

Determinants Of the Trade Balance in The Case of Peru - Chile

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Abstract

This Study Was Carried Out In Peru, With The Purpose Of Determining Which Economic Variables Influence The Behavior Of The Peru-Chile Trade Balance. The Method Used For The Research Is Non-Experimental, And The Type Of Research Was Correlational - Causal. The Main Conclusion Was That The Factors That Explain The Peruvian Trade Balance With Respect To Chile Are: Peru's Gdp, Chile's Gdp, The Bilateral Real Exchange Rate And The Trade Agreements With Chile. Likewise, Peru's Gross Domestic Product, Bilateral Real Exchange Rate And Trade Agreements With Chile Are Inversely Related To The Trade Balance, While Chile's Gross Domestic Product Is Directly Related To The Trade Balance. On The Other Hand, The Long-Term Equation Indicates That If Peru's Gross Domestic Product Increases, The Balance Of Trade Balance Decreases; If Chile's Gross Domestic Product Increases, It Causes An Increase Of 0.03% In The Balance Of Trade Balance. Finally, If The Bilateral Real Exchange Rate Depreciates, This Improves

The Balance Of Trade Balance, Which Demonstrates The Presence Of The J-Curve Phenomenon For The Peru-Chile Case.

1. Introduction

Chile Is One Of Peru's Main Trading Partners. According To Data From Bcrp (2016) And Bcr Chile (2016), In 2015 Chile Was The Eighth Destination Of Peruvian Exports And The Seventh Supplier Of Peru. Likewise, Peru's Exports To Chile Were Us\$1072.71 Million Which Represented 3.23% Of Total Peruvian Exports, On The Other Hand, Peru's Imports From Chile Were Us\$1210.31 Million Which Represented 3.18% Of Total Peruvian Imports. During The Study Period, It Was Observed That In The 1990s, Peru's Trade Balance With Respect To Chile Was In Deficit Until 2003, Then, In The Period Between 2004 And 2015, The Trade Balance Improved, Registering A Surplus, Except For The Years 2009 And 2015 When The Trade Balance Was In Deficit Due To The Us And European Crisis That Damaged The Peruvian And Chilean Economies, Since In 2009. In The Year 2009, There Was A Reduction (In Real Terms) In The Gross Domestic Product Of Both Countries, Unlike The Year 2015, When There Was An Increase (In Real Terms) In The Gross Domestic Product Of Both Countries. Likewise, In That Year, Exports From Peru To Chile Were Us\$ 1072.71 Million And Imports Were Us\$ 1210.31 Million.

At The Beginning Of The 1990s, Peru Began To Export Goods To The United States And The European Union Through Trade Preference Mechanisms. Although These Mechanisms Were Favorable To Peruvian Exports, Over The Years, These Were Insufficient Based On The Increase In The Volume Of Exports And At The Same Time Uncertain Because There Was No Certainty That These Agreements Would Remain In Force In The Long Term, Which Limited The Projects Of Businessmen Who Wanted To Export More. Suggesting To The Governments Of Allied Countries Such As The United States And China As One Of The Main Trade Allies, To Continue Implementing Policies That Allow The Economy Of Countries Such As Peru That Have Been Suppliers Of Raw Materials And Services, To Continue Growing And Sustain More And More Volumes Of Commercial Exchange (Valdera, Puyen, & Carmona, 2018).

It Is Important To Keep In Mind That Changes In World Parities, Approximated By The Real U.S. Exchange Rate, Had An Insignificant But Favorable Effect On The Terms Of Trade. In Periods When The U.S. Currency Loses Purchasing Power, It Is Expected That The Peruvian Economy Will Benefit From The Improvement In Its Terms Of Trade. On The Other Hand, The Libor Interest Rate And The Pmi Production Index Have A Weak And Insignificant Effect On The Terms Of Trade (Ramos Quispe, 2019).

In Order To Consolidate The Entry Of Its Products Into The International Market, Peru Decided In The Early 2000s To Negotiate Trade Agreements With Those Nations To Which It Sold The Most. With These Agreements, All The Benefits That Peru Received For Exporting Its Products Would Be Backed By Comprehensive And Permanent Agreements.

During The Period Under Study, The Average Growth Rate Of Our Economy Was 4.97% And That Of Chile Reached An Average Of 4.38%. On The Other Hand, Exports To Chile Increased At An Average Rate Of 13.59% While Imports Increased By An Average Of 7.21%.

Peru And Chile Are Part Of The Pacific Alliance Together With Mexico And Colombia. According To Information From Promperú (2016) Chile Represented 45% Of Peru's Total Exports To The Pacific Alliance Which Shows The Importance Of This Research Since, For Peru, Chile Is A Very Important Trading Partner. Group Of Countries That Are Integrated To Promote Entrepreneurship And Sustainability Of The Region's Economy Among Themselves (García Alonso, Thoene, Figueroa, & Murillo Amaris, 2020).

There Are Studies On The Relations Between Peru And Chile, But There Is No Information On The Variables That Influence The Behavior Of Peru's Trade Balance With Chile. The Present Work Is A Research That Aims To Evaluate The Determinants Of The Trade Balance For The Peru-Chile Case.

