Organized by

TÜRKİYE EKONOMİ KURUMU

İstanbul Bilgi University

Supported by

TÜRKİYE CUMHURİYET MERKEZ BANKASI

QNB

verimetrik

ATILIM UNIVERSITY

Publication opportunities

Central Bank Review
Ekonomi-TEK
World Journal of Applied Economics
Yıldız Social Science Review

https://tek.org.tr/

İstanbul Bilgi University

SMTEA2025 Abstract Book

The Spring Meeting of The Turkish Economic Association

May 29-31, 2025
İstanbul Bilgi University
İstanbul, Türkiye

https://tek.org.tr/conference/2025

SMTEA2025

The Spring Meeting of Turkish Economic Association

May 29-31, 2025

İstanbul Bilgi University
İstanbul, Türkiye
https://www.tek.org.tr/conference/2025

Programme

Program

General Information

Genel Bilgi

ORGANIZATION COMMITTEE — ORGANİZASYON KURULU

Erhan Aslanoğlu – İstanbul Bilgi University, Türkiye
H. Alper Güzel – Ondokuz Mayıs University, Türkiye
Hasan Kazdağlı – Turkish Economic Association, Türkiye
Oya Kent – İstanbul Okan University, Türkiye
Yılmaz Kılıçaslan – Anadolu University, Türkiye
Tolga Omay – Atılım University, Türkiye
Serdar Sayan – TOBB-ETÜ, Türkiye
Cihan Yalçın – CBRT, Türkiye

CONFERENCE SECRETERIAT — KONGRE SEKRETERLİĞİ

Büşra Demirci- Turkish Economic Association, Türkiye

PRESS&COMMUNICATION — BASIN VE İLETİŞİM

Enes Can Uzunel- Turkish Economic Association, Türkiye
Yasin Tosun- Turkish Economic Association, Türkiye

INVITED SPEAKERS DAVETLİ KONUŞMACILAR

Daron Acemoğlu – MIT, USA
Asaf Savaş Akat – İstanbul Bilgi University, Türkiye
Ufuk Akçiğit – University of Chicago, USA
Ayşe Aylin Bayar – İTU, Türkiye
Fatma Doğruel – Marmara University, Türkiye
Alpay Filiztekin – Sabancı University, Türkiye
Öner Günçavdı – İTU, Türkiye
Seyfettin Gürsel – Bahçeşehir University, Türkiye
Hakan Kara – Bilkent University, Türkiye
Güngör Kaymak – HPE, Türkiye
Haluk Levent – İstanbul Bilgi University, Türkiye
Fatih Özatay – TOBB-ETU, Türkiye
Gülçin Özkan – King's College London, UK
Şevket Pamuk – Boğaziçi University, Türkiye
Jeffrey D. Sachs – Columbia University, USA
Erol Taymaz – METU, Türkiye
İnsan Tunalı – Koç University, Türkiye
Murat Üçer – Koç University, Türkiye
Ebru Voyvoda – METU, Türkiye
Ege Yazgan – İstanbul Bilgi University, Türkiye
Erinç Yeldan – Kadir Has University, Türkiye
Kamil Yılmaz – Koç University, Türkiye

SCIENTIFIC COMMITTEE — BİLİM KURULU

Asaf Savaş Akat – İstanbul Bilgi University, Türkiye
Elif Akbostancı – Middle East Technical University, Türkiye
Nicholas Apergis – University of Piraeus, Greece
K. Peren Arin – Zayed University, UAE
Diego Romero-Ávila – Pablo de Olavide University, Spain
Micheal Berlemann – Helmut-Schmid University, Germany
Selim Çağatay – Akdeniz University, Türkiye
Murat Donduran – Yıldız Technical University, Türkiye
Ahmet Kibar Çetin – Hacı Bayram Veli University, Türkiye
Maria Dolores Gadea Rivas – Zaragoza University, Spain
Ercan Eren – Yıldız Technical University, Türkiye
Ozan Eruygur – Hacı Bayram Veli University, Türkiye
Alpay Filiztekin – Sabancı University, Türkiye
Semih Koray – Bilkent University, Türkiye
Haluk Levent – İstanbul Bilgi University, Türkiye
Angeliki N. Menegaki – University of Applied Sciences, Greece
Fatih Özatay – TOBB-ETÜ, Türkiye
Gülçin Özkan – King's College London, UK
Serda Selin Öztürk – İstanbul Bilgi University, Türkiye
Şevket Pamuk – Boğaziçi University, Türkiye
Audrey Sagaret – Université Paris-Nanterre, France
Ayşen Sivrikaya – Hacettepe University, Türkiye
Ramazan Sarı – Technical University of Denmark, Denmark
Selami Sezgin – Anadolu University, Türkiye
Uğur Soytaş – Technical University of Denmark, Denmark
Nicola Spagnolo – Brunel University London, UK
Chris Steward – Kingston University London, UK
Erol Taymaz – Middle East Technical University, Türkiye
Yeşim Üçdoğruk Gürel – Dokuz Eylül University, Türkiye
Ege Yazgan – İstanbul Bilgi University, Türkiye
A. Yasemin Yalta – Hacettepe University, Türkiye
Jülide Yildirim Öcal – TED University, Türkiye
Kamil Yilmaz – Koç University, Türkiye

PROGRAMME COMMITTEE PROGRAM KURULU

Yılmaz Akdi – Ankara University, Türkiye
Aliye Atay – THK University, Türkiye
Sıdıka Başçı – Yıldırım Beyazıt University, Türkiye
Reşat Ceylan – Pamukkale University, Türkiye
Serkan Çiçek – Muğla Sıtkı Koçman University, Türkiye
Ayşegül Çorakci – Çankaya University, Türkiye
Mustafa İsmihan – The Eastern Mediterranean University, TRNC
Ümit İzmen – Namık Kemal University, Türkiye
Sevilay Küçüksakarya – Anadolu University, Türkiye
Aykut Lenger – Ege University, Türkiye
Oytun Meçik – Eskişehir Osmangazi University, Türkiye
Nesrin Özataç – Eastern Mediterranean University, TRNC
Mustafa Özsarı – Konya Food and Agriculture University, Türkiye
Didem Pekkurnaz – Başkent University, Türkiye
Ünal Töngür – Akdeniz University, Türkiye
Filiz Yeşilyurt – Pamukkale University, Türkiye
Hakan Yetkiner – İzmir Ekonomi University, Türkiye

ORGANIZERS DÜZENLEYENLER

TÜRKİYE EKONOMİ KURUMU

İstanbul Bilgi University

SPONSORS DESTEKLEYEN KURUMLAR

The Organization Committee gratefully acknowledges financial support from the following institutions:

TÜRKİYE CUMHURİYET MERKEZ BANKASI

QNB

verimetrik

ATILIM UNIVERSITY

The Organization Committee also gratefully acknowledges academic support from the following institutions:

Central Bank Review (ESCI, SCOPUS, ULAKBİM-TR Dizin)
Ekonomi-TEK (ULAKBİM-TR Dizin)
World Journal of Applied Economics (ULAKBİM-TR Dizin)
Yıldız Social Science Review

DATES & VENUE — TARİH VE YER

Dates 08.30, Thursday, May 29, 2025 – 18.00, Saturday, May 31, 2025.
Venue İstanbul Bilgi University, Santral Campus, İstanbul, Türkiye.
https://maps.app.goo.gl/bLLggs4Q7Vqp9WUZ9?g_st=iw

REGISTRATION — KAYIT

Registration and Information Desk is located at İstanbul Bilgi University, from 08:30 Thursday, May 29 to 13:30 Saturday, May 31. The desk is open at the following times:

Thursday, May 29	08:30-18:00
Friday, May 30	08:30-18:00
Saturday, May 31	08:30-13:00

BADGE — YAKA KARTI

Participants should kindly wear personal name badges at all times during the Conference. Name badges will be provided in participants' conference bags at the Registration Desk.

