

Measuring the True Threshold of Consumer Sentiment in Mexico

JOINT EU/OECD WORKSHOP
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Introduction

- In 2000 INEGI perform the National Consumer Sentiment Survey (NCSS).
- The initial size of the monthly survey was 5,056 homes in urban and rural areas.
- Since february 2003 INEGI had a agreement with Mexico's Central Bank and the size of the monthly survey changed to 2,336 houses in 48 of the principal cities .
- In may 2003 the results of the NCSS began to be published, in the form of indices (base January 2003=100) that started on April 2001.
- Actually, since march 2007, the survey is of the same size, 2,336 houses, but in 32 cities.



Objectives

- Generate the National Consumer Sentiment Index (CSI).
- Capture the actual and future economic situation of the home members.
- Obtain indicators of the present and future national economy sentiment.
- Know the present and future social well-being.
- Obtain QUALITATIVE information of consumption, savings, employment and purchasing power.
- Obtain information of the socioeconomic characteristics of the home.



CSI Calculation

The five questions, of the 15, used for the CSI are:

- The actual economic situation of the home members compared with 12 months ago.
- The future economic situation in 12 months of the home members with respect the actual one.
- The actual economic situation of the country compared with 12 months ago.
- The future economic situation of the country in 12 months with respect the actual one.
- The possibilities that one home member buy furniture, television, washer, home appliances, etc.



CSI Calculation

The answer options and its weights of the five questions used in the CSI calculation are:

Answer options	Weight
1. Most Better	1.00
2. Better (1. Bigger)	0.75 (1.0)
3. Equal (2. Equal)	0.50
4. Worst (3. Minor)	0.25 (0.0)
5. Most Worst	0.00
6. Don't know (4. Don't know)	prorate



CSI Calculation

Example: Question 3, February 2010

Comparing the economic situation of the home members that have 12 months before, how is the actual situation?

Answer options	Answer percentages	Weight	Calculation
1. Most Better	0.10	1.00	0.10
2. Better	9.02	0.75	6.77
3. Equal	42.57	0.50	21.28
4. Worst	44.38	0.25	11.10
5. Most Worst	3.93	0.00	0.00
6. Don't know	0.00	prorate	0.00
Total (Balance)	100.00		39.25



CSI Calculation

The balance of each question is divided by the corresponding balance of January 2003 changing to an index base January 2003=100.

Illustrated below for Question 3 February 2010.

Indicator Type	Question 3	Value
Balance	February 2010	39.25
Balance	January 2003	45.804
Index	February 2010	$\frac{39.25}{45.804} \times 100 = 85.69$



CSI Calculation

The CSI is the average of the indices of the five questions. Illustrated below for February 2010.

Question	Index value
Q3 (Actual home situation)	85.69
Q4 (Future home situation)	93.80
Q5 (Actual country situation)	79.63
Q6 (Future country situation)	90.19
Q8 (percederos buy possibilities)	53.82
Consumer Sentiment Index	$\frac{403.13}{5} = 80.63$



CSI Calculation

- In general the CSI calculation can be written by the next expression

- $$CSI_t = \frac{\frac{BQ3_t}{45.80} \times 100 + \frac{BQ4_t}{51.82} \times 100 + \frac{BQ5_t}{37.58} \times 100 + \frac{BQ6_t}{44.70} \times 100 + \frac{BQ8_t}{24.52} \times 100}{5}$$

- Corresponding to a sum, not a weighted average of the 5 questions balances ($BQ\#_t$), since the sum of the “weights” is 13.09 and not is 5,

- $$CSI_t = \frac{2.18 BQ3_t + 1.93 BQ4_t + 2.66 BQ5_t + 2.24 BQ6_t + 4.08 BQ8_t}{5}$$

- Or

- $$CSI_t = 0.44 BQ3_t + 0.39 BQ4_t + 0.53 BQ5_t + 0.49 BQ6_t + 0.82 BQ8_t$$



CSI Calculation

- In the CSI calculation the question 8 is the most important, followed by question 5, 6, 3 and the least is question 4.
- A different index (CSI_N) is obtained if calculated first the average of the five questions in balance form (CSI_B) and then obtained the index January 2003, this is

$$CSI_{B_t} = \frac{BQ3_t + BQ4_t + BQ5_t + BQ6_t + BQ8_t}{5}$$

And

$$CSI_{N_t} = \frac{CSI_{B_t}}{CSI_{B_{Jan03}}} \times 100$$



CSI Calculation

- It is important to note that the monthly and annual variations of the CSI are different from the indicator in balance form (CSI_B).
- The new proposal calculation of the index (CSI_N) has the same monthly and annual variations of the indicator in balance form.
- The two indexes, the published (CSI) and the new proposal (CSI_N), are compared in Figure 1. Their annual and monthly variations can be observed in Figures 2 and 3, respectively.
- Also there are differences in the trend-cycle, seasonal adjusted and corrected for calendar effects series.



Figure 2: Annual Variations of CSI (base January 2003=100, April 2001 to March 2013)