The Study Data Are Through Secondary Information And Were Obtained Through The Following Databases: Central Bank Of Chile, Central Bank Of Peru And The International Monetary Fund.

The Bibliographic Sources Come From Previously Developed Research, As Well As From Texts On International Economics And Macroeconomics.

In The Present Study, It Is Not Necessary To Attach The Informed Consent Form, Since This Research Was Carried Out With Existing Data.

2. Objectives

2.1 General Objective

Determine The Economic Variables That Affect The Behavior Of The Peru - Chile Trade Balance.

2.2 Specific Objectives

- Analyze The Incidence Of Peru's Gdp On Peru's Imports.
- To Analyze The Incidence Of Chile's Gdp On Peru's Exports.
- To Analyze The Impact Of The Real Bilateral Exchange Rate Clp/Pen On The Balance Of Trade Balance.
- To Analyze The Impact Of Trade Agreements With Chile On The Balance Of Trade Balance. O To Analyze The Impact Of Trade Agreements With Chile On The Balance Of Trade Balance.

3. Hypothesis

3.1 General Hypothesis

Peru's Gdp, Chile's Gdp, Real Bilateral Exchange Rate Clp/Pen, Trade Agreements With Chile, Influence The Balance Of The Peru - Chile Trade Balance.

3.2 Specific Hypotheses

- A) Peru's Gdp Influences Peru's Imports.
- B) Chile's Gdp Influences Peru's Exports.
- C) The Real Bilateral Exchange Rate Clp/Pen Influences The Balance Of Trade Balance.
- D) Trade Agreements With Chile Influence The Balance Of Trade Balance.

4. Methodology

4.1 Type Of Research

The Type Of Research Is Correlational And Causal Because The Objective Is To Determine Mainly The Causal Relationship Between The Independent Variable And The Explanatory Variables. Apart From That, The Research Is Deductive Since It Allows Obtaining Particular Conclusions Based On The General Theory, In This Case. Therefore, It Is A Verifiable Study.

According To Hernandez And Sampieri (2014 P.93) A Correlational Research Aims To Know The Relationship Or Degree Of Association That Exists Between Two Or More Concepts, Categories Or Variables.

4.2 Research Design

The Present Research Is Non-Experimental Because It Is Carried Out Without Manipulating The Variables, That Is, It Works With Already Existing Information.

Carrasco Diaz (2007, P.72) Points Out That The Non-Experimental Study Design Is "Used To Carry Out Research Studies Of Facts And Phenomena Of Reality, At A Specific Moment In Time"

4.3 Population And Sample

This Research Will Work With Time Series, Which Will Be Between 1992 And 2015. Therefore, The Population And Sample Will Be Identical.

4.4 Data Collection Techniques And Instruments.

To Obtain The Data, Access The Websites Of The Central Bank Of Peru And Chile And The International Monetary Fund (Imf).

The Data Collected From The Statistical Annexes Were In Nominal Terms, So The Values Were Deflated To Work With Data In Real Terms With A Base Year Of 2005.

The Stationarity Test Of The Time Series Was Carried Out, For Which A Unit Root Test Was Performed Using The Dickey Fuller Test. Likewise, The Engle And Granger Cointegration Test Was Performed.

To Verify The Hypotheses, The Models Of Varela (1999) And Bahmani-Oskooee And Kantipong (1999) Will Be Used (2001)

$$LN X_t = \alpha_0 + \alpha_1 LNYCL_t + \alpha_2 LNTCRB_t + \alpha_3 D_1 + u_t \tag{1}$$

$$LNIM_t = \beta_0 + \beta_1 LNYPE_t + \beta_2 LNTCRB_t + \beta_3 D_1 + u_t \tag{2}$$

$$BC_t = \delta_0 + \delta_1 YPE_t + \delta_2 TCRB_t + \delta_3 YCL_t + \delta_4 D_1 + u_t \tag{3}$$

Where:

Bct: Peru - Chile Trade Balance In The Period Of Time T.

Xt: Exports From Peru To Chile In Time Period T.

Imt: Imports From Chile To Peru In Time Period T.

Ycl: Chile's Gdp For Time Period T.

Ype: Peru's Gdp In Time Period T.

Tcrb: Bilateral Real Exchange Rate (Clp/Pen) In Time Period T.

D1: Dummy Variable Representing Trade Agreements With Chile.

Likewise, The Endogenous Variables Are: X, Im, Bc, Ycl, Tcrb And D1.