SESSIONS — OTURUMLAR

All sessions at SMTEA2025 conference are in-person. Sessions are moderated by convenors. Each contributed paper will be presented orally for about 15 minutes and followed by maximum 5 min discussion. The convenor may decide and change the order of presentations. Each conference room is equipped with a PC and a data projector.

LUNCHES — ÖĞLE YEMEKLERİ

The lunches are served at the conference venue on May 29-31. Participants will be provided with lunch vouchers in participants' conference bags.

DINER / BOSPHORUS TOUR — AKŞAM YEMEĞİ / BOĞAZ TURU

The gala dinner of SMTEA Meeting will be on Friday, May 30, 2025 from 19.30 to 22.30. A light diner will be served during Bosphorus Tour on the boat. The subsidized cost of dinner at the Bosphorus tour is 1.500TL. The participants willing to attend this tour should pay the fee at the registration desk of the meeting.

COMMUNICATION — İLETİŞİM

SMTEA2025
Turkish Economic Association
Hoşdere Cad. No: 24/4
06550 Çankaya
Ankara, Türkiye
T: +90 312 468 25 89
F: +90 312 468 25 99
M: tek@tek.org.tr
W: http://tek.org.tr

SMTEA2025
Türkiye Ekonomi Kurumu
Hoşdere Cad. No: 24/4
06550 Çankaya
Ankara, Türkiye
T: +90 312 468 25 89
F: +90 312 468 25 99
M: tek@tek.org.tr
W: http://tek.org.tr

SMTEA2025

The Spring Meeting of
Turkish Economic Association
May 29-31, 2025
İstanbul Bilgi University
İstanbul, Türkiye

SMTEA2025

Türkiye Ekonomi Kurumu
Bahar Toplantısı
29-31 Mayıs 2025
İstanbul Bilgi Üniversitesi
İstanbul, Türkiye
https://www.tek.org.tr/conference/2025

Short Programme

Kısa Program

PROGRAM AT A GLANCE

Thursday, May 29, 2025 **Perşembe, 29 Mayıs 2025**

08:00-17:30 **Registration**

09:00-09:20 **Opening Ceremony / Açılış Töreni**
Hasan Kazdağlı *(President, Turkish Economic Association, Türkiye)*
Ege Yazgan *(Rector, Istanbul Bilgi University, Türkiye)*

09:30-10:00 **Keynote Address / Davetli konuşmacı**
Ege Yazgan *(İstanbul Bilgi University, Türkiye)*

10:00-10:30 Coffee Break / Kahve Arası

10:30-11:10 **Keynote Address / Davetli konuşmacı**
Ufuk Akçiğit *(University of Chicago, USA)*

11:20-11:50 **Keynote Address / Davetli konuşmacı**
Şevket Pamuk *(Boğaziçi University, Türkiye)*

12:00-13:00 Lunch / Öğle Yemeği

13:00-14:00 **PANEL 1**
Fatma Doğruel *(Marmara University, Türkiye)*
Alpay Filiztekin *(Sabancı University, Türkiye)*
Kamil Yılmaz *(Koç University, Türkiye)*

14:00-14:20 Coffee Break / Kahve Arası

14:20-15:40 **Sessions / Oturumlar**

T1	MACROECONOMICS and MONETARY ECONOMICS
T2	FINANCIAL ECONOMICS I
T3	FIRM BEHAVIOR: EMPIRICAL ANALYSIS
T4	ENVIRONMENTAL ECONOMICS
T5	LABOR MARKET and EMPLOYMENT
T6	CENTRAL BANK REVIEW SPECIAL SESSION I
T7	SAĞLIK ve DEMOGRAFİ
T8	TÜRKİYE EKONOMİSİ
T9	KALKINMA ve İSTİHDAM

15:40-16:00 Coffee Break / Kahve Arası

16:00-16:30 **Keynote Address / Davetli konuşmacı**
Jeffrey D. Sachs *(Columbia University, USA)*

17:00-17:30 **Keynote Address / Davetli konuşmacı**
Daron Acemoğlu *(MIT, USA)*

Friday, May 30, 2025 **Cuma, 30 Mayıs 2025**

08:30-17:30 **Registration**

09:00-10:00 **Sessions / Oturumlar**

F1 ENERGY and SUSTAINABILITY
F2 BEHAVIORAL FINANCE
F3 LABOR MARKET and WAGES
F4 INTERNATIONAL ECONOMICS
F5 CENTRAL BANK REVIEW SPECIAL SESSION II
F6 İKTİSADİ DÜŞÜNCE ve YAKLAŞIMLAR
F7 FİNANSAL EKONOMİ
F8 ENDÜSTRİ ÇALIŞMALARI

10:00-10:20 Coffee Break / Kahve Arası

10:20-10:50 **Keynote Address / Davetli konuşmacı**
Fatih Özatay *(TOBB-ETU, Türkiye)*

11:00-12:00 **PANEL 2 - Ekonomi politikalarında normalleşmenin sonu mu?**
Haluk Bürümcekçi *(BR Research, Türkiye)*
Özlem Derici *(Bilgi Üniversitesi, Türkiye)*
Çağrı Sarıkaya *(Akbank, Baş Ekonomist, Türkiye)*
Murat Üçer *(Koç University, Türkiye)*

12:00-13:00 Lunch / Öğle Yemeği

13:00-13:30 **Keynote Address / Davetli konuşmacı**
Asaf Savaş Akat *(İstanbul Bilgi University, Türkiye)*

13:40-14:10 **Keynote Address / Davetli konuşmacı**
Hakan Kara (*Bilkent University, Türkiye)*

14:10-14:30 Coffee Break / Kahve Arası

14:30-15:30 **PANEL 3 – QNB SESSION: Yeşil Dönüşümü Tasarlamak ve Türkiye'nin İklim Değişikliği ile Mücadelesi**
Sinem Erol Ayvalıoğlu *(QNB, Türkiye)*
Erol Taymaz *(METU, Türkiye)*
Ebru Voyvoda *(METU, Türkiye)*
Erinç Yeldan *(Kadir Has University, Türkiye)*

15:30-15:50 Coffee Break / Kahve Arası

15:50-16:50 **PANEL 4 - VERİMETRİK SESSION: Enflasyon Dinamikleri**
Emre Alkin *(İstanbul Topkapı University, Türkiye)*
Burak Arzova *(Marmara University, Türkiye)*
Ahmet Atakişi *(Trakya University, Türkiye)*
Sadi Uzunoğlu *(Trakya University, Türkiye)*

Saturday, May 31, 2025 **Cumartesi, 31 Mayıs 2025**

08:30-13:30 Registration

09:00-10:20 Sessions / Oturumlar

S1 ENVIRONMENT and POLICY
S2 EDUCATION, DEMOGRAPHY and LABOR
S3 STRATEGIC DECISION MAKING
S4 MONEY and MONETARY POLICY
S5 TECHNOLOGY, R&D and FIRM PERFORMANCE
S6 CENTRAL BANK REVIEW SPECIAL SESSION III
S7 ÇEVRE EKONOMİSİ
S8 PARA ve FINANS: BÖLGESEL PERSPEKTİF

10:20-10:50 Coffee Break / Kahve Arası

10:50-11:20 Keynote Address / Davetli konuşmacı
Gülçin Özkan *(King's Colloge, London, UK)*

11:30-12:00 Keynote Address / Davetli konuşmacı
İnsan Tunalı *(Koç University, Türkiye)*

12:00-13:00 Lunch / Öğle Yemeği

13:00-13:30 Keynote Address / Davetli konuşmacı
Güngör Kaymak *(HPE, Türkiye)*

13:40-14:40 PANEL 5: Poverty and Income Distribution: Measurements and Dynamics
Zeynep Başak *(Zonguldak Bulent Ecevit University, Türkiye)*
Ayle Aylin Bayar *(İstanbul Technical University, Türkiye)*
Öner Günçavdı *(İstanbul Technical University, Türkiye)*
Haluk Levent *(İstanbul Bilgi University, Türkiye)*
Seyfettin Gürsel *(Bahçeşehir University, Türkiye)*

