

EXAMINATION OF THE EFFECTS OF CHANGE IN GLOBAL METAL  
PRICES ON TURKISH BASIC METAL PRODUCTION AND EXPORTATION

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Approval of the Graduate School of Social Sciences

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## ABSTRACT

### EXAMINATION OF THE EFFECTS OF CHANGE IN GLOBAL METAL PRICES ON TURKISH BASIC METAL PRODUCTION AND EXPORTATION

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The basic metal production industry constitutes up 11% of Turkish manufacturing industry which makes it the second largest industry in manufacturing after food manufacturing with 15.6%. Basic metal production is the second largest industry for Turkish export and import, with 11-13% and 11-14% share respectively. However, the literature lacks studies in terms of the effects of change in basic metal prices on basic metal production industry in Turkey. The thesis contributes to literature by explaining the effects of global price changes on Turkish metal production industry and the effects of Turkish basic metal production industry to global basic metal prices. The thesis also investigates the volatility impact of global variables on basic metal production in Turkey. The methodology starts with the vector autoregression models, proceeds with the interpretation of impulse response functions, and the evaluation of forecast error variance decompositions. Examination period is considered as from January, 2005 to December, 2016. The thesis concludes that there is a significant effect of global metal prices on Turkish basic metal production. In addition, Turkish basic metals export volume affects global scrap prices. It is also concluded that the basic metal prices are the main driver on scrap price changes. Also, evidence is found on the volatility effect of the exchange rate and basic metal price on Turkish basic metal production.

**Keywords:** Basic Metal Production Sector, Export, Vector Autoregression, Impulse Response Function, Variance decomposition

## ÖZ

### GLOBAL METAL FİYAT DEĞİŞİKLİKLERİNİN TÜRK METAL ENDÜSTRİSİNE VE İHRACATINA OLAN ETKİLERİNİN İNCELENMESİ

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Metal üretim endüstrisi Türkiye üretim sektörünün %11'ini oluşturmakta ve %15.6'lık paya sahip olan gıda üretiminden sonra ikinci sırada gelmektedir. Ana metal üretim endüstrisi ihracat ve ithalat hacminde sırasıyla %11 ila %13, ve %11 ila %14'lük paylar ile Türkiye'nin ihracat ve ithalat pazarlarında ikinci büyük endüstri olmaktadır. Fakat, buna rağmen literatür küresel fiyat değişikliklerinin ana metal üretimine etkilerini incelemede yetersiz kalmaktadır. Bu tez metal fiyat değişikliklerinin Türkiye ana metal üretimine ve aynı zamanda Türkiye ana metal üretiminin küresel fiyatlara olan etkilerini incelemektedir. Çalışma aynı zamanda küresel değişkenlerdeki dalgalanmaların ana metal endüstrisi üzerindeki etkilerini de incelemektedir. Bunları incelemekte kullanılan metodoloji vektör otoregresif süreçler ile başlayıp, etki tepki fonksiyonlarının değerlendirilmesi ve varyans dağılımı metotlarını kullanmaktadır. Çalışma dönemi 2005 Ocak ile 2016 Aralık arasındadır. Yapılan çalışma küresel fiyatların Türkiye ana metal üretimini etkilediğini göstermektedir. Aynı şekilde Türkiye ana metal sanayi ihracatının da küresel hurda fiyatını etkilediği gözlenmiştir. Ayrıca, ana metal fiyatlarının hurda fiyatı üzerinde direkt bir etkisi olduğu belirlenmiştir. Ek olarak, döviz kuru ve global ana metal fiyatlarındaki dalgalanmaların Türkiye ana metal sanayine anlamlı bir etkisi olduğu görülmüştür.