5. Results

5.1 Descriptive Analysis

5.1.1 Evolution Of Peru's Gdp In The Period 1992-2015.

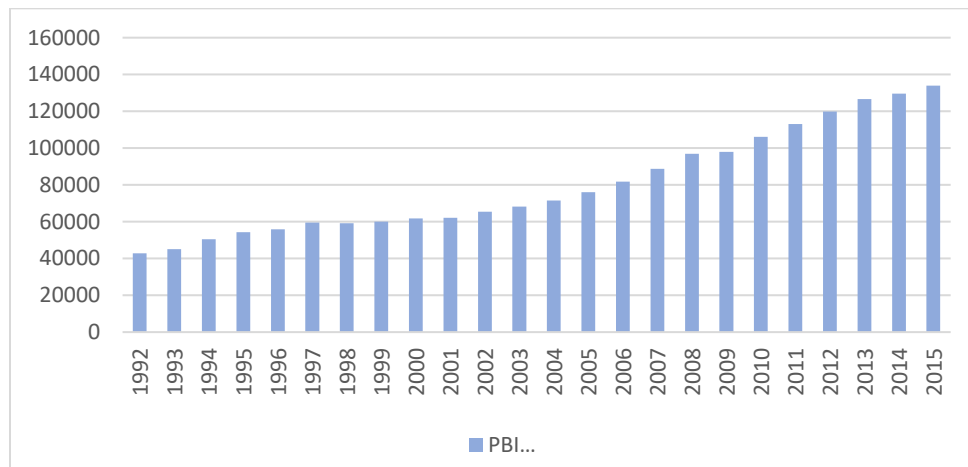


Figure 1: Peru's Gdp (In Millions Of Dollars At 2005 Prices)

Source: Bcrp. Own Elaboration.

Figure 1 Shows The Behavior Of Peru's Gdp, Which Showed An Upward Trend During The Period Under Study. It Can Also Be Seen That In 1998, Production Decreased In Value.

The Years That Reflected The Highest Economic Growth Were 1994 With An Annual Growth Rate Of 12.31%, Followed By 2008 With An Annual Growth Rate Of 9.14% And, Finally, 2010 With A Growth Rate Of 8.45%. Likewise, In 1998 The Rate Of Decrease Was 0.39%. The Cumulative Average Annual Increase During The Study Period Was 4.97%.

$$LNYPE = 10.63 + 0.048590T + u_t \tag{4}$$

$$0.048590 = \ln(1+R)$$

Clearing "R": R = 4.97%

5.1.2 Evolution Of Chile's Gdp In The Period 1992-2015

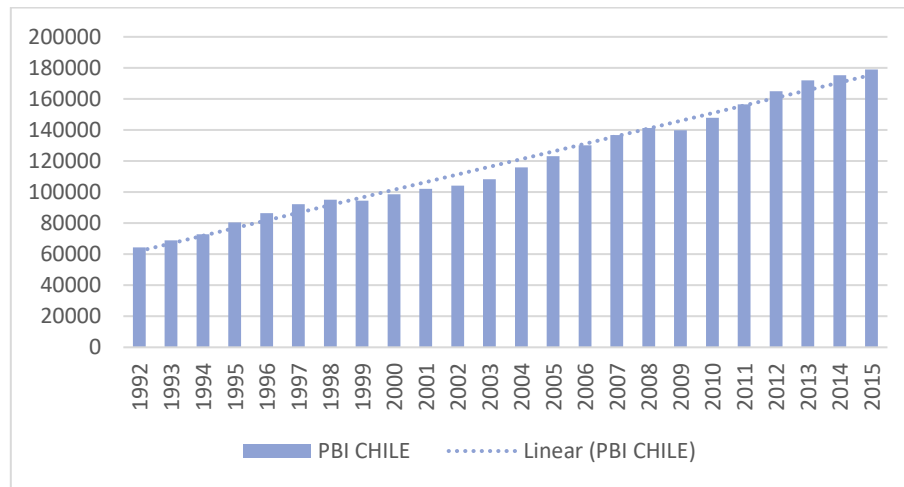


Figure 2: Gdp Chile (In Millions Of Dollars At 2005 Prices).

Source: Bcr Of Chile. Own Elaboration.

Figure 2 Shows The Behavior Of Chile's Gdp, Which Showed An Upward Trend During The Period Under Study. It Can Also Be Observed That, In Some Years, The Gdp Had A Negative Growth (Years 1999 And 2009).

The Years That Reflected The Highest Growth Of The Chilean Economy Were 1995 And 2004 With Rates Of 10.63% And 7.02%, Respectively. Likewise, In 1999 And 2009, The Decrease Rates Were 0.76% And 1.04%, Respectively. The Average Cumulative Growth Rate During The Study Period Was 4.38%.