14:40-15:00 Coffee Break / Kahve Arası

15:00-16:20 Sessions / Oturumlar

S9 ECONOMICS OF EDUCATION and LABOR
S10 MIGRATION
S11 WELFARE, INEQUALITY and POVERTY
S12 FINANCIAL ECONOMICS II
S13 UNDERGRADUATE STUDIES
S14 İKTİSADİ KURAMLAR ve METODOLOJİ
S15 ÇEVRE ve SÜRDÜRÜLEBİLİRLİK
S16 TOPICS IN ECONOMICS
S17 INNOVATION, TECHNOLOGICAL CHANGE and DEVELOPMENT

16:20-16:40 Coffee Break / Kahve Arası

16:40-17:40 Sessions / Oturumlar

S18 HEALTH and DEMOGRAPHIC ECONOMICS
S19 REGINAL ECONOMICS AND LABOR
S20 CENTRAL BANK REVIEW SPECIAL SESSION IV
S21 DIŞ TİCARET

Programme

Program

DAY 1

OPENING SESSION

May 29 / 29 Mayıs | 09:00-10:00 | SA Courtroom

Hasan Kazdağlı *(President, Turkish Economic Association, Türkiye)*
Ege Yazgan *(Rector, Istanbul Bilgi University, Türkiye)*

Convenor: **Yılmaz Kılıçaslan** (Anadolu University, Türkiye)

KEYNOTE ADDRESS I

May 29 / 29 Mayıs | 09:30-10:00 | SA Courtroom

Ege Yazgan *(İstanbul Bilgi University, Türkiye)*

Convenor: **Serdar Sayan** (TOBB-ETÜ, Türkiye)

KEYNOTE ADDRESS II

May 29 / 29 Mayıs | 10:30-11:10 | SA Courtroom

Middle Income Trap
Ufuk Akçiğit *(University of Chicago, USA)*

Convenor: **Hasan Kazdağlı** (Turkish Economic Association, Türkiye)

KEYNOTE ADDRESS III

May 29 / 29 Mayıs | 11:20-11:50 | SA Courtroom

Osmanlı İmparatorluğu'nda Kişi Başı GSYİH ve Bölgesel Farklılıklar, 1570-1914
Şevket Pamuk *(Boğaziçi University, Türkiye)*

Convenor: **Fatma Doğruel** (Marmara University, Türkiye)

PANEL 1
Türkiye Ekonomisinin Üç Boyutu: Gelir, İşyeri ve Bölge

May 29 / 29 Mayıs | 13:00-14:00 | SA Courtroom

Fatma Doğruel *(Marmara University, Türkiye)*
Alpay Filiztekin *(Sabancı University, Türkiye)*
Kamil Yılmaz *(Koç University, Türkiye)*

Convenor: **Erol Taymaz** (METU, Türkiye)

T1 MACROECONOMICS and MONETARY ECONOMICS

May 29 / 29 Mayıs | 14:20-15:40 | SA Courtroom

Macroprudential Policy and Inflation
Erdem Başçı *(TED University, Türkiye)*

Contextual Expectations: A Novel Framework for Modeling Inflation Dynamics
Ceyhun Elgin *(Bogazici University, Türkiye)*

Ramadan and Food Prices: Evidence from Micro-level Data
Aslıhan Atabek-Demirhan *(CBRT, Türkiye)*
Saide Simin Bayraktar *(CBRT, Türkiye)*
Muhammed Bahça *(CBRT, Türkiye)*

Convenor: **Fatih Özatay** (TOBB-ETÜ, Türkiye)

T2 FINANCIAL ECONOMICS I

May 29 / 29 Mayıs | 14:20-15:40 | ÇSM 202

Banks' Non-Interest Income and Bank Risk: Turkey Case
Aykut Şengül *(CBRT, Türkiye)*
Olcay Demirboğa *(CBRT, Türkiye)*
Mehmet Hanifi Ateş *(CBRT, Türkiye)*

Does Sustainability Matter in Differentiating Between Distressed and Healthy Firms? Machine Learning-Based Evidence from BIST Non-Financial Corporates
Zehra Çavuşoğlu Adıgüzel *(CBRT, Türkiye)*
Canan Özkan *(CBRT, Türkiye)*
Mehmet Hanifi Ateş *(CBRT, Türkiye)*

Sectoral Connectedness: Evidence from the Istanbul Stock Exchange
Hazar Altınbaş *(Fenerbahçe University, Türkiye)*
Tuğba Baş *(Fenerbahçe University, Türkiye)*

Co-Bubble Transmission between Meme Coins and Major Cryptocurrencies: A Network Analysis
Özkan Haykır *(Nigde Omer Halisdemir University, Türkiye)*
İbrahim Yağlı *(Nevsehir Haci Bektas Veli University, Türkiye)*
Gökçe Avbaz *(Nigde Omer Halisdemir University, Türkiye)*

Convenor: **Pınar Erdem Küçükbıçakçı** (British Embassy, Türkiye)

T3 FIRM BEHAVIOR: EMPIRICAL ANALYSIS

May 29 / 29 Mayıs 14:20-15:40 ÇSM 203

Artificial Intelligence, Trade, and Firm Dynamics
Suleyman Gozen *(University of Bristol, United Kingdom)*
Pinar Gunes *(University of Sussex, United Kingdom)*
Mehmet Furkan Karaca *(University of Essex, United Kingdom)*

Moral Hazard in Crop and Livestock Insurance
Ahmet Bağcı *(Ministry of Agriculture and Forestry, Türkiye)*
Müşerref Küçükbayrak *(CBRT, Türkiye)*

Firm Assets, Credit Utilization and Price Expectations
Yusuf Emre Akgündüz *(CBRT, Türkiye)*
Mehmet Selman Colak *(CBRT, Türkiye)*
Merve Demirbas Ozbekler *(CBRT, Türkiye)*
Muhammed Hasan Yilmaz *(CBRT, Türkiye)*

Productivity Under Supportive and Hostile Pressure: Evidence from a High-Stakes Natural Experiment
Alperen Koçsoy *(Ankara Hacı Bayram Veli University, Türkiye)*

Convenor: **Murat Donduran** (Yıldız Technical University, Türkiye)

T4 ENVIRONMENTAL ECONOMICS

May 29 / 29 Mayıs 14:20-15:40 ÇSM 204

The Impact of Corruption on International Plastic Waste Trade: An Empirical Analysis
Emrah Er *(Ankara University, Türkiye)*
Işıl Şirin Selçuk *(Bolu Abant İzzet Baysal University, Türkiye)*

Cross Country Development Index (CCDI) and Environmental Kuznets Curve (EKC)
Adem Gök *(Kırklareli University, Çukurova University, Türkiye)*

Allocation of Clean and Dirty Innovation in the Presence of Fossil Energy Cost and Technology Spillover: A Directed Technical Change Model
Bilal Çayır *(Hasan Kalyoncu University, Türkiye)*
Onur Yeni *(Hacettepe University, Türkiye)*

Convenor: **Serda Selin Öztürk** (İstanbul Bilgi University, Türkiye)

T5 LABOR MARKET and EMPLOYMENT

May 29 / 29 Mayıs 14:20-15:40 ÇSM 205

Striking While the Iron Is Hot vs Steady Does It: On the Welfare Gains from Cyclical Fluctuations in Aggregate Hours Worked
Christian Jensen *(University of South Carolina, USA)*

The Impact of the Kahramanmaraş Earthquakes on the Turkish Labor Market: A Micro Level Analysis
Okan Akarsu *(CBRT, Türkiye)*
Abdurrahman Aydemir *(Sabancı University, Türkiye)*
Muhammet Enes Çıraklı *(CBRT, Türkiye)*
Huzeyfe Torun *(CBRT, Türkiye)*