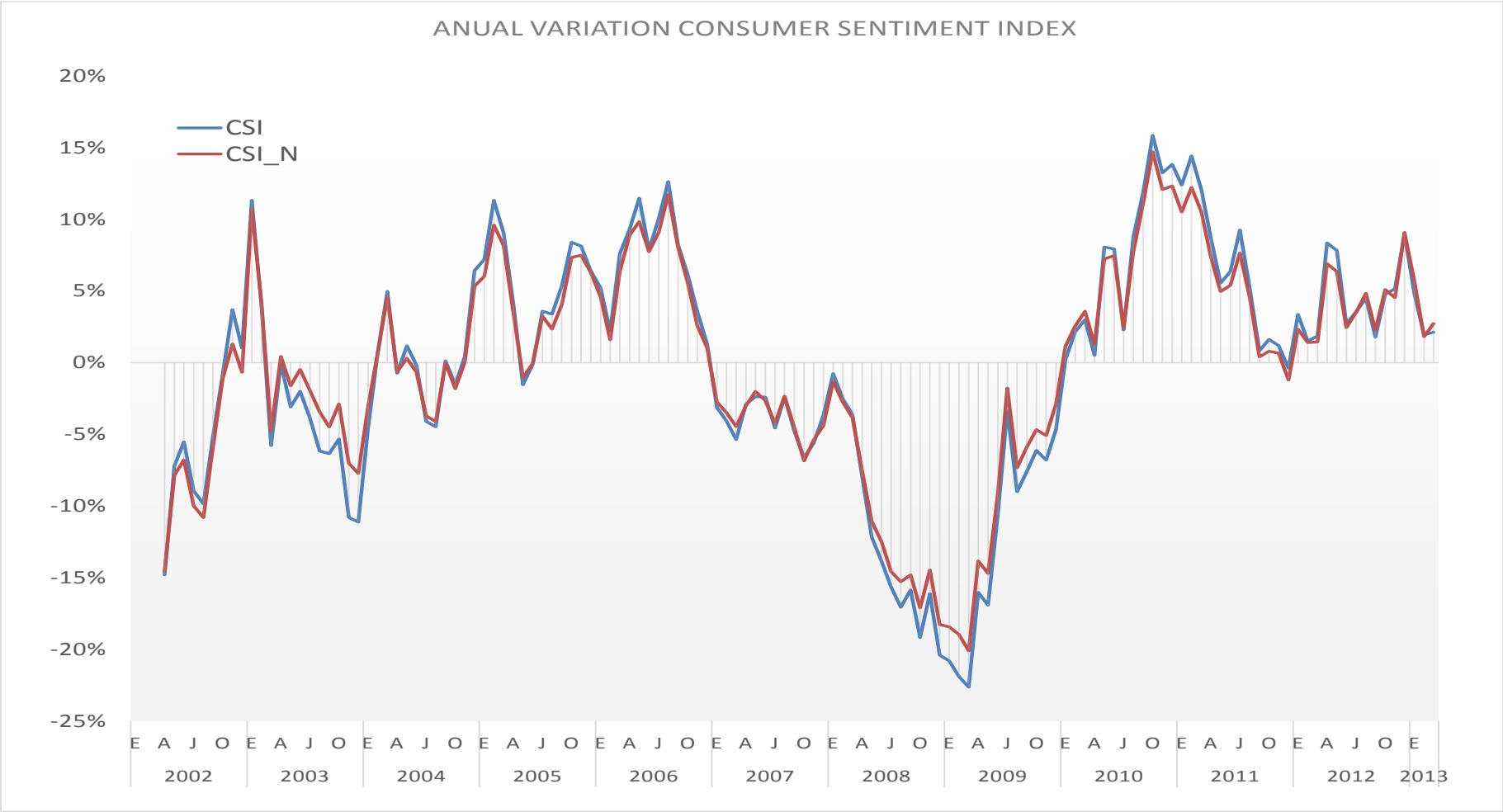
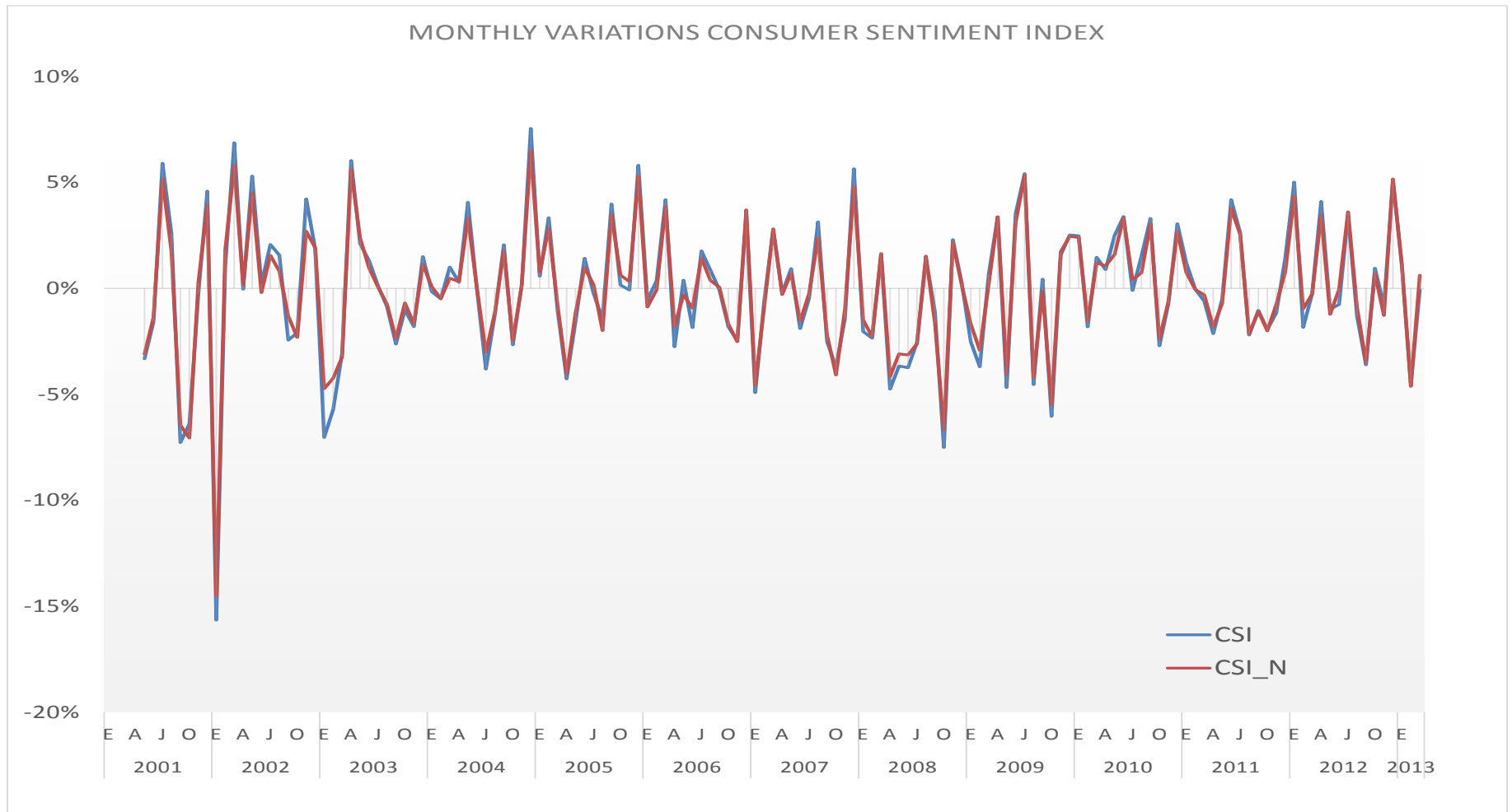


Figure 3: Monthly Variations of CSI (base January 2003=100, April 2001 to March 2013)



Comparison of the situation of home and country

- When considering the present situation of home and country with the indices base January 2003=100 perceived very different relationship between them as if done with the respective balance indicators.
- In Figure 5 the present home situation (in balance form) is ALWAYS higher than the country situation, which does not happen in the comparison in the indices (Figure 4).
- The same is true when considering the future home and country situations presented in Figure 6 and 7.