$$LNYCL = 5.35 + 0.042909T + u_t \tag{5}$$

$$0.042909 = \ln(1+R)$$

Clearing "R": R = 4.38%

5.1.3 Evolution Of Exports And Imports From Peru To Chile In The Period 1992-2015.

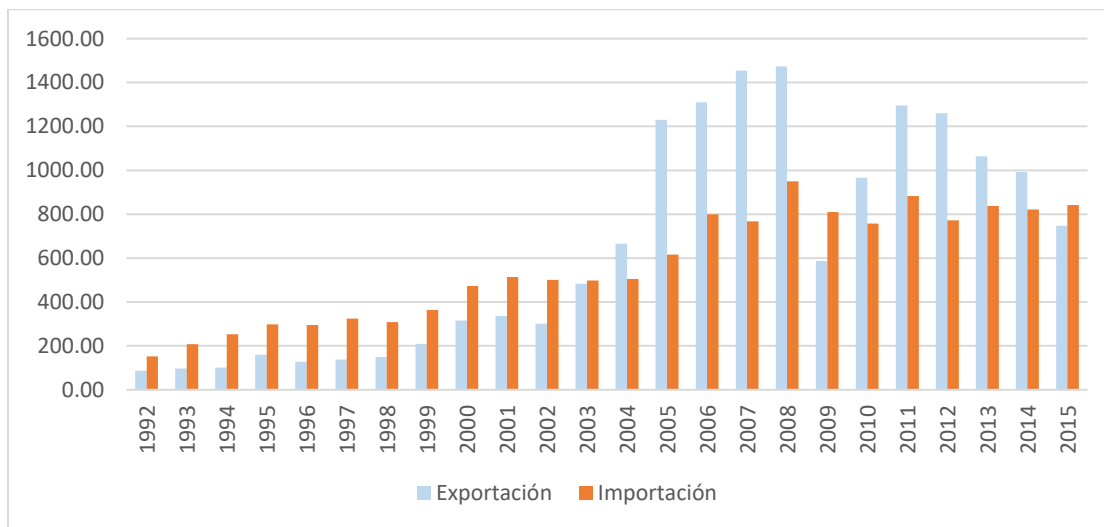


Figure 3: Exports And Imports Of Peru With Respect To Chile (In Millions Of Dollars At 2005 Prices).

Source: Bcrp, Bcr Of Chile. Own Elaboration.

Figure 3 Shows Peru's Exports And Imports With Respect To Chile. There Is An Increasing Trend In Exports And Imports From 1992 To 2007, Where The Trend Became Decreasing Until 2009 In The Case Of Exports And 2010 For Imports. After That, Exports Showed An Increasing Trend Until 2011 And A Decreasing Trend Until 2015 While, In The Case Of Imports, An Increasing Trend Is Observed In The Period 2010 - 2011, Then A Decreasing Trend In The Period 2011 - 2012 And Then, An Increasing Trend Of Imports Is Observed In The Period 2012 - 2015.

It Can Also Be Seen That In The Periods Between 1992 - 2003, 2009 - 2010 And 2015, Imports Are Greater Than Exports. While In The Periods Between 2003 - 2009 And 2010 - 2014, Exports Were Higher Than Imports, In The Periods Between 1992 - 2003, 2009 - 2010 And 2015, Imports Were Higher Than Exports.

In 2009, Exports From Peru To Chile Had A Reduction Of 60.21%, I.E., In 2008 Exports Amounted To 1473.36 Million Dollars And, In The Case Of 2009, Exports Amounted To 586.18 Million Dollars. This Occurred Because In 2009 Molybdenum Ore Exports Represented 23.44% Of The Total And The Price Of This Mineral In 2009 Was Reduced By 61.29% With Respect To The 2008 Price, I.E., In 2008 The Price Per Pound Was 28.74 Dollars And In 2009 The Price Was 11.12 Dollars Per Pound.

5.1.4 Ranking Of Peru's Exports And Imports To Chile.

	Exports World Ranking	Imports World Ranking
2002	6	7
2003	5	7
2004	4	8
2005	3	7
2006	5	6
2007	6	7
2008	6	8
2009	9	5
2010	7	9
2011	6	9
2012	6	11
2013	7	11
2014	7	8
2015	8	7

Table 1: Ranking Of Peru's Exports And Imports With Respect To Chile.

Source: Imf. Own Elaboration.

Table 1 Shows The Ranking Of Trade Between Peru And Chile. For Peru, Chile Is, On Average, Among The 9 Main Export Destinations, Where In 2005, It Was The Third Destination For Exports. In Contrast To Exports, In The Case Of Imports, In 2009 Chile Was Peru's Fifth Main Trading Partner In Terms Of Import.

In Peru, With The Fta With Chile, Exports To Chile Gained One Place In The Ranking In 2011-2012, However, In 2013, 2014 And 2015 They Decreased By One Place.

As For Imports From Chile, These Increased From The Implementation Of The Fta In The Years 2009-2010 And 2011-2012, However, From 2013, Imports Decreased, Which Shows That The Fta With Chile Has Not Yet Favored Peru Or Chile.

Year	Chile	World	X (%)	Im (%)
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	X	Im	X	Im		
1992	70.12	124.46	3359.21	3963.46	2.09%	3.14%
1993	72.59	155.1	3343.14	4229.96	2.17%	3.67%
1994	86.18	216.46	4388.68	5625.45	1.96%	3.85%
1995	152.11	284.45	5439.46	7583.28	2.80%	3.75%
1996	123.19	284.54	5834.74	7946.14	2.11%	3.58%
1997	132.26	311.23	6759.11	8557.33	1.96%	3.64%
1998	138.47	285.58	5671.48	8219.23	2.44%	3.47%
1999	173.26	300.61	5931.66	6821.64	2.92%	4.41%
2000	262.71	395.21	6865.64	7413.79	3.83%	5.33%
2001	281.92	431.16	6825.16	7308.61	4.13%	5.90%
2002	251.35	418.96	7490.02	7491.66	3.36%	5.59%
2003	416.02	429.21	8748.89	8412.89	4.76%	5.10%
2004	621.49	470.73	12083.00	10091.55	5.14%	4.66%
2005	1229.36	615.22	17824.54	12478.13	6.90%	4.93%
2006	1419.45	866	22736.75	15292.49	6.24%	5.66%
2007	1673.69	883.87	26823.39	20417.01	6.24%	4.33%
2008	1834.02	1182.48	30425.28	29880.74	6.03%	3.96%
2009	721.34	997.45	25904.79	21802.58	2.78%	4.57%
2010	1338.52	1048.15	34534.90	29912.49	3.88%	3.50%
2011	1963.39	1337.92	44686.45	37842.30	4.39%	3.54%
2012	2029.68	1243.92	46366.54	42162.93	4.38%	2.95%
2013	1685.43	1327.32	42568.90	43321.71	3.96%	3.06%
2014	1543.48	1279.14	38459.25	42193.57	4.01%	3.03%
2015	1072.71	1210.31	33244.87	38104.61	3.23%	3.18%

Table 2: Share Of Peru's Exports And Imports To Chile With Respect To Peru's World Trade (Expressed In Millions Of Dollars).