**Anahtar Kelimeler:** Metal Üretim Endüstrisi, İhracat, Vektör Otoregresyon, Etki Tepki Fonksiyonu, Varyans dağıtma

To my parents, my uncle and my wife,



## TABLE OF CONTENTS

PLAGIARISM.....	iii
ABSTRACT.....	iv
ÖZ .....	v
DEDICATION.....	vi
TABLE OF CONTENTS.....	vii
LIST OF TABLES.....	viii
LIST OF FIGURES.....	x
LIST OF ABBREVIATIONS.....	xiii
CHAPTER	
1. INTRODUCTION.....	1
2. LITERATURE REVIEW.....	28
3. DATA, VARIABLES AND METHODOLOGY .....	31
4. EMPIRICAL RESULTS.....	51
5. CONCLUSIONS.....	72
REFERENCES.....	74
APPENDICES	
A. COMPLEMENTARY ANALYSIS.....	77
B. TURKISH SUMMARY/TÜRKÇE ÖZET .....	92
C. TEZ FOTOKOPİSİ İZİN FORMU .....	107

## LIST OF TABLES

- Table 1. Per Capita Steel Consumption (in million ton) (World Steel Association)
- Table 2. Global steel production (in million tone) (World Steel Association)
- Table 3. Net Import of Countries and Net Export of Countries (Mt) (World Steel Association)
- Table 4. Steel Producers in Turkey in 2016 (Matil)
- Table 5. PP results for level of the variables
- Table 6. PP results for the growth rate of the variables
- Table 7. ARCH LM test for the rate of return in basic metal and the growth rate in production
- Table 8. Volatility Estimations
- Table 9. VAR model results for the rate of change in basic metal price and the growth rate of metal production
- Table 10. Granger causality results for the rate of change in basic metal price and the growth rate of metal production
- Table 11. Granger causality results for rate of change in scrap price and growth rate of steel production
- Table 12. Granger causality results for rate of change in scrap price and rate of change in basic metal price
- Table 13. VAR model results for the rate of change in global basic metal price and the rate of change in domestic price e in Turkish basic metal industry
- Table 14. Granger causality results for the rate of change in basic metal price and the rate of change in domestic price
- Table 15. Granger causality results for rate of change in basic metal price and growth of Turkish basic metal export
- Table 16. Granger causality results for rate of change in scrap price and growth of Turkish steel export

Table 17. VAR model results for the rate of change in basic metal price and the growth rate of metal production with the volatility in exchange rate

Table 18. Granger causality results for the rate of change in basic metal price and the growth rate of metal production with the volatility in exchange rate

Table 19. VAR model results for the rate of change in basic metal price and the growth rate of metal production with the volatility in the basic metal price

Table 20. Granger causality results for the rate of change in basic metal price and the growth rate of metal production with the volatility in price

Table 21. VAR model results for the rate of change in basic metal price and the growth rate of metal production with the volatility in oil price

Table 22. VAR model results for the rate of change in basic metal price and the rate of change in oil price with the volatility in oil price

Table A.1.1 Cointegration test results Scrap Price and Domestic Price

Table A.1.2 Cointegration test results Basic Metal Price and Domestic Price

Table A.1.3 Cointegration test results Basic Metal Price and Scrap Price

Table A.1.4 Cointegration test results Basic Metal Price, Scrap Price and Basic Metal Production

Table A.2.1 Optimal Lag Length

Table A.3.1 VAR stability results

Table A.4.1 Autocorrelation Results

Table A.5.1 Jarque-Bera Results

Tablo B.1. Değişkenlik Tahmini

## LIST OF FIGURES

- Figure 1. Distribution of Basic Metal Production in the World
- Figure 2. Supply Chain of the Basic Metal Production
- Figure 3. Share of End Use of Basic Metals (Copper,2014-Zinc,2017-Lead,2011-Aluminum, Steel, 2016 and Nickel 2014)
- Figure 4. Share of Manufacturing in Turkish GDP (Turkstat)
- Figure 5. Share of Manufacturing in GDP in European Countries in 2015 (Eurostat)
- Figure 6. Share of Basic Metal Industry in Manufacturing Industry (Turkstat)
- Figure 7. Share of Basic Metals in Manufacturing in Some of European Countries in 2015 (Eurostat)
- Figure 8. Share of Industries in Manufacturing Industry (Turkstat)
- Figure 9. End use distribution of basic metal industry outputs in 2010 (Turkish Steel Association)
- Figure 10. Share of flat steel production in total steel production (Turkish Steel Association)
- Figure 11. Production and consumption of flat steel in Turkey (in million ton) (Turkish Steel Association)
- Figure 12. Production and consumption of long steel in Turkey (in million ton) (Turkish Steel Association)
- Figure 13. Value Added of Different Industries in 2015 (Turkstat)
- Figure 14. Value Added of Basic Metal Industry in 2015 (Eurostat)
- Figure 15. Employment share of basic metal industry in total manufacturing industry in 2014 (Eurostat)
- Figure 16. Share of Basic Metal Industry Exports in Total Turkish Exports (Turkstat)
- Figure 17. Share of Basic Metal Industry Imports in Total Turkish Imports (Turkstat)
- Figure 18. Top Scrap Importers in 2015 (Bureau of International Recycling)