Figure 4: Home and country present situation (Indices base January 2003=100)

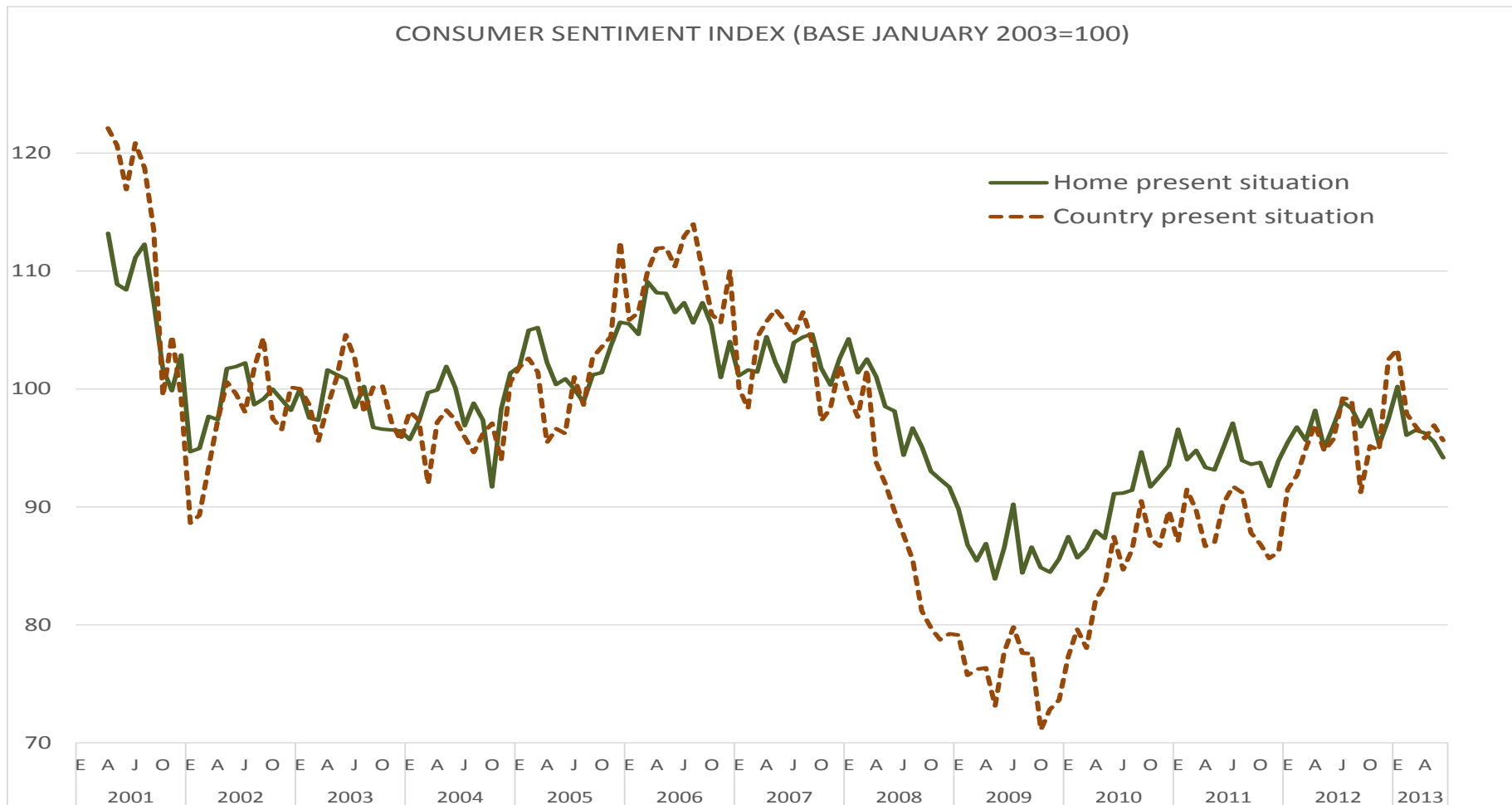
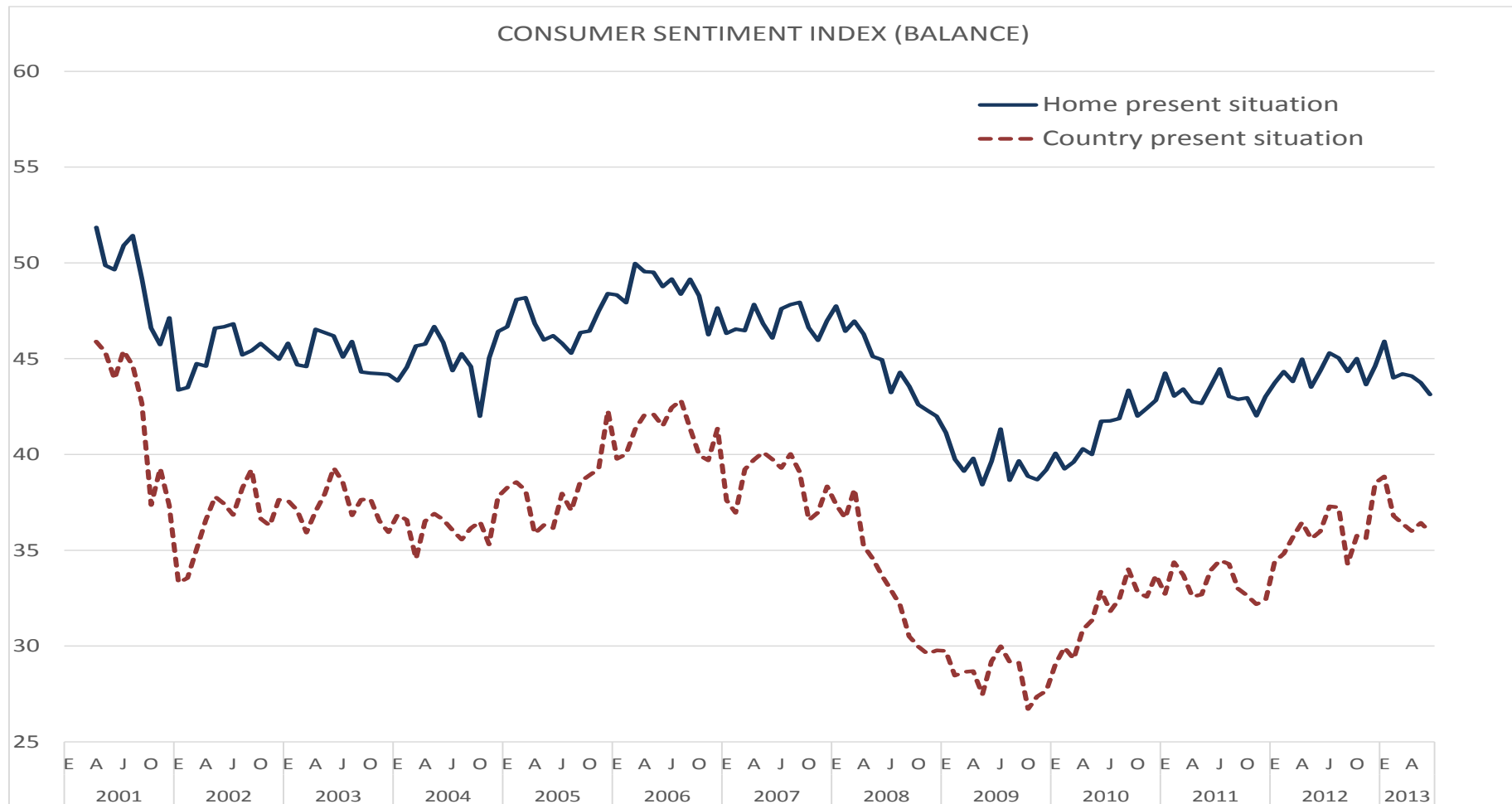