The Effects of Trade Openness on Employment: The Case of the Manufacturing Sector in Morocco
Nor-eddine OUMANSOUR *(Mohammed V University in Rabat, Morocco)*
Ibtihal MIH *(Mohammed V University in Rabat, Morocco)*

Labor Market Mobility and Wage Dynamics
Zeynep Yılmaz *(CBRT, Türkiye)*
Hatice Burcu Gürcihan *(CBRT, Türkiye)*
Barbaros Eriş *(CBRT, Türkiye)*

Convenor: **Serdar Sayan** (TOBB-ETU, Türkiye)

T6 CENTRAL BANK REVIEW SPECIAL SESSION I
Inflation Dynamics: Market Structures, Pricing Behaviours, and Expectations

May 29 / 29 Mayıs 14:20-15:40 ÇSM 403

Inflation Dynamics: An Agent-Based Modeling Approach to Market Structures, Pricing Behaviors, and Expectations
Şükrü C Demirtaş *(Yildiz Technical University, Türkiye)*
Senem Çakmak Şahin *(Yildiz Technical University, South Africa)*

The Impact of Global Supply Chain Pressure, Commodity Prices, and Climate Uncertainty on Inflation, Industrial Production, and Exports in Turkey: A Bayesian TVC-VAR Approach
Figen Tombak *(Yozgat Bozok University, Türkiye)*

Decoding Price Setting Behavior: A Tendency Survey Approach in Türkiye
Aslıhan Atabek Demirhan *(CBRT, Türkiye)*
Evren Erdoğan Coşar *(CBRT, Türkiye)*

Macroeconomic and Behavioral Determinants of Inflation Expectations in Türkiye: A Bootstrap Fourier ARDL Analysis
Aslı Güler *(Ordu University, Türkiye)*

Convenor: **Ünal Seven** (CBRT, Türkiye)

T7 SAĞLIK ve DEMOGRAFİ

May 29 / 29 Mayıs 14:20-15:40 ÇSM 501

Türkiye'de İlaç Ar-Ge Yatırımlarının Patent Kapasitesine Etkisi: Zaman Serisi Analizi
Alper Akpınar *(Ege Üniversitesi, Türkiye)*
Mahir Tosunoğlu *(Ege Üniversitesi, Türkiye)*
Mert Abay *(Dokuz Eylül Üniversitesi, Türkiye)*
Sedef Akgüngör *(Dokuz Eylül Üniversitesi, Türkiye)*
Bülent Kılıç *(Dokuz Eylül Üniversitesi, Türkiye)*

Potansiyel Aşıların Ekonomik Etkileri: Türkiye'de Helicobacter Pylori Örneği
Mahir Tosunoğlu *(Ege University, Türkiye)*
Mert Abay *(Dokuz Eylül Üniversitesi, Türkiye)*
Bülent Kılıç *(Dokuz Eylül Üniversitesi, Türkiye)*
Melih Kaan Sözmen *(Katip Çelebi University, Türkiye)*

Türkiye'de Doğurganlık Oranının Düşüşü: Ekonomik ve Sosyo-Kültürel Faktörlerin Etkisi
Derya Bilgin *(İstanbul Kültür Üniversitesi, Türkiye)*

Convenor: **Didem Pekkurnaz** (Baskent University, Türkiye)

T8 TÜRKİYE EKONOMİSİ

May 29 / 29 Mayıs 14:20-15:20 ÇSM 503

Türkiye'de 2000'li Yıllarda Oluşan Dış Borç Sarmalı
Aynur Uçkaç *(Aydın Adnan Menderes University, Türkiye)*

Kurumsal Yapılar, İnovasyon ve Türkiye'de Toplam Faktör Verimliliği: 1923-2023 Dönemi Üzerine Bir Analiz
Eşref Uğur Çelik *(Atılım University, Türkiye)*
Elif Boduroğlu *(Atılım University, Türkiye)*

Türkiye'de Dijital ve Geleneksel Finansal Kapsayıcılığın İl Bazlı Karşılaştırmalı Analizi
Dilan Teber Koçer *(CBRT, Türkiye)*
Saygın Çevik *(CBRT, Türkiye)*
Aybüke Töre Altunel *(CBRT, Türkiye)*

KOVID-19'un Öğrencilerin Deneyimleri ve Beklentileri Üzerindeki Etkileri:
Değişiklikler Gerçekten Pandemi Yüzünden mi?
Deniz Karaoğlan Yurtseven *(Gebze Technical University, Türkiye)*
Burcu Düzgün Öncel *(Marmara University, Türkiye)*

Convenor: **Celal Küçüker** (Pamukkale University, Türkiye)

T9 KALKINMA ve İSTİHDAM

May 29 / 29 Mayıs | 14:20-15:40 | Enerji Müzesi Etkinlik Odası

Türkiye'nin Dijital Dönüşüm Endeksi
Ümit İzmen *(Tekirdağ Namık Kemal Üniversitesi, Türkiye)*
Yılmaz Kılıçaslan *(Anadolu Üniversitesi, Türkiye)*
Yeşim Üçdoğruk Gürel *(Dokuz Eylül Üniversitesi, Türkiye)*

Mesleklerin Geleceği: YZ ve Robotik ile Otomasyon Riskinin Değerlendirilmesi
Egemen Can Toker *(Dokuz Eylul University, Türkiye)*
Kerim Eser Afşar *(Dokuz Eylul University, Türkiye)*

Türkiye'de Yapısal Dönüşümün Gelir Eşitsizliğine Etkisinin Kuznets Hipoteziyle İncelenmesi: Genişletilmiş ARDL Yaklaşımından Kanıtlar
Cem Arık *(Atatürk University, Türkiye)*
Kerem Fırat Coşkun *(Atatürk University, Türkiye)*

Convenor: **Burhan Şenatalar** (İstanbul Bilgi University, Türkiye)

KEYNOTE ADDRESS IV

May 29 / 29 Mayıs | 16:00-16:30 | SA Courtroom - Zoom

Jeffrey D. Sachs *(Columbia University, USA)*

Convenor: **Erhan Aslanoğlu** (İstanbul Bilgi University, Türkiye)

KEYNOTE ADDRESS V

May 29 / 29 Mayıs | 17:00-17:30 | SA Courtroom - Zoom

Daron Acemoğlu *(MIT, USA)*

Convenor: **Asaf Savaş Akat** (İstanbul Bilgi University, Türkiye)

DAY 2

F1 ENERGY and SUSTAINABILITY

May 30 / 30 Mayıs 09:00-10:20 ÇSM 201

Powering Sustainable Futures: Cross-Country Insights on Green Energy Transition and Economic Development
Ece Handan Guleryuz *(Marmara University, Türkiye)*

Time-varying cointegrating relation between CO2 emissions and clean energy consumption
Saliha Tanrıverdi *(Middle East Technical University, Türkiye)*
Dilem Yıldırım *(Middle East Technical University, Türkiye)*

Economic Analyses of Utilization of Biomethane in Turkey
Batuhan Gürler *(Hacettepe University, Türkiye)*
Shihomi Ara Aksoy *(Hacettepe University, Türkiye)*

Uncertain Times: Assessing the Impact of Economic Policy Uncertainty on the Value of Energy Firms
Canan Özkan *(CBRT, Türkiye)*
Mehmet Hanifi Ateş *(CBRT, Türkiye)*
Zehra Çavuşoğlu Adıgüzel *(CBRT, Türkiye)*
Sabri Kurtoglu *(CBRT, Türkiye)*
Yusuf Yıldırım *(CBRT, Türkiye)*

Convenor: **Ayşen Sivrikaya** (Hacettepe University, Türkiye)

F3 LABOR MARKET and WAGES

May 30 / 30 Mayıs 09:00-10:20 ÇSM 203

Analyzing Educational Mismatch in Turkish Labor Market Addressing Different Estimation Methods
Gülbin Erdem Karahanoğlu *(Istanbul Medeniyet University, Türkiye)*

