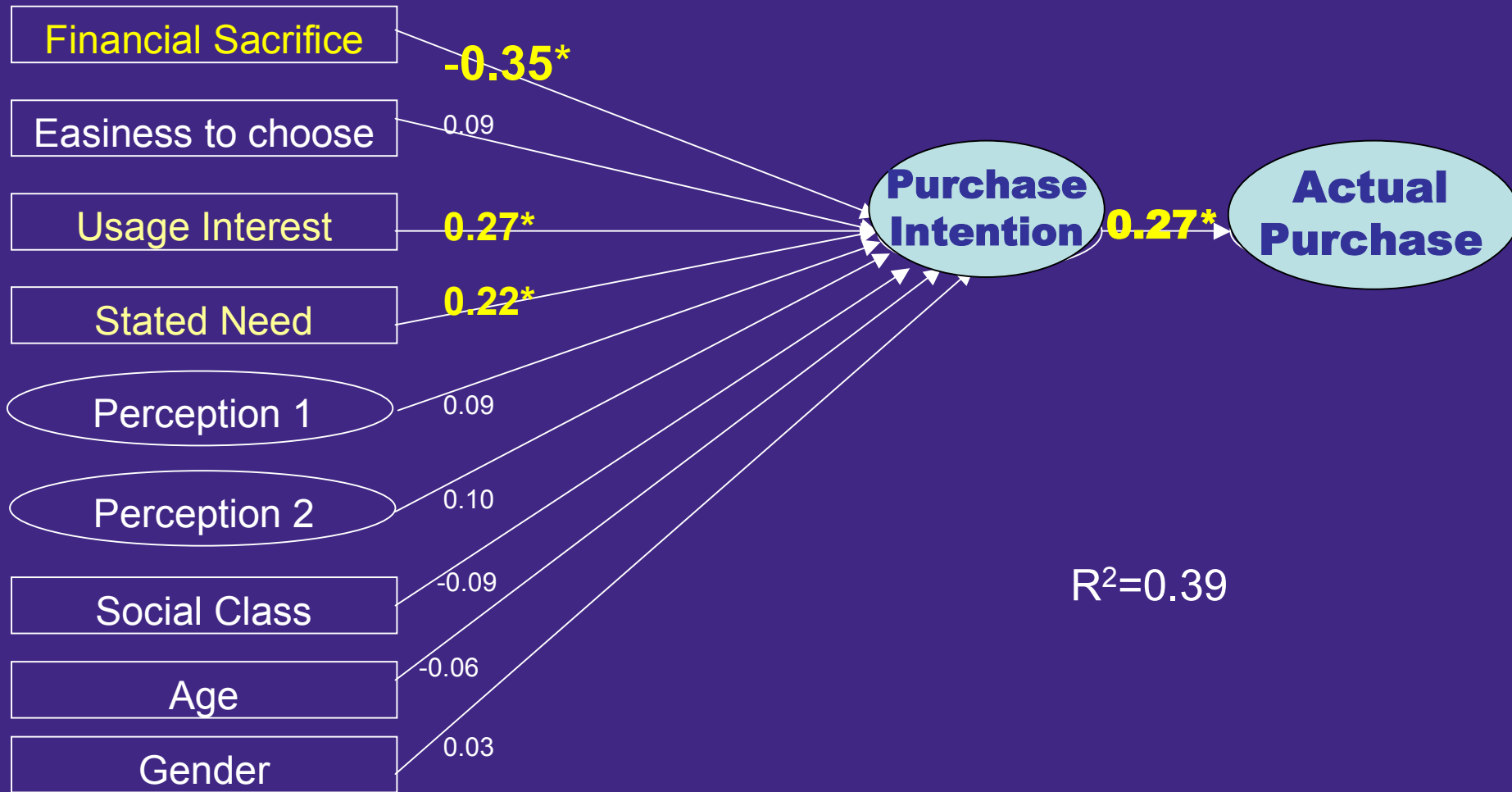
62% of 2 top box failed

7% of bottom 2 box did purchase

Dissonance= **15%**

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# Path diagram of purchase intention for 2G mobile phone



# Calibration tips: what contributes to best fitting a model of market forecast?


(based on logistic regression over the intention-actual behavior difference)

Variables	$\beta$
Financial Sacrifice	-0.47*
Usage Interest	-0.38*
Stated Need	-0.21
Social Class	-0.07
Age	-0.04
Gender	-0.10

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# Conclusions

- **Size of consumer dissonance varies across tech products: mobiles=13-15% vs. PC=42%**
- **Yet, within same category (mobile) it remains fairly steady overtime (2001=19%; 2004=13%; 2005=15%).**
- **Lower product familiarity (newer high-tech generation) generates less dissonance.**
- **Modes of consumer dissonance follow product-specific demo models. For mobile phones, over & underestimators reveal opposing profiles.**



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# Conclusions

- **Stability of demographics between purchase intent & panel samples.**
- **Category experience partially moderates dissonance. Tech attitudes has poor contribution, but usage interest does have major contribution.**
- **Financial stress related to product purchase significantly reduces dissonance.**

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**THANK YOU**