Figure 5: Home and country present situation (Balance form)



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Figure 6: Home and country future situation (Indices base January 2003=100)

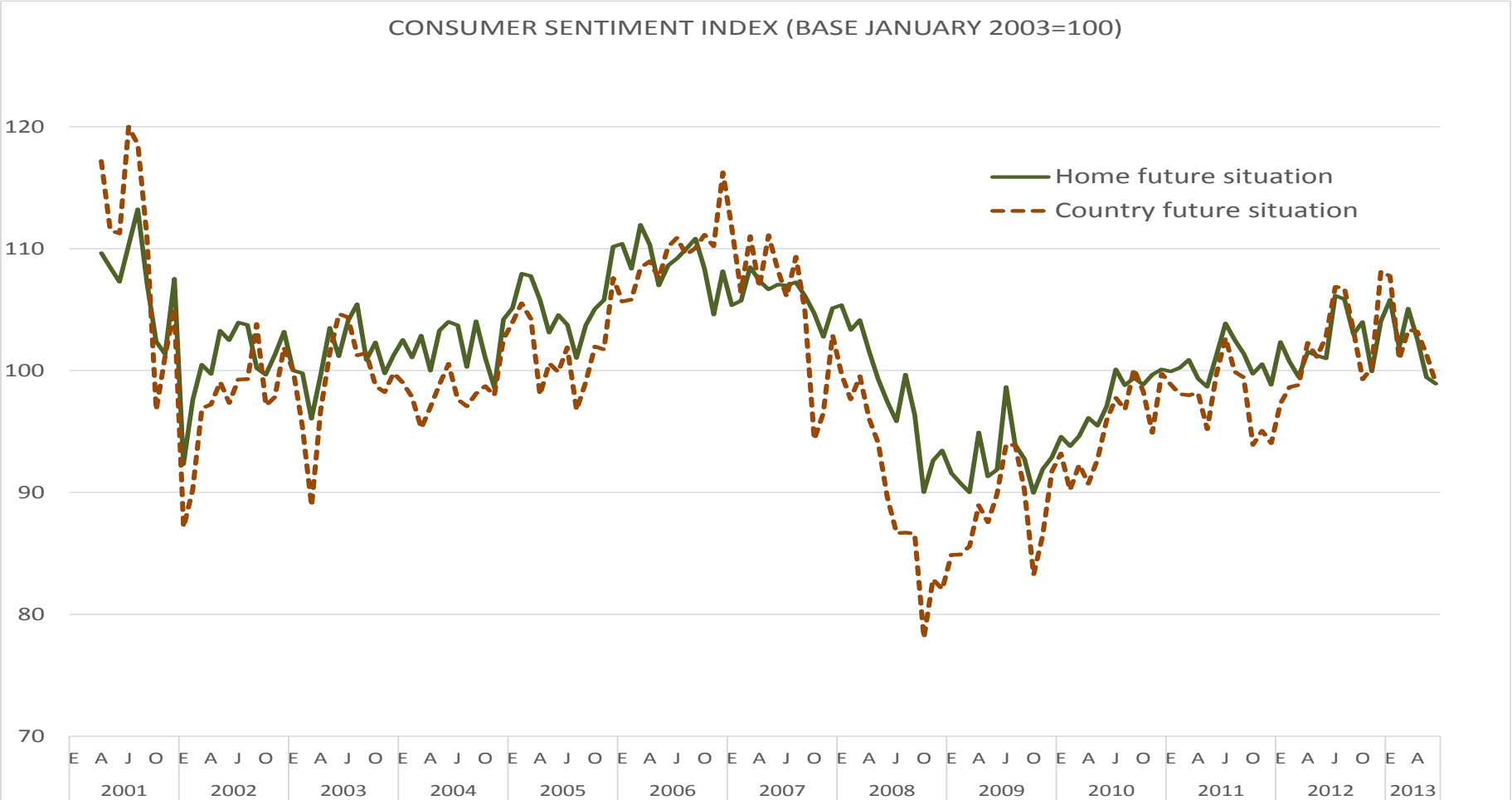
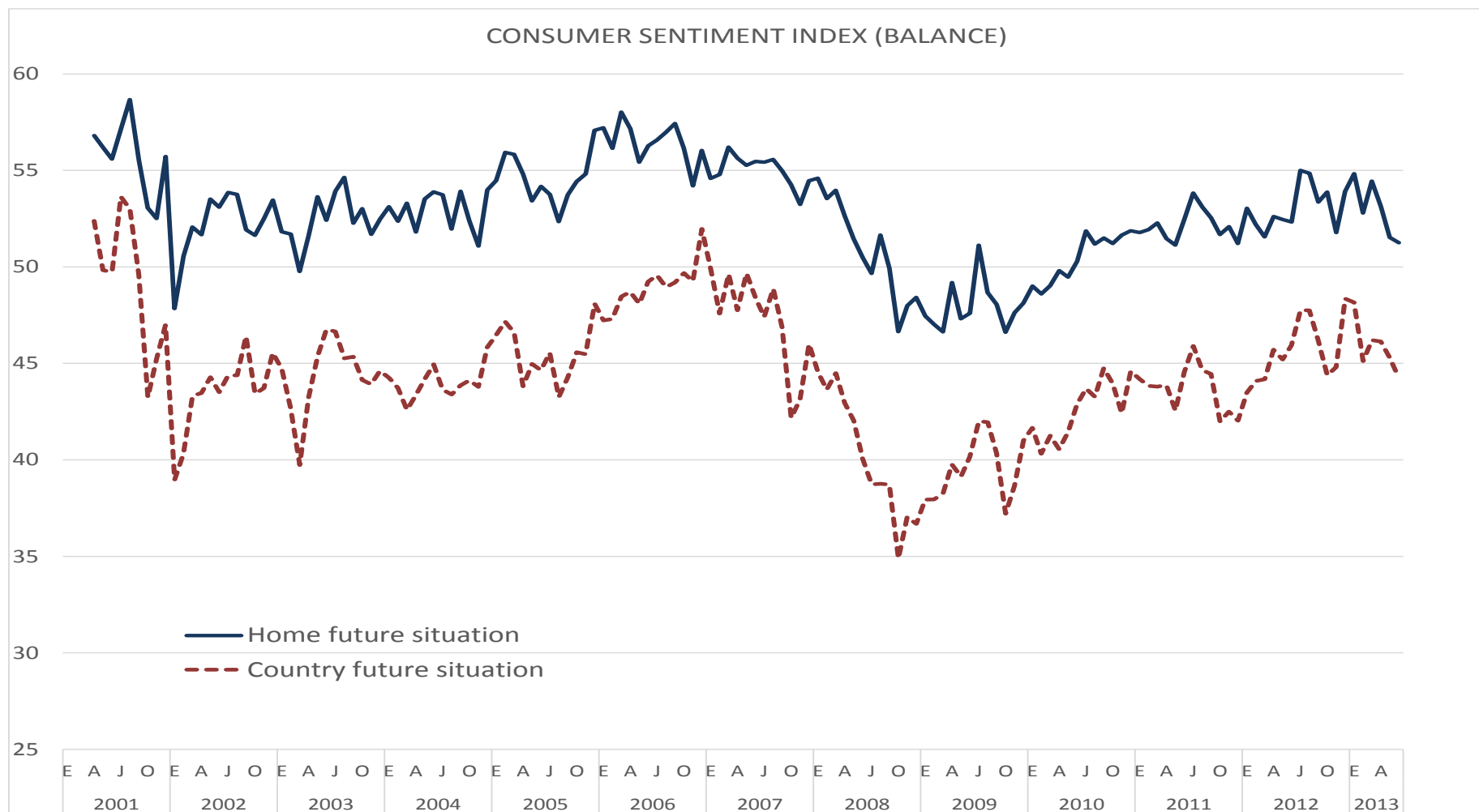