Job polarization and routinization: Evidence for Turkey
Ensar Yılmaz *(Yildiz Technical University, Türkiye)*
Evren Gülser *(Işık University, Türkiye)*

The Employment Impact of Technological Innovation: Resilience During the COVID-19 Pandemic
Bilgen Cebir *(Middle East Technical University, Türkiye)*
Hakan Ercan *(Middle East Technical University, Türkiye)*

Mass Retirements and Labor Market Shifts: Evidence from Türkiye's 2023 Early Retirement Reform
Yusuf Emre Akgündüz *(CBRT, Türkiye)*
Seyit Mümin Cılasun *(TED University, Türkiye)*
Ahmet Gülveren *(CBRT, Türkiye)*
Gökçe Karasoy Can *(CBRT, Türkiye)*

Convenor: **Okan Akarsu** (CBRT, Türkiye)

F4 INTERNATIONAL ECONOMICS

May 30 / 30 Mayıs 09:00-10:00 ÇSM 204

The Relationship Between Exchange Rates and Foreign Trade in the Turkish Economy: An Analysis within the Framework of the Dynamic Elasticity Pessimism Model
Onur Akkaya *(Kilis 7 Aralık University, Türkiye)*
Sumru Bakan *(Kilis 7 Aralık University, Türkiye)*

The impact of exchange rate on foreign direct investment: The case of Algeria
Ahmed Smahi *(Tlemcen University, Algeria)*
Brahim Kara *(University of Relizen)*
Samira Djemai *(Higher school of Economics)*

Extensive vs. Intensive Margins in Turkey's Exports: A Firm and Product-Country Analysis
Enver Sait Kurtaran *(CBRT, Yıldız Technical University, Türkiye)*

Convenor: **Hasan Murat Ertuğrul** (Anadolu University, Türkiye)

F5 CENTRAL BANK REVIEW SPECIAL SESSION II
Inflation Dynamics: Market Structures, Pricing Behaviours, and Expectations

May 30 / 30 Mayıs 09:00-10:00 ÇSM 205

The Impact of Gold on House Prices: Using Geographical Heterogeneity to Measure the Wealth Effect
Mehmet Emre Şamcı *(Central Bank of Republic of Türkiye, Türkiye)*
Mehmet Selman Çolak *(Central Bank of Republic of Türkiye, Türkiye)*

Post-COVID Inflation and Incomes Policy in A Two Household SFC Model for the UK Economy
Oktay Özden *(İstanbul 29 Mayis University, Türkiye)*

Do Policy Incentives Foster Wise Financial Choices or Encourage Missteps?
Yunis Dede *(Gebze Technical University, Türkiye)*
Sadettin Haluk Çitçi *(Gebze Technical University, Türkiye)*
Halit Yanıkkaya *(Gebze Technical University, Türkiye)*

Predicting Inflation Inertia in Türkiye: A Hybrid Approach Integrating Machine Learning and Time Series Models with Macro-Financial Data
Onur Polat *(Bilecik Şeyh Edebali University, Social Sciencies University of Ankara, Türkiye)*
Hasan Murat Ertuğrul *(Anadolu University, Türkiye)*
Burçhan Sakarya *(Başkent University, Türkiye)*

Convenor: **Gülçin Özkan** (King's College London, UK)

F6 İKTİSADİ DÜŞÜNCE ve YAKLAŞIMLAR

May 30 / 30 Mayıs | 09:00-10:00 | ÇSM 403

Korsan Ekonomisine Evrimsel Oyun Teorik Bir Yaklaşım
Aras Yolusever *(Istanbul Kültür University, Türkiye)*
Ercan Eren *(Türkiye)*

Alfred Schutz'un İktisadi Fikirleri Hakkında Bir İnceleme
Mehmet Dinçaslan *(Karadeniz Technical University, Türkiye)*

Türkiye ve Yunanistan Heterodoks İktisat Geleneklerinin Karşılaştırılması
Adem Levent *(Bursa Uludag University, Türkiye)*

Türkiye'de İktisat Eğitiminin Açmazları: Teori ve Pratik Arasındaki Boşluk Üzerine Bir Değerlendirme
Hasan Umutlu *(Düzce University, Türkiye)*
Oytun Meçik *(Eskişehir Osmangazi University, Türkiye)*

Convenor: **Alper Güzel** (Ondokuz Mayıs University, Türkiye)

F7 FİNANSAL EKONOMİ

May 30 / 30 Mayıs | 09:00-10:00 | ÇSM 501

Makro İhtiyati Politikaların Etkinliği: Dinamik Stokastik Genel Denge Örneği
Burhan Biçer *(Çukurova University, Türkiye)*
Fikret Dülger *(Çukurova University, Türkiye)*
Uğur Akkoç *(Pamukkale University, Türkiye)*

Türkiye'de Yatırımcı Psikolojisi ve Belirsizlik Göstergelerinin Borsa İstanbul üzerindeki Etkileri
Aslı Güler *(Ordu University, Türkiye)*

Hizmet Fiyatlarındaki Katılığın Bağlantılılık Perspektifinde İncelenmesi
Mubina İpek *(T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, Türkiye)*

Convenor: **Tolga Omay** (Atılım University, Türkiye)

F8 ENDÜSTRİ ÇALIŞMALARI

May 30 / 30 Mayıs 09:00-10:00 503

Türkiye Çimento Sektöründe Yatırım Kararlarındaki Dinamikler
Serkan Şengül *(Mudanya University, Türkiye)*
Hakan Yıldız *(Medipol University, Türkiye)*

Türkiye İmalat Sanayindeki Yabancı Sermayeli Şirketlerin Profili ve Karlılıklarının Belirleyicileri
Ahmet Adnan Eken *(CBRT, Türkiye)*
Didem Yazıcı *(CBRT, Türkiye)*
Cihan Yalçın *(CBRT, Türkiye)*

Sosyal Güvenlik Kurumunun Sürdürülebilir Kalkınmadaki Rolü
Sümeyye Doruk *(Erciyes University, Türkiye)*
Sultan Akkuş *(Erciyes University, Türkiye)*
Büşra Demirtaş *(Erciyes University, Türkiye)*
H. Hilal Bağlıtaş *(Erciyes University, Türkiye)*

Enerji Tüketimi ve Çevresel Etkileri: Çevresel Kuznets Eğrisi (ÇKE) Hipotezinin Testi
Ebru Tomris Aydoğan *(Yeditepe University, Türkiye)*
Aykut Tikicieri *(Yeditepe University, Türkiye)*

Convenor: **Seyit Mümin Cilasun** (TED University, Türkiye)

KEYNOTE ADDRESS VII

May 30 / 30 Mayıs | 10:20-10:50 | SA Courtroom

Programın ikinci yılı tamamlanırken Türkiye ekonomisi ışığında istikrar programları
Fatih Özatay *(TOBB-ETU, Türkiye)*

Convenor: **Kamil Yılmaz** (Koç University, Türkiye)

PANEL 2

May 30 / 30 Mayıs | 11:00-12:00 | SA Courtroom

Haluk Bürümcekçi *(BR Research, Türkiye)*
Özlem Derici *(İstanbul Bilgi Üniversitesi, Türkiye)*
Çağrı Sarıkaya *(Akbank, Türkiye)*
Murat Üçer *(Koç University, Türkiye)*

Convenor: **Özlem Derici** (İstanbul Bilgi Üniversitesi, Türkiye)

KEYNOTE ADDRESS VIII

May 30 / 30 Mayıs | 13:00-13:30 | SA Courtroom

Küresel düzende değişim sancıları
Asaf Savaş Akat *(İstanbul Bilgi University, Türkiye)*

Convenor: **Hurşit Güneş** (Marmara University, Türkiye)

KEYNOTE ADDRESS IX

May 30 / 30 Mayıs | 13:40-14:10 | SA Courtroom

Hakan Kara (*Bilkent University, Türkiye)*

Convenor: **Fatih Özatay** (TOBB-ETU, Türkiye)