Figure 19. Steel Producers in Turkey in 2015 (Turkish Steel Producers Association)

Figure 20. Steel Producers in Turkey in 2016 (Matil)

Figure 21. Metal Production Index Turkey 2005-2016 (Turkstat)

Figure 22. Production Index Turkey 2005-2016 (Turkstat)

Figure 23. Basic Metal Price Index in USD 2005-2016 (IMF)

Figure 24. US/TL Exchange Rate 2005-2016 (CBRT)

Figure 25. Basic Metal Price Index in Turkish Liras 2005-2016 (IMF, CBT)

Figure 26. Exchange Rate from 2011 to 2017 (CBRT)

Figure 27. The Rate of Change in Exchange Rate (CBRT)

Figure 28. The Rate of Change in Basic Metals (IMF)

Figure 29. The Predicted Variance of Exchange Rate

Figure 30. The Predicted Variance of the Oil Price

Figure 31. The Predicted Variance of the Rate of Change in Price

Figure 32. Impulse Response Function between the Rate of Change in Basic Metal Price and the Growth Rate in Basic Metal Production in Turkey

Figure 33. Forecast Error Variance Decomposition between the Rate of Change in Basic Metal Price and the Growth Rate in Basic Metal Production in Turkey

Figure 34. Impulse Response Function between the Rate of Change in Scrap Price and the Growth Rate in Steel Production in Turkey

Figure 35. Impulse Response Function between the Rate of Change in Scrap Price and Rate of Change in Basic Metal Price

Figure 36. Impulse Response Function between the Rate of Change in Basic Metal Price and the Rate of Change in Domestic Price in Turkey

Figure 37. Impulse Response Function between the Rate of Change in the Scrap Price and the Growth Rate of Steel Export of Turkey and the Growth Rate of Basic Metal Export of Turkey

Figure A.6.1. Top 7 Copper Producer Countries (USGS)

Figure A.6.2. Top 10 Copper Producer Firms (InfoMine)

Figure A.6.3. Top 7 Zinc Producer Countries (USGS)

Figure A.6.4. Top 10 Zinc Producer Firms (International Lead & Zinc Study Group)

Figure A.6.5. Top 7 Lead Producer Countries (USGS)

Figure A.6.6. Top 5 Lead Producer Firms (International Lead & Zinc Study Group)

Figure A.6.7. Top Nickel Producer Countries (INSG)

Figure A.6.8. Top Nickel Producer Firms (Norisk Nickel)

Figure A.6.9. Leading Aluminum Producer Countries (IAI)

Figure A.6.10. Leading Bauxide Mining Countries (USGS)

Figure A.6.11. Top 6 Aluminum Producer Firms (CRU Group)

Figure A.6.12. Top 10 Steel Producers (World Steel Association)

Figure A.6.13. Top 8 Iron Mining Countries (USGS)

Figure A.6.14. Top Steel Producer Firms (World Steel Association)

## LIST OF ABBREVIATIONS

VAR	Vector Autoregression
VECM	Vector Error Correction Model
ADF	Augmented Dickey Fuller Test
PP	Phillips Perron Test
IMF	International Monetary Fund
AIC	Akaike Information Criterion
HQIC	Hannan-Quinn Information Criterion
SBIC	Bayesian information criterion
USGC	United States Geological Survey
INSG	International Nickel Study Group
CBRT	Central Bank of the Republic of Turkey