Figure 7: Home and country future situation (Balance form)



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Relation with economic variables

- The relation of CSI with economic variables show a change from the financial crisis of late 2008.
- Some of these variables are the Indicator of the Global Economic Activity (IGEAV), Private Consumption, Disoccupation Rate, Business Sentiment Indicator (BSI), Coincident and Leading Composite Indicators (ICOIN and ILEAD).
- Figure 8 to 11 shows ICS with IGEAV, BSI, ICOIN and ILEAD, respectively.



Figure 8: ICS and IGEA (Balance and Annual Variation)

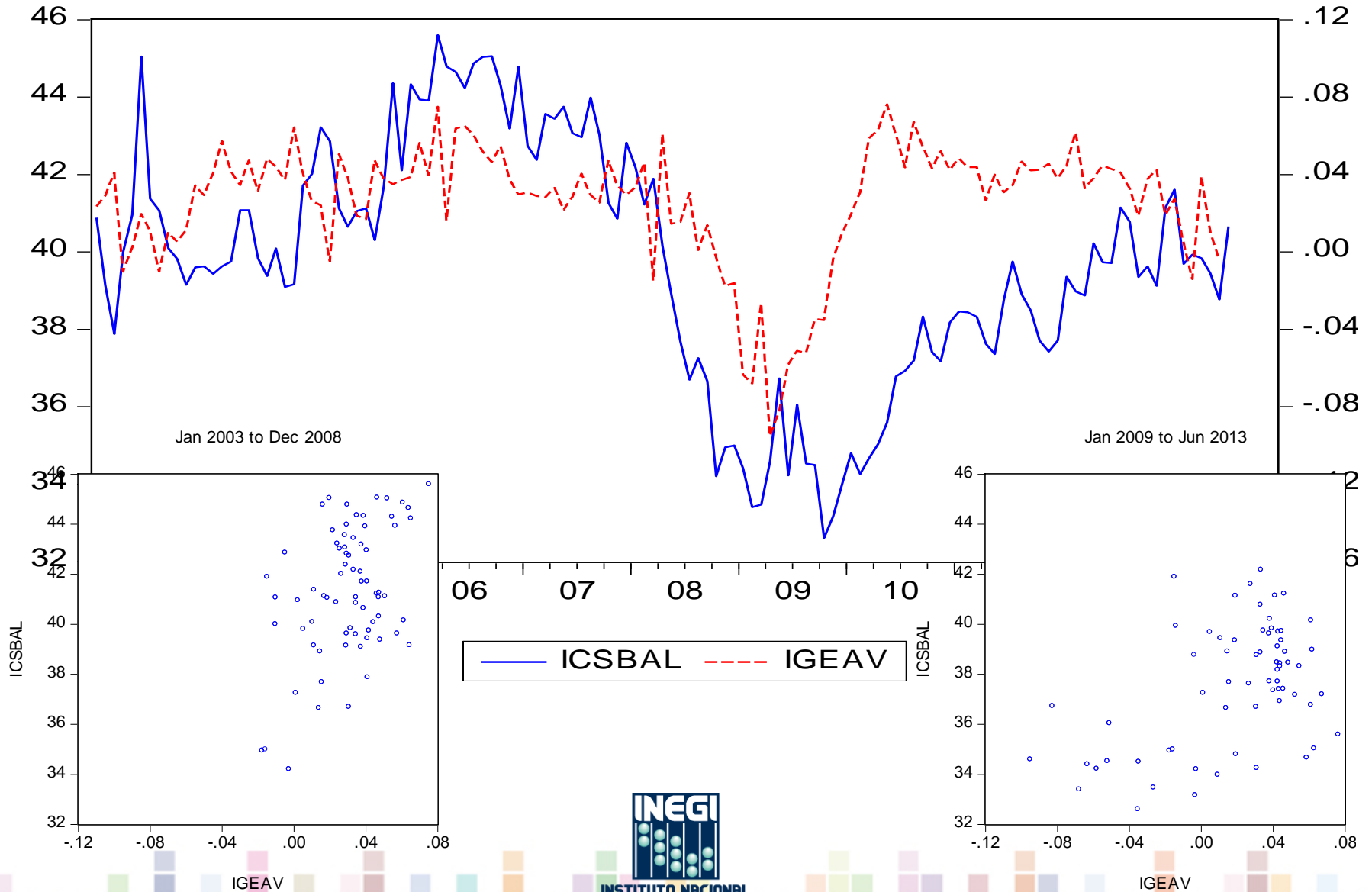


Figure 9: CSI and BSI (In Balance)