PANEL 3 - QNB SESSION
Yeşil Dönüşümü tasarlamak ve Türkiye'nin İklim Değişikliği ile Mücadelesi

May 30 / 30 Mayıs | 14:30-15:30 | SA Courtroom

Sinem Erol Ayvalıoğlu *(QNB, Türkiye)*
Erol Taymaz *(METU, Türkiye)*
Ebru Voyvoda *(METU, Türkiye)*
Erinç Yeldan *(Kadir Has University, Türkiye)*

Convenor: **Serdar Sayan** (TOBB-ETÜ, Türkiey)

PANEL 4 – VERİMETRİK SESSION:
Enflasyon Dinamikleri

May 30 / 30 Mayıs | 15:50-16:50 | SA Courtroom

Emre Alkin *(İstanbul Topkapı University, Türkiye)*
Burak Arzova *(Marmara University, Türkiye)*
Ahmet Atakişi *(Trakya University, Türkiye)*
Sadi Uzunoğlu *(Trakya University, Türkiye)*

Convenor: **Sadi Uzunoğlu** (Trakya University, Türkiye)

DAY 3

S1 ENVIRONMENT and POLICY

May 31 / 31 Mayıs | 09:00-10:20 | ÇSM 201

Evaluating the Economic and Environmental Impacts of Fossil Fuel Subsidy Removal: A Path Toward a Green Transition in Türkiye
Simay Kızılkaya *(Yıldız Technical University, Türkiye)*
Sevil Acar *(Boğaziçi University, Türkiye)*

Collective Action as Informal Environmental Regulation: A Game-Theoretic Approach
Ceren Soylu *(Fenerbahçe University, Türkiye)*

Carbon Pricing and Industrial Decarbonization: Evidence from the EU ETS
Funda Altun *(Ankara University, Türkiye)*
Cumhur Çiçekçi *(Ankara University, Türkiye)*

Convenor: **Ebru Voyvoda** (METU, Türkiye)

S2 EDUCATION, DEMOGRAPHY and LABOR

May 31 / 31 Mayıs | 09:00-10:00 | ÇSM 202

The Mental Health Outcomes of Youth Unemployment In Turkey
İlkin İlke Yegek *(Marmara University, Türkiye)*

Parents' Occupation and Young Adults' Career Aspirations: Analysing Change from Youth to Young Adulthood
Fatimah Shah *(University of Essex, UK)*

Adapting to Digitalization: Labor Market Dynamics in Türkiye's Ageing Workforce
Nazlı Şahanoğulları *(Istanbul Kültür University, Türkiye)*

Convenor: **Hasan Kazdağlı** (Turkish Economic Association, Türkiye)

S3 STRATEGIC DECISION MAKING

May 31 / 31 Mayıs 09:00-10:20 ÇSM 203

Track, Share, Play: Using PanPals App To Motivate Home Cooking
Esin Cansu Yilmaz *(London School of Economics and Political Science, UK)*

Analyzing Behavioral Factors Affecting Cooperative Vertical Integration
Filiz Malkoc Kinikli *(Swedish University of Agricultural Sciences, Sweden)*
Kostas Karantininis *(Swedish University of Agricultural Sciences, Sweden)*

A Computational Approach to Test Spatial Competition
Ayça Düldül *(Recep Tayyip Erdogan University, Türkiye)*
Burak Ünveren *(Yıldız Technical University, Türkiye)*

An Economic Theory of Complexity Fatigue
Cavit Görkem Destan (*TED University, Türkiye)*

Convenor: **İpek Özkal Sanver** (İstanbul Bilgi University, Türkiye)

S4 MONEY and MONETARY POLICY

May 31 / 31 Mayıs 09:00-10:20 ÇSM 204

Central Bank Digital Currencies (CBDCs):
A countermeasure to Anti-Money Laundering (AML) challenges posed by cryptocurrencies?
Albina Gaisina *(Istanbul Technical University, Türkiye)*
Matthias Finger *(Istanbul Technical University, Türkiye)*

CBDC Effects on Monetary Economics: Descriptive Analysis
Muhammed Taha Salman *(Marmara University, Türkiye)*

Monetary Policy and Household Consumption: Evidence from Household Groups in Turkey
Anıl Tuğral *(Yıldız Technical University, Türkiye)*
Hüseyin Taştan *(Yıldız Technical University, Türkiye)*

Monetary Policy and Credit Gap: What about Central Bank Independence?
Bilge Karataş *(Utrecht University School of Economics, Netherlands)*

Convenor: **Koray Akay** (İstanbul Bilgi University, Türkiye)

S5 TECHNOLOGY, R&D and FIRM PERFORMANCE

May 31 / 31 Mayıs 09:00-10:20 ÇSM 205

Buyer-Supplier Interactions, R&D Spillovers and Firm Poductivity
Çiğdem Ekiz *(Maastricht University, Holand)*

The Impact of R&D Support on Firm Innovation
Emrah Er *(Ankara University, Türkiye)*
Nilay Unsal Karaman *(Ankara University, Türkiye)*

Reconsidering The Nexus Between Knowledge and Economic Growth in an Unstable Economy: The Case of Turkish Economy
Fatma M. Utku-İsmihan *(Eastern Mediterranean University, Türkiye)*
Mustafa İsmihan *(Eastern Mediterranean University, Türkiye)*

Convenor: **Tolga Omay** (Atılım University, Türkiye)

S6
CENTRAL BANK REVIEW SPECIAL SESSION III
Inflation Dynamics: Market Structures, Pricing Behaviours, and Expectations

May 31 / 31 Mayıs 09:00-10:20 ÇSM 403

Inflation Expectations and Firms' Decisions in High Inflation: Evidence from a Randomized Control Trial
Okan Akarsu *(CBRT, Türkiye)*
Emrehan Aktuğ *(Sabancı University, Türkiye)*
Huzeyfe Torun (*CBRT, Türkiye)*

Do Central Banks Shape Expectations? Evidence from Households, Firms and Market Participants
Okan Akarsu *(CBRT, Türkiye)*
Emrehan Aktuğ *(Sabancı University, Türkiye)*
Cihan Yalçın *(CBRT, Türkiye)*

On Behavioral Foundation of Pessimism and a Credit Design for Pessimist Entrepreneurs
Umut Keskin *(İstanbul Bilgi University, Türkiye)*
Büşra Eroğlu *(University of Mannheim, Germany)*

How Do Firms React Energy Cost Shocks? Oil Supply, Carbon Prices and Expectations
Okan Akarsu *(CBRT, Türkiye)*
Emrehan Aktuğ *(Sabancı University, Türkiye)*
Hüzeyfe Torun (*CBRT, Türkiye)*
Cihan Yalçın *(CBRT, Türkiye)*

Convenor: **Eda Gülşen** (CBRT, Türkiye)

S7 ÇEVRE EKONOMİSİ

May 31 / 31 Mayıs 09:00-10:20 ÇSM 501

Çevresel Kuznets Eğrisi (EKC) Hipotezinin Balıkçılık Alanları için Test Edilmesi: Türkiye Örneği
Pınar Karahan-Dursun *(Mudanya University, Türkiye)*
Şerif Canbay *(Mudanya University, Türkiye)*
Serkan Sengül *(Mudanya University, Türkiye)*

İklim Değişikliği Enflasyonu Artirabilir Mi? Türkiye Ekonomisi İçin Bir Çalişma
Hilal Şeker *(Amasya University, Türkiye)*

Türkiye'deki bireylerin neden olduğu sera gazı emisyonlarının zaman kullanımı perspektifinden analizi
Betül Öztürk Gündoğdu *(Hacettepe University, Türkiye)*
Eren Gürer *(Middle East Technical University, Türkiye)*

Convenor: **Ayşen Sivrikaya** (Hacettepe University, Türkiye)