Source: Bcrp, Bcr Of Chile. Own Elaboration.

Table 2 Shows Peru's Exports To And Imports From Chile And Their Share Of Peru's World Trade. Since 1999 (After The Signing Of The Economic Complementation Agreement No. 38), Exports To Chile Increased And Had A Greater Share Of Peru's Total Exports (Between 3% And 6% Of The Total). Then, With The Entry Into Force Of The Free Trade Agreement (2009), Exports To Chile Represented 2.78% Of Total Peruvian Exports, But Then, This Percentage Increased Reaching A Maximum Participation Of 4.39% During The Post Fta Period (2009 - 2015).

Peruvian Imports From Chile Represented More Than 3% During The Period Under Study (With The Exception Of 2012, When The Share Was 2.95%). After The Signing Of The Economic Complementation Agreement No. 38 In 1998, Peruvian Imports From Chile Represented 4.41% Of The Total From 1999 Onwards And The Maximum Value Was Reached In 2002 (5.59%).

Year	Gdp Perú		Gdp Chile		Exports		Imports	
	Average Annual Growth Rate	Annual Growth Rate	Average Annual Growth Rate	Annual Growth Rate	Average Annual Growth Rate	Annual Growth Rate	Average Annual Growth Rate	Annual Growth Rate
1992 - 2003	3.85%		4.70%		16.04%		10.59%	
2004 - 2015	6.05%		4.00%		-0.95%		2.95%	

1992 - 1998	6.00%	7.14%	9.70%	11.92%
1999 - 2015	5.74%	4.28%	9.22%	5.00%
2009 - 2015	5.33%	4.29%	2.09%	0.82%

Table 3: Average Annual Growth Rate

Source: Bcrp, Bcr Of Chile. Own Elaboration.

Table 3 Shows The Average Annual Growth Rate Of Peru's Gdp, Chile's Gdp, Exports And Imports Over Different Time Periods.

It Is Observed That After The Entry Into Force Of Ace N° 38 In 1998, In The Period 1999 - 2015 Peru's Gdp Had A Higher Average Annual Growth Rate Than Chile's Gdp (5.74% And 4.28% Respectively), Likewise, Exports In That Period Reflect A Higher Average Annual Growth Rate Than Imports (9.22 And 5.00% Respectively). Therefore, It Can Be Seen That Chile Benefited More From The Signing Of Trade Agreements During This Period. Peru, On The Other Hand, Benefited From A Higher Gdp Growth Rate (9.22% And 5.00%, Respectively).

Since The Entry Into Force Of The Fta With Chile, In The Period 2009 - 2015 Peru's Gdp Had A Higher Average Annual Growth Rate Than Chile's Gdp (5.33% And 4.29% Respectively), Likewise, Exports In That Period Reflect A Higher Average Annual Growth Rate Than Imports (2.09% And 0.82% Respectively). Therefore, Both The Signing Of Ace N° 38 And The Fta With Chile Benefited Chile Because Peruvian Imports Reflect A Higher Growth Rate Than Exports), But, If We Mention Gdp Growth, Peru Benefited From The Signing Of Trade Agreements Because The Growth Rate Was Higher Than That Of Chile.

5.2 Estimation Of The Peru - Chile Trade Balance And Its Determinants

The Econometric Model Used To Quantify The Peru - Chile Trade Balance Has Been Taken As An Indicator, The Difference Between Exports And Imports, That Is, The Trade Balance (Expressed In Millions Of Dollars).

In Order To Have A Theoretical Explanation, The Model Presented Below Must Comply With: Stability Of Estimated Parameters, Absence Of Autocorrelation, Absence Of Multicollinearity And Statistical Significance.

$$BC_t = \delta_0 + \delta_1 YPE_t + \delta_2 TCRB_t + \delta_3 YCL_t + \delta_4 D_1 + u_t \quad (6)$$

Where:

δ_0 = Is The Value Of The Constant, I.E., It Reflects The Behavior Of The Trade Balance Over The Study Period (1992 - 2015) When The Regressor Variables Are Worth Zero

Ype : Gross Domestic Product Of Peru.

Ycl : Gross Domestic Product Of Chile.

$Tcrb$: Is The Real Bilateral Exchange Rate Of Peru And Chile.

$D1$: Dummy Variable Representing Trade Agreements With Chile.

δ_1 = It Represents The Slope Of The Function With Respect To Peru's Gross Domestic Product (Gdp) And Represents The Variation Of The Trade Balance With Respect To Gdp.