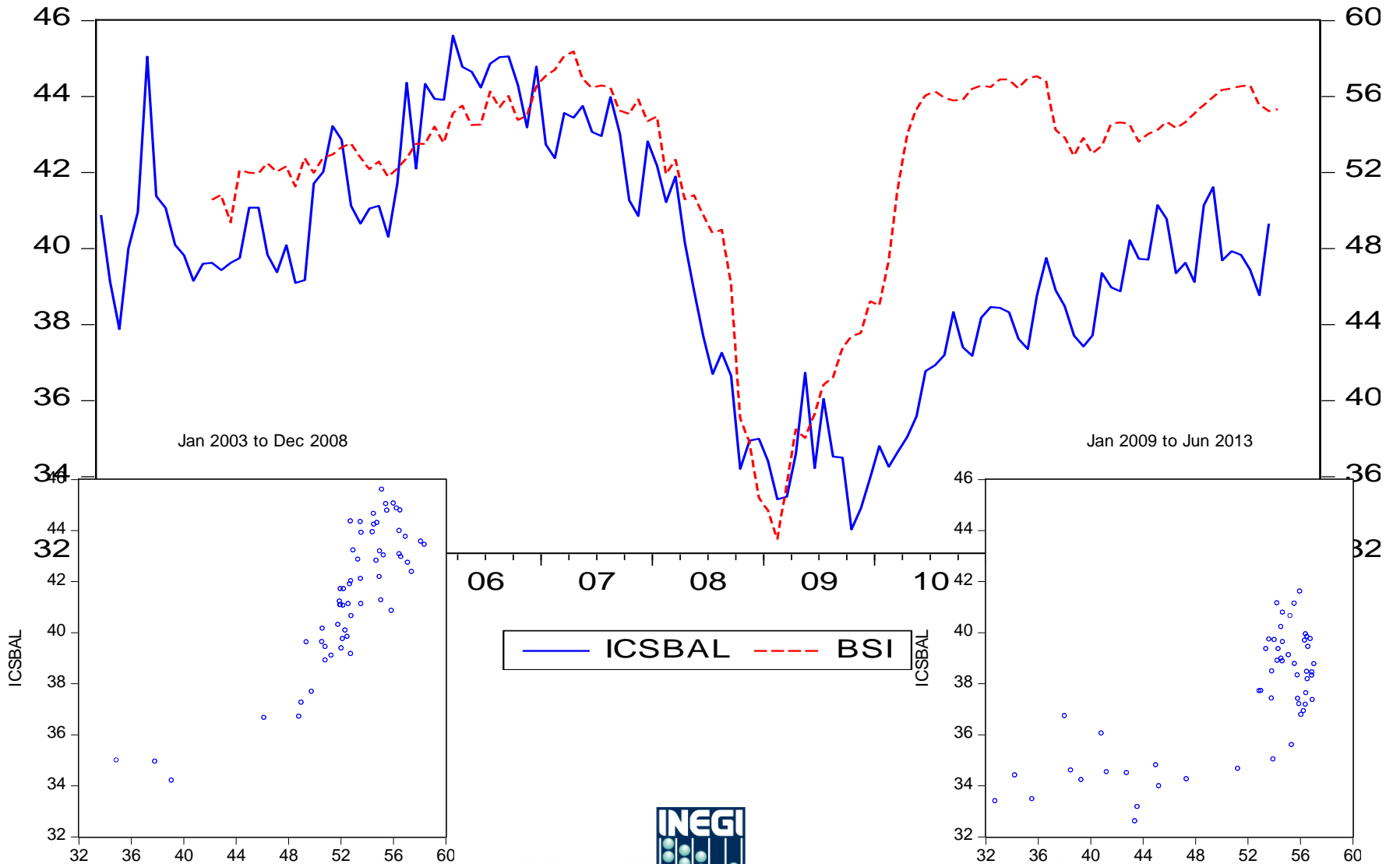
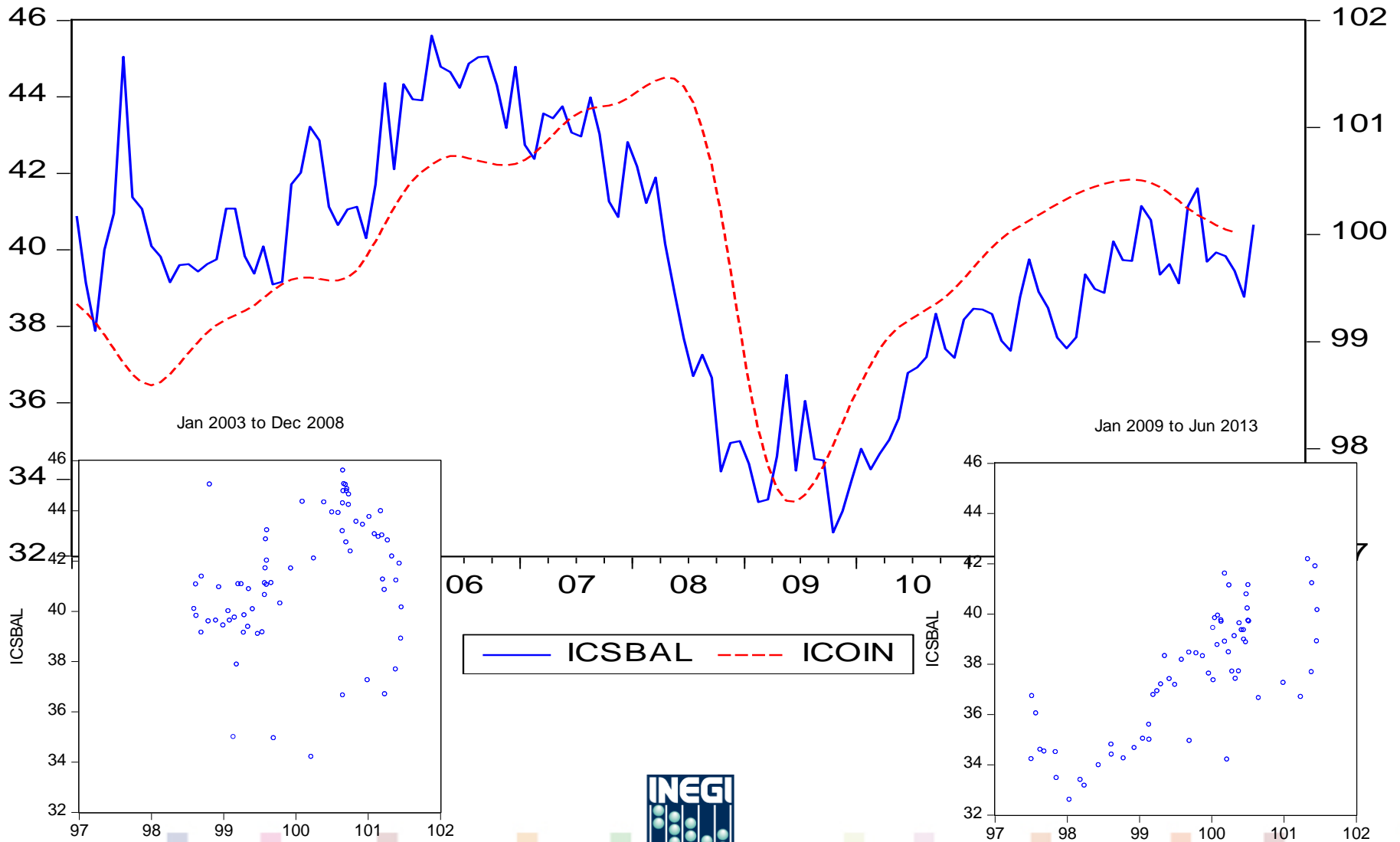