S8 PARA ve FINANS: BÖLGESEL PERSPEKTİF

May 31 / 31 Mayıs 09:00-10:20 ÇSM 503

Türkiye'de Tüketicilerin Ödeme Yöntemi Tercihleri: Nakit Kullanımında Etkili Olan Faktörler
Saygın Çevik *(CBRT, Türkiye)*
Emre Kaya *(CBRT, Türkiye)*

Türkiye'de Finansal Kapsayıcılığın Karşılaştırılması ve Büyüme İle İlişkisinin Analizi
Hüseyin Günsüz *(Muğla Sıtkı Koçman University, Türkiye)*
Tansu Kartal *(Ankara Hacı Bayram Veli University, Türkiye)*

Türkiye'de Enflasyon Dinamiklerinin Belirleyicileri: Belirsizlik, Atalet ve Asimetrik Şokların Rolü
Fatih Yeter *(Tokat Gaziosmanpaşa University, Türkiye)*
İlhan Eroğlu *(Tokat Gaziosmanpaşa University, Türkiye)*

Gıda Sektörü Fiyat Dinamikleri
Aslıhan Atabek Demirhan *(Türkiye Cumhuriyet Merkez Bankası, Türkiye)*
Yavuz Selim Koltuk *(Türkiye Cumhuriyet Merkez Bankası, Türkiye)*

Convenor: **Celal Küçüker** (Pamukkale University, Türkiye)

KEYNOTE ADDRESS XI

May 31 / 31 Mayıs | 10:50-11:20 | SA Courtroom

Gülçin Özkan *(King's Colloge, London, UK)*

Convenor: **Fatih Özatay** (TOBB-ETÜ, Türkiye)

KEYNOTE ADDRESS XII

May 31 / 31 Mayıs | 11:30-12:00 | SA Courtroom

İnsan Tunalı *(Koç University, Türkiye)*

Convenor: **Haluk Levent** (İstanbul Bilgi University, Türkiye)

KEYNOTE ADDRESS XII

May 31 / 31 Mayıs | 13:00-13:30 | SA Courtroom

Yapay Zeka: Deva mı, Bela mı?
Güngör Kaymak *(HPE, Türkiye)*

Convenor: **Alper Güzel** (Ondokuz Mayıs University, Türkiye)

PANEL 5
Poverty and Income Distribution: Measurements and Dynamics

May 31 / 31 Mayıs | 13:40-14:40 | SA Courtroom

Zeynep Başak *(Zonguldak Bulent Ecevit University, Türkiye)*
Ayle Aylin Bayar *(İstanbul Technical University, Türkiye)*
Öner Günçavdı *(İstanbul Technical University, Türkiye)*
Haluk Levent *(İstanbul Bilgi University, Türkiye)*
Seyfettin Gürsel *(Bahçeşehir University, Türkiye)*

Convenor: **Haluk Levent** (İstanbul Bilgi University, Türkiye)

S9 ECONOMICS OF EDUCATION AND LABOR

May 31 / 31 Mayıs 15:00-16:20 ÇSM 201

Lifelong Learning and Labor Success: The Impact of Adult Education on Worker Performance in Turkey
Hande Kul Gelal *(Piri Reis University, Türkiye)*

Mobility Differences in University Preferences Among Male and Female Students
Ayşe Berfin Farisoğlu *(Kadir Has University, Türkiye)*

Compulsory Schooling and Child Labor: The Role of Structural Factors
M. Utku Özmen *(World Bank, Türkiye)*
Belgi Turan *(TOBB University of Economics and Technology, Türkiye)*

Convenor: **Zeynep Başak** (Zonguldak Bülent Ecevit University, Türkiye)

S10 MIGRATION

May 31 / 31 Mayıs 15:00-16:20 ÇSM 202

Intergenerational Returns to Migration: Evidence from Italian Migrants Worldwide
Chiara Malavasi *(University of Mannheim, Germany)*
Guido Neidhöfer *(Türk-Alman University, Germany)*

Testing Ravenstein's Migration Theories: Insight from Domestic Migration in Turkey
Mehmet Ali Tekkanat *(Ondokuz Mayıs University, Türkiye)*

Regional Development, Migration, and Convergence Dynamics in Türkiye
Altan Bozdoğan *(Marmara University, Türkiye)*
Hakkı Kutay Bolkol *(Marmara University, Türkiye)*
Umurcan Polat *(Marmara University, Türkiye)*
Mahsum Ökmen *(Doğuş University, Türkiye)*

The Impact of Weather-Driven Internal Migration on the Labor Market in Turkey
Zühal Özbay Daş *(Fenerbahçe University, Türkiye)*

Convenor: **Haluk Levent** (İstanbul Bilgi University, Türkiye)

S11 WELFARE, INEQUALITY and POVERTY

May 31 / 31 Mayıs 15:00-16:20 ÇSM 203

How do Relative Concerns about Well-Being Vary by Patience? Evidence From Panel and Experimental Data
Nur Banu Kartal *(Türk-Alman University, Germany)*
Tolga Aksoy *(Yildiz Technical University, Türkiye)*

An Asymmetric Revisit to the Crime and Inequality Nexus
Fadime İrem Doğan *(Bahçeşehir University, Türkiye)*
Pınar Deniz *(Marmara University, Türkiye)*

Deep Poverty in Turkey
Ayşenur Acar *(Worldbank, Türkiye)*
Bülent Anıl *(University of Bedfordshire, UK)*
Seyfettin Gürsel *(Bahçeşehir Üniversitesi, Türkiye)*

Environmental Satisfaction as a Dimension of Well-Being: A Panel Data Analysis of Türkiye (2013–2023)
N. Merve Hamzaoğlu *(İstanbul Kültür Üniversitesi, Türkiye)*

Religious Freedom, State Control, and Income Inequality: A Cross-National Analysis
Muhammet Aydoğan *(TESAM, Istanbul Beykoz University, Türkiye)*

Convenor: **Seyfettin Gürsel** (Bahçeşehir Üniversitesi, Türkiye)

S12 FINANCIAL ECONOMICS II

May 31 / 31 Mayıs 15:00-16:20 ÇSM 204

Balance Sheet Performance Measure for Manufacturing Firms in Türkiye
Mehmet Selman Çolak *(CBRT, Türkiye)*
Oğuzhan Ergin *(CBRT, Türkiye)*
Pinar Deniz *(Marmara University, Türkiye)*

Effects of Prepayment Regulations on Commercial Loan Interest Rates
Kübra Bölükbaş *(CBRT, Türkiye)*
Hüseyin Öztürk *(CBRT, Türkiye)*

Corporate Disclosure Timing Strategy in the Supply Chain
Yujie Song *(Wenzhou Kean University, China)*

Determinants of Public Trust in the CBRT and the Role of Affect-Based Evaluation
Özlem ARSLAN *(Bursa Uludag University, Türkiye)*
Metin ÖZDEMİR *(Bursa Uludag University, Türkiye)*

Convenor: **Okan Akarsu** (CBRT, Türkiye)

S13 UNDERGRADUATE STUDIES

May 31 / 31 Mayıs 15:00-16:20 ÇSM 205

Constructing Flexibility Index for Undergraduate Economics Programs in Turkey
Erdoğan Mert Oruntak *(Boğaziçi University, Türkiye)*

Impact of Fertility on Female Labor Force Participation: The Case of Turkey
Ece Hasgül *(Boğaziçi University, USA)*
Dilan Çelik *(Boğaziçi University, Türkiye)*

Factors Associated with the Percentage of Female Students in Economics Programs: Evidence from Turkey
Esen Duman *(Boğaziçi University, Türkiye)*
Beyza Ovalıoğlu *(Boğaziçi University, Türkiye)*

A Cross-Sectional Analysis of 155 Electoral Regimes: Constructing an Electoral Inclusivity Index
Kaan Akkaş *(Boğaziçi University, Türkiye)*
Kaan Cengiz *(Boğaziçi University, Türkiye)*
Onur Alp Dilek *(Boğaziçi University, Türkiye)*