δ_2 = Represents The Slope Of The Function With Respect To The Real Bilateral Exchange Rate (Rber) And Represents The Variation Of The Trade Balance With Respect To The Rber.

δ_3 = Represents The Slope Of The Function With Respect To Chile's Gross Domestic Product (Gdp) And Represents The Variation Of The Trade Balance With Respect To Ycl.

δ_4 = It Is The Slope Of The Function With Respect To Trade Agreements With Chile (D1) And Represents The Influence Of D1 On The Trade Balance.

u_t = These Are The Perturbations Of The Model, Representing The Variables That Were Not Considered To Explain The Behavior Of The Regressed Variable.

Dependent Variable: Bc
 Method: Least Squares
 Date: 08/18/18 Time: 20:43
 Sample (Adjusted): 1993 2015
 Observations Included: 23 After Adjustment
 Convergence Achieved After 13 Iterations
 Ma Backcast: 1987 1992

Variable	Coefficient	Standard Error	T-Statistic	Prob.
C	-220.4397	509.1921	-0.432921	0.6709
Ype	-0.067560	0.011331	-5.962349	0.0000
Ycl	0.066517	0.010158	6.548504	0.0000
Tcrb	-10.02051	2.092496	-4.788782	0.0002
D1	-606.8502	238.3500	-2.546047	0.0216
Ar (1)	-0.530083	0.271043	-1.955715	0.0682
Ma (6)	-0.921567	0.026106	-35.30121	0.0000
R-Squared	0.866603	Mean Var. Dependent	89.67696	
Adjusted R-Squared	0.816580	Std Error Var. Dependent	307.4194	
Standard Error Reg.	131.6604	Akaike Criteria	12.84412	
Residual Sum Of Squares	277351.3	Schwarz Criteria	13.18970	
Ln Likelihood	-140.7074	Hannan-Quinn Criteria.	12.93103	
Statistic -F	17.32384	Stad. Durbin-Watson	2.149512	
Prob (F-Statistic)	0.000004			
Inverted Ar Roots	-.53			
Inverted Ma Roots	.99	.49-.85i	.49+.85i	-.49-.85i
	-.49+.85i	-.99		

Table 4: Model Of The Behavior Of The Peru - Chile Trade Balance In The Period 1992 To 2015.

Source: Bcrp, Bcr Of Chile. Own Elaboration.

This Table Shows The Results Of The Estimations For The Peru - Chile Trade Balance Model From 1992 To 2015 And Their Respective Regressor Variables.

The Estimated Equation Is As Follows:

$$BC_t = -220.44 - 0.067YPE_t + 0.066YCL_t - 10.02TCRB - 606.85D1 - 0.53AR(1) - 0.92MA(6) + \mu_t \quad (7)$$

5.2.1 Interpretation Of Estimated Parameters.

$$\frac{\partial BC_t}{\partial YPE_t} = -0.067 \quad (8)$$

The Relationship Between The Trade Balance (Cb) And Peru's Gross Domestic Product (Ype) Is Inverse; Therefore, If Peru's Gdp Increases By 1%, The Trade Balance Decreases By 0.067%.

$$\frac{\partial BC_t}{\partial YCL_t} = 0.066 \quad (9)$$

The Relationship Between The Trade Balance (Cb) And Chile's Gross Domestic Product (Ycl) Is Direct; Therefore, If Chile's Gdp Increases By 1%, The Trade Balance Increases By 0.066%.

$$\frac{\partial BC_t}{\partial TCRB_t} = -10.02 \quad (10)$$

The Relationship Between The Trade Balance (Cb) And The Bilateral Real Exchange Rate (Tcrb) Is Inverse, I.E., If The Bilateral Real Exchange Rate Depreciates By 1%, The Balance Of Trade Balance Is Reduced By 10.02%.

$$\frac{\partial BC_t}{\partial D1_t} = -606.85 \quad (11)$$

The Impact Of The Free Trade Agreement With Chile (D1) On The Trade Balance (Cb) Is The Inverse Of The Impact Of The Free Trade Agreement With Chile (D2) On The Trade Balance (Cb).

6. Discussion

6.1 Contrasting Results With Hypotheses

With Respect To The General Hypothesis, Peru's Gdp, Chile's Gdp, The Bilateral Real Exchange Rate And The Trade Agreements With Chile Do Affect The Behavior Of The Peru-Chile Trade Balance.

Specific Hypothesis 1 Mentions That Peru's Gdp Influences Peru's Imports. This Is True Because, According To The Results, If Peru's Gdp Increases By 1%, Peru's Imports From Chile Will Increase By Approximately 0.33%.

Specific Hypothesis 2 Mentions That Chile's Gdp Influences Peru's Exports. This Is True, Because According To The Results, If Chile's Gdp Increases By 1%, Then Peru's Exports Will Increase By Approximately 12.62%.

Specific Hypothesis 3 Mentions That The Bilateral Real Exchange Rate Influences The Trade Balance. This Is Also True, Because According To The Results, If The Real Exchange Rate Suffers An Increase Of 1%, It Will Cause A Reduction Of 10.02% In The Trade Balance.