Figure 10: CSI and ICOIN (CSI in Balance)



— ICSBAL - - - ICOIN

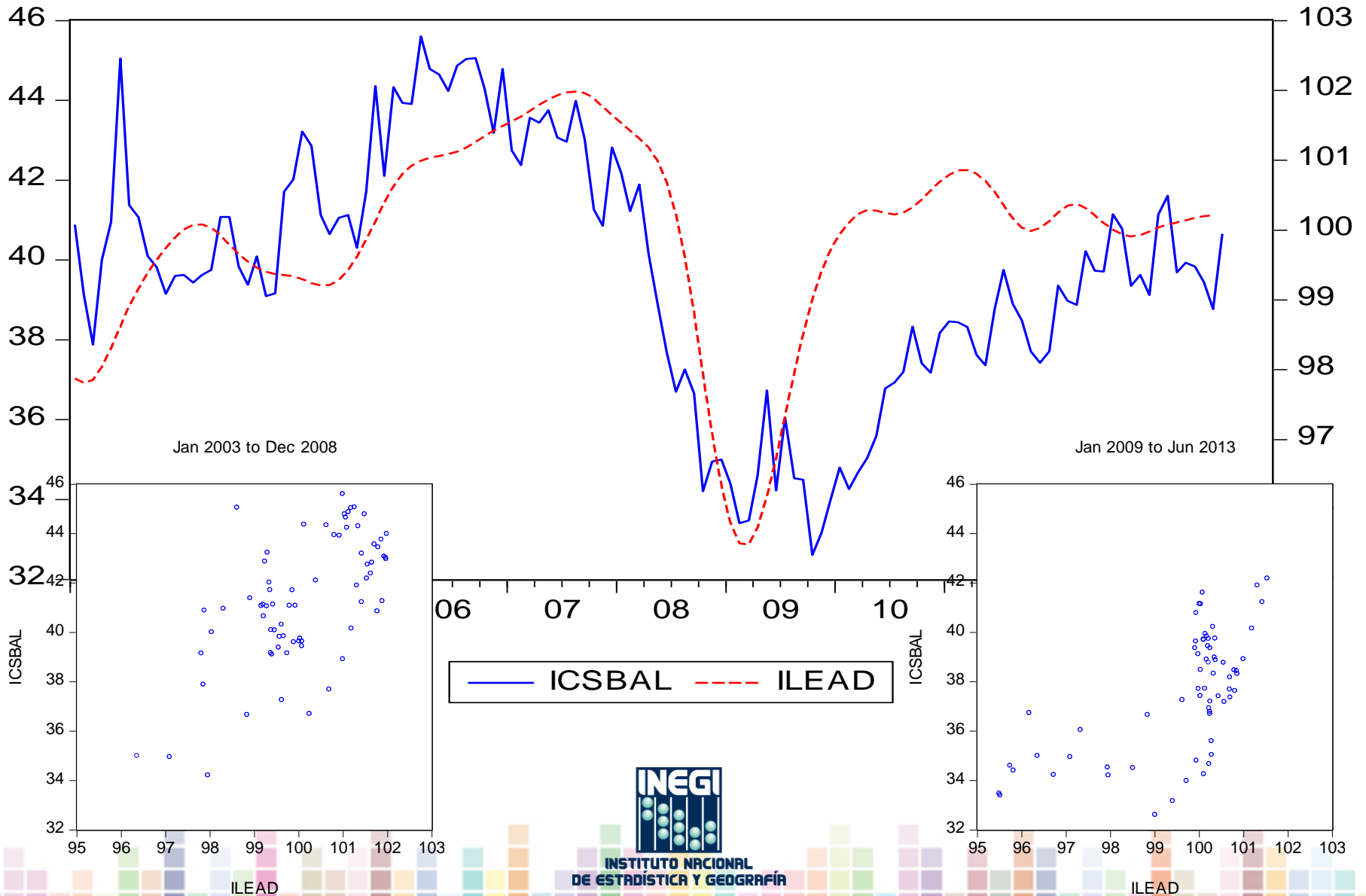


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ICOIN

ICOIN

Figure 11: CSI and ILEAD (CSI in Balance)



CSI Threshold Cross Classification

Contingency Table				
		IGEAV		
		< 0	≥ 0	TOTAL
CSIBAL	< 36.5	13	6	19
	≥ 36.5	7	100	107
TOTAL		20	106	126

INDEPENDENCE TEST

χ^2	46.26564
p value	0.000000

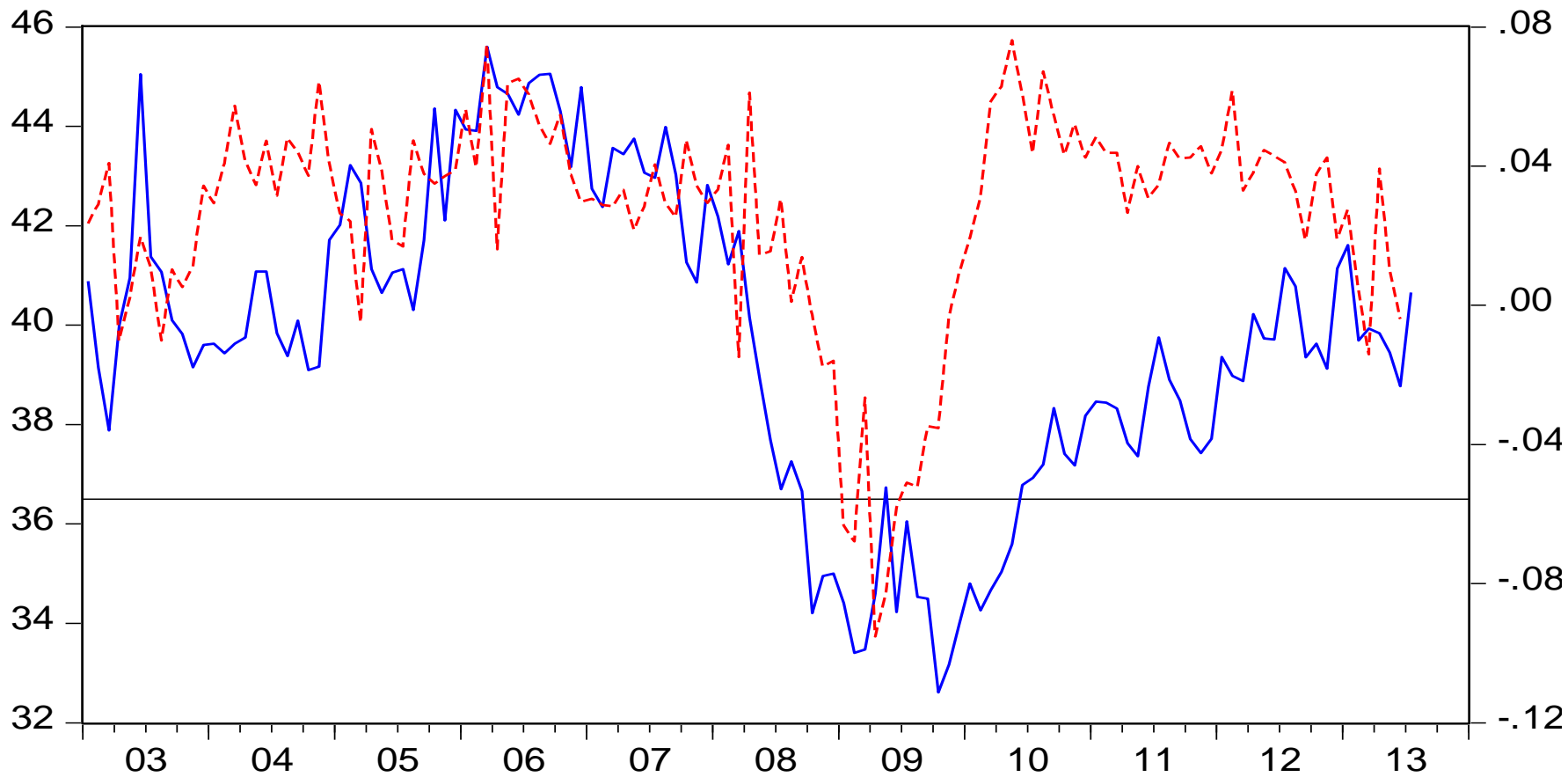
Conditional Probabilities			
		IGEAV	
		< 0	≥ 0
CSIBAL	< 36.5	68.4%	31.6%
	≥ 36.5	6.5%	93.5%
TOTAL		15.9%	84.1%