Convenor: **Mahmut Tekçe** (Marmara University, Türkiye)

S14 İKTİSADİ KURAMLAR ve METODOLOJİ

May 31 / 31 Mayıs 15:00-16:20 ÇSM 403

Algoritmik Evrim: Makine Öğrenmesi Evrimsel Oyun Teorik Modelleri Nasıl Geliştiriyor?
Aras Yolusever *(Istanbul Kültür University, Türkiye)*

Türkiye'nin Aylık İstihdam Tahminlerindeki Varyansın Azaltılması:
Çok Değişkenli Yapısal Zaman Serisi Modeli
Özlem Yiğit *(Turkstat, Türkiye)*

Doğurganlık Tercihleri Literatüründe Kavramsal ve Kuramsal Belirsizlikler: Bir Sentez Yaklaşımı
Nihal Gabaçlı *(Istanbul Medeniyet University, Türkiye)*

Ekonomik Oy Verme Teorisi: Türkiye için Bir Literatür Taraması
Ahmet Salih İkiz *(Muğla Sıtkı Koçman University, Türkiye)*

Convenor: **Mehmet Dinçaslan** (Karadeniz Technical University, Türkiye)

S15 ÇEVRE ve SÜRDÜRÜLEBİLİRLİK

May 31 / 31 Mayıs 15:00-16:20 ÇSM 501

Plastik Atık İthalatı ve Vergiler: Çevresel Politikalar için Genel Denge Perspektifi
Halil İbrahim Koçak *(Baskent University, Türkiye)*

İklim Krizi ve Avrupa Yeşil Mutabakatı'nın AB ve Türkiye Enerji Piyasalarında Yarattığı Yapısal Değişimler
Melisa CEBECİ *(Gebze Teknik Üniversitesi, Türkiye)*
Abreg S. ÇELEM *(Ondokuz Mayıs Üniversitesi, Türkiye)*

Çevre Diplomasisinin Sürdürülebilir Kalkınma Üzerindeki Etkisi: Türkiye Örneği
Başak Özarslan Doğan *(Istanbul Gelisim University, Türkiye)*
Hilal Kuruoğlu *(Marmara University, Türkiye)*

Paris Anlaşması ve SKDM Kapsamında Türkiye'de Emisyon Azaltımında Enerji İkamesinin İncelenmesi
Erhan Pişkin *(Giresun University, Türkiye)*
Şebnem Arık *(Alanya University, Türkiye)*
Ümit K. Seyfettinoğlu *(Akdeniz University, Türkiye)*
Mehmet Zanbak *(Akdeniz University, Türkiye)*
Selim Çağatay *(Akdeniz University, Türkiye)*

Convenor: **Ayşe Uyduranoğlu** (İstanbul Bilgi University, Türkiye)

S16 TOPICS IN ECONOMICS

May 31 / 31 Mayıs 15:00-16:20 ÇSM 503

Geographical Decomposition of Crop Yield using Shift Share Approach
Mustafa Özsarı *(Konya Food and Agriculture University, Türkiye)*
Yılmaz Kılıçaslan *(Anadolu University, Türkiye)*

Unpacking Agglomeration: Urban Density, Productivity, and Sectoral Dynamics in Türkiye
Enver Sait Kurtaran *(CBRT, Yıldız Technical University, China)*

Oil Price Volatility Classification and Prediction with Sentiment Analysis: Machine Learning Approach
Kerem Çiftçi *(Boğaziçi University, Türkiye)*
Mazhar Mert Ulukaya *(Boğaziçi University, Türkiye)*
Eren Ergüzel *(Boğaziçi University, Türkiye)*
Abdullah Rüzgar *(Boğaziçi University, Türkiye)*

Convenor: **Mustafa İsmihan** (Eastern Mediterranean University, Türkiye)

S17 INNOVATION, TECHNOLOGICAL CHANGE and DEVELOPMENT

May 31 / 31 Mayıs 15:00-16:20 Enerji Müzesi Etkinlik Odası

Could Clustering the Turkish Manufacturing Industry Based on the Education Intensity Index Offer a New Perspective on Innovation, S&T, R&D, and Industrial Policies?
Atakan Akıncı *(Piri Reis University, Türkiye)*

Place-Based Industrial Policies in Türkiye: Implications on Technological Advancement
Ralph De Haas *(European Bank for Reconstruction and Development, UK)*
Cevat Aksoy *(European Bank for Reconstruction and Development, UK)*
Francesco Loiacono *(European Bank for Reconstruction and Development, UK)*
Yusuf Emre Akgündüz *(CBRT, Türkiye)*
Muhammed Hasan Yılmaz *(CBRT, Türkiye)*

From a Human-Centric Perspective: How Does the Automation-Driven Job Displacement in Industry 5.0 compared to that of Industry 4.0?
Naida Jahović *(Middle East Technical University, Türkiye)*

What is next for Türkiye? Trade, specialization, and growth considering the trilemmas of globalization
Emine Tahsin *(İstanbul University, Türkiye)*

Convenor: **Burçhan Sakarya** (Başkent University, Türkiye)

S18 HEALTH and DEMOGRAPHIC ECONOMICS

May 31 / 31 Mayıs 16:40-17:40 ÇSM 201

Fertility Preferences, Contraceptive Choices and Ideal Number of Children
Didem Pekkurnaz *(Başkent University, Türkiye)*

Gender Wage Gaps in Turkey: The Impact of Occupational Variation and Sectoral Informality
Leyla Ayşegül Kandemir *(Boğaziçi University, Türkiye)*

Convenor: **Zühal Özbay Daş** (Fenerbahçe University, Türkiye)

S19 REGINAL ECONOMICS AND LABOR

May 31 / 31 Mayıs 16:40-17:40 ÇSM 202

Regional Analysis of Overeducation in Türkiye
Bilge Eriş Dereli *(Marmara University, Türkiye)*
Narod Erkol *(MEF University, Türkiye)*

Spatial industrialization patterns and unemployment: Evidence from micro data
Burhan Can Karahasan *(MEF University, Türkiye)*

The Gender Distribution of "Good Jobs" in Turkey
Evren Gülser *(Işık University, Türkiye)*
Hasan Tekgüç *(Kadir Has University, Türkiye)*

Convenor: **Ayşe Aylin Bayar** (Istanbul Technical University, Türkiye)

S20 CENTRAL BANK REVIEW SPECIAL SESSION IV
Inflation Dynamics: Market Structures, Pricing Behaviours, and Expectations

May 31 / 31 Mayıs 16:40-17:40 ÇSM 203

Financial Conditions, Uncertainty and Expectations Errors
Petre Caraiani *(Bucharest University of Economic Studies, Romania)*
Nazlı Karamollaoğlu *(MEF University, Türkiye)*
Cihan Yalcin *(CBRT, Türkiye)*

Inflation Expectations and Household Spending in High Inflation: Evidence from a Randomized Control Trial
Emrehan Aktuğ *(Sabancı University, Türkiye)*
Orhan Erem Ateşağaoğlu *(Sabancı University, Türkiye)*

Convenor: **Cihan Yalcin** (CBRT, Türkiye)

S21 DIŞ TİCARET

May 31 / 31 Mayıs 16:40-17:40 ÇSM 204

İlaç Ar-Ge Harcamalarının Dış Ticaret Üzerindeki Etkisi: Makro ve Mikro Verilerle Bir Analiz
Alper Akpınar *(Ege Üniversitesi, Türkiye)*
Mert Abay *(Dokuz Eylül Üniversitesi, Türkiye)*
Bülent Kılıç *(Dokuz Eylül Üniversitesi, Türkiye)*
Sedef Akgüngör *(Dokuz Eylül Üniversitesi, Türkiye)*

Küresel Şoklar Gölgesinde Türkiye'nin Endüstri-İçi Ticareti: 2008–2023 Döneminin Analizi
Şerif Yüksel *(Istanbul Kültür University, Türkiye)*
İsmail Ertek