Specific Hypothesis 4 Mentions That Trade Agreements With Chile Influence The Balance Of Trade, Which Is Correct, Because The Impact Of Trade Agreements With Chile On The Balance Of Trade Balance Is Inverse.

7. Conclusions

1. The Factors That Determine And Explain The Behavior Of The Peruvian Trade Balance With Respect To Chile In The Period 1992-2015 Are: Peru's Gross Domestic Product, Chile's Gross Domestic Product, The Bilateral Real Exchange Rate And The Trade Agreements With Chile. Peru's Gross Domestic Product, Bilateral Real Exchange Rate And Trade Agreements

With Chile Are Inversely Related To The Trade Balance, While Chile's Gross Domestic Product Is Directly Related To The Trade Balance. Likewise, The Marshall - Lerner Condition Is Not Fulfilled In The Short Term Because The Currency Depreciation Leads To The Deterioration Of The Trade Balance, But In The Long Term The Currency Depreciation Leads To The Improvement Of The Trade Balance, So There Is The Presence Of The J Curve In The Peru - Chile Bilateral Trade. On The Other Hand, The Long-Term Equation Indicates That, If Peru's Gross Domestic Product Increases By 1%, The Balance Of Trade Decreases By 0.02%. If Chile's Gross Domestic Product Increases By 1%, It Causes An Increase Of 0.03% In The Trade Balance. Finally, If The Bilateral Real Exchange Rate Depreciates By 1%, The Trade Balance Increases By 1.84%.

2. If Chile's Gross Domestic Product Increases By 1%, It Causes An Increase Of 0.03% In The Trade Balance. Finally, If The Bilateral Real Exchange Rate Depreciates By 1%, The Trade Balance Increases By 1.84%.

3. The Influence Of Peru's Gross Domestic Product (Ype) On Peru's Imports (Im) Is Positive, With An Elasticity Of 0.33; This Means That With A 1% Increase In Ype, Imports Increase By 0.33%.

4. The Influence Of Chile's Gross Domestic Product (Gdp) On Peru's Exports (X) Is Positive, With An Elasticity Of 12.62; This Means That With A 1% Increase In Gdp, Exports Increase By 12.62%.

5. The Influence Of The Bilateral Real Exchange Rate (Tcrb) On The Behavior Of The Trade Balance Is Negative, Since A 1% Increase In The Tcrb Results In A 10.02% Reduction In The Trade Balance.

6. The Relationship Between Trade Agreements With Chile And The Trade Balance Is Inverse.

8. Recommendations

1. It Is Recommended That Research Be Conducted Against More Trading Partners (Colombia, Mexico) And Potential Partners In Order To Have More Empirical Evidence At The Multilateral Level.

2. The Government Should Encourage And Promote New Treaties With Other Countries In Order To Substitute Imports With Respect To Chile In Order To Improve The Balance Of Trade Balance.

3. Exporters Are Recommended To Take Advantage Of The Growth Of Chile's Gross Domestic Product And The Free Trade Agreement To Increase Exports Since, According To The Results, A Greater Amount Of Goods Are Exported To Chile.

4. According To The Empirical Evidence, Since Bilateral Real Exchange Rate Is Being Worked With Using The Dollar As A Common Currency, The Peruvian Sol Should Appreciate With Respect To The Chilean Peso, That Is, In Terms Of Exchange Rate With Respect To The Dollar, A Depreciation Of Our Currency.

5. It Is Recommended That Further Studies Be Carried Out On The Impact Of Trade Agreements With Our Partners On Peru's Trade Balance.

References

1. García Alonso, R., Thoene, U., Figueroa, A. M., & Murillo Amaris, E. (2020). El Emprendimiento Social En El Marco De La Alianza Del Pacífico. *Revesco. Revista De Estudios Cooperativos*.
2. Ramos Quispe, W. J. (2019). *Análisis De Los Determinantes Del Saldo De La Balanza Comercial En El Perú 2001-2018*. Repositorio Institucional - Unap.
3. Valdera, M., Puyen, N., & Carmona, C. (2018). Impacto Del Tipo De Cambio Real Multilateral Y El Pbi De Los Socios Comerciales En Las Exportaciones Del Perú En El Período 1991 - 2017. *Ingeniería: Ciencia, Tecnología E Innovación*.

4. Base De Datos Estadísticos De Comercio Exterior. Recuperado De: [Http://Interwp.Cepal.Org/Badecel/Basededatos.Asp](http://Interwp.Cepal.Org/Badecel/Basededatos.Asp)
5. Banco Central De Reserva Del Perú (2010), Guía Metodológica. Recuperado De: [Http://Www.Bcrp.Gob.Pe/Publicaciones/Nota-Semanal/Guia-Metodologica.Html](http://Www.Bcrp.Gob.Pe/Publicaciones/Nota-Semanal/Guia-Metodologica.Html)
6. Banco Central De Chile. Estadísticas. Recuperado De: [Http://Www.Bcentral.Cl/Web/Guest/Estadisticas](http://Www.Bcentral.Cl/Web/Guest/Estadisticas)
7. Bahmani-Oskooee, M., Ardalani, Z (2007), Is There A J-Curve At The Industry Level?. Economics Bulletin. Recuperado De: [Http://Economicsbulletin.Vanderbilt.Edu/2007/Volume6/Eb-07f30001a.Pdf](http://Economicsbulletin.Vanderbilt.Edu/2007/Volume6/Eb-07f30001a.Pdf)
8. Bahmani-Oskooee, M., Kantipong, T (2001), Bilateral J-Curve Between Thailand And Her Trading Partners. Journal Of Economic Development.
9. Blanchard, O. (2006). Macroeconomía. Madrid, España: Prentice Hall.
10. Carrasco, S. (2007). Metodología De La Investigación Científica. Lima: Editorial San Marcos.
11. Castillo, D. (2014). Evolución De La Balanza Comercial Peruana Y Su Relación Con El Tipo De Cambio Real Multilateral. Periodo 2000 – 2012 (Tesis De Pregrado). Recuperado De [Http://Dspace.Unitru.Edu.Pe/Bitstream/Handle/Unitru/779/Castillo_Daysi.Pdf?Sequence=1](http://Dspace.Unitru.Edu.Pe/Bitstream/Handle/Unitru/779/Castillo_Daysi.Pdf?Sequence=1)
12. Comisión De Promoción Del Perú Para La Exportación Y El Turismo – Promperú (2016). Recuperado De: [Https://Www.Promperu.Gob.Pe/](https://Www.Promperu.Gob.Pe/)
13. De Gregorio, J. (2007). Macroeconomía: Teoría Y Práctica. Santiago, Chile: Pearson. Recuperado De [Http://Www.Degregorio.Cl/Pdf/Macroeconomia.Pdf](http://Www.Degregorio.Cl/Pdf/Macroeconomia.Pdf)
14. De La Hoz, A. (2013). Generalidades De Comercio Internacional. Medellín, Colombia: Editorial Esumer.
15. Frankel, J., Caves R., Jones, R. (2001). Economía Internacional: Comércio E Transações Globais. Ed. 8, Editora Saraiva. 2001. Recuperado De: Www.Scielobrasil.Br
16. Instituto Nacional De Estadísticas – Chile, Ine En Tu Aula. Recuperado De: [Http://Www.Ineentuaula.Cl/Sites/Aula/Media/Economica/Indice_De_Precios_Al_Consumidor.Html](http://Www.Ineentuaula.Cl/Sites/Aula/Media/Economica/Indice_De_Precios_Al_Consumidor.Html)
17. Instituto Peruano De Economía, Índice De Precios Al Consumidor. Recuperado De: [Http://Www.Ipe.Org.Pe/Content/Indice-De-Precios-Al-Consumidor](http://Www.Ipe.Org.Pe/Content/Indice-De-Precios-Al-Consumidor)
18. International Monetary Found. Recuperado De: [Https://Www.Imf.Org/En/Data](https://Www.Imf.Org/En/Data)
19. Kindleberger, Ch. (1979). Economía Internacional. Madrid, España: Editorial Aguilar.
20. Krugman, P., Olney, M. Wells, R. (2008). Fundamentos De Economía. Ediciones Reverte.
21. Leandro, G. (2002). Balanza De Pagos. Recuperado De Www.Auladeeconomia.Com/Yo.Htm
22. Mochon, F. (2006). Principios De Macroeconomía. Madrid, España: Mc Graw-Hill
23. Nuñez, F. (2013). La Balanza Comercial En El Perú: 2002 – 2011 (Tesis Pregrado). Recuperado De: [Http://Repositorio.Unas.Edu.Pe/](http://Repositorio.Unas.Edu.Pe/)
24. Pesaran, M., Shin, Y., Smith, R. (1999) Bounds Testing Approaches To The Analysis Of Long Run Relationships. Journal Of Applied Econometrics.
25. Pesaran, M., Shin, Y., Smith, R. (2001) Bounds Testing Approaches To The Analysis Of Level Relationships. Journal Of Applied Econometrics.
26. Roca, R. (2004). El Modelo De La Renta De Una Economía Abierta. Recuperado De Www.Geocities.Com/Rhoca
27. Rose, A., Yellen, J. (1989). Is There A J-Curve?. Journal Of Monetary Economics. Recuperado De: [Https://Www.Sciencedirect.Com/Science/Article/Abs/Pii/0304393289900160](https://Www.Sciencedirect.Com/Science/Article/Abs/Pii/0304393289900160)
28. Sampieri, H., Fernández, C., Baptista, L. (2014). Metodología De La Investigación. México Df, México: Mc Graw Hill.
29. Samuelson, P., Nordhaus, W. (2001). Macroeconomía. Madrid, España: Mc Graw-Hill
30. Superintendencia Nacional De Aduanas Y De Administración Tributaria. Aduanas. Recuperado De: [Http://Www.Sunat.Gob.Pe/Aduanas.Html](http://Www.Sunat.Gob.Pe/Aduanas.Html)
31. Varela, R. (1999). Factores Determinantes Del Saldo De La Balanza Comercial En México, 1989 – 1998. Revista Bancomext. Recuperado De: [Http://Revistas.Bancomext.Gob.Mx/Rce/Magazines/287/9/Rce9.Pdf](http://Revistas.Bancomext.Gob.Mx/Rce/Magazines/287/9/Rce9.Pdf)