LIKELIHOOD-RATIO TEST

G^2	34.85719
p value	0.000000



Figure 12: CSI THRESHOLD IN 36.5



— ICSBAL - - - IGEAV



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CSI Threshold PROBIT MODEL

PROBIT MODEL

$$D_{IGEAV}_t = -59.8 + 2.9 CSI - 0.03 CSI^2$$

t stat (-2.8) (2.6) (-2.4)

GOODNESS OF FIT

$$R^2_{COUNT} = 82.5 \%$$

$$R^2_{COUNT,ADJ} = 79.3 \%$$

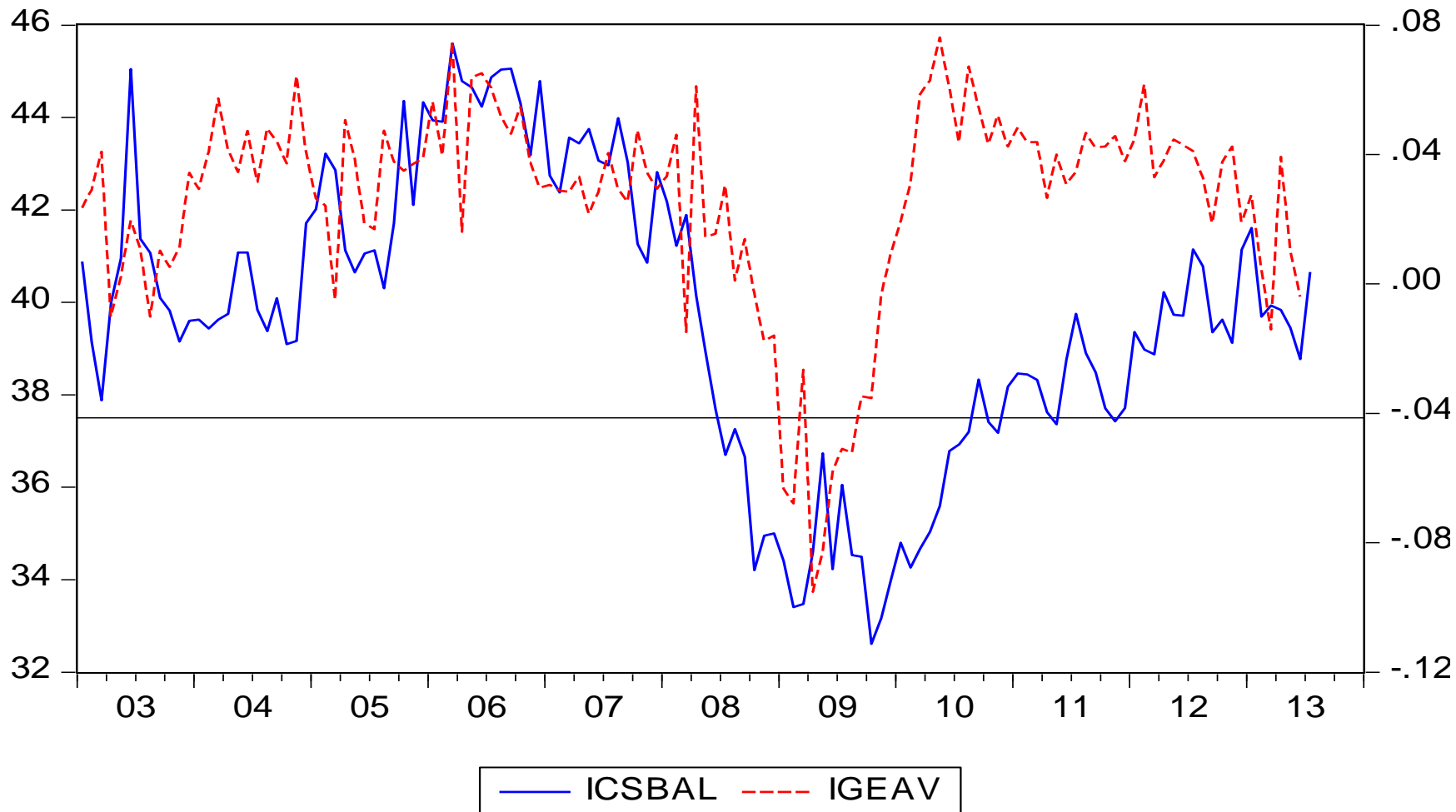
Success cutoff: C = 0.8413

	Estimated Equation		
	Dep=0	Dep=1	Total
P(Dep=1)≤C	14	16	30
P(Dep=1)>C	6	90	96
Total	20	106	126

THRESHOLD = 37.5



Figure 13: CSI THRESHOLD IN 37.5



WE CAN SAY THAT THE TRUE THRESHOLD OF
THE CONSUMER SENTIMENT INDICATOR IN
MEXICO IS 37.5?



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THANK YOU
(MUCHAS GRACIAS)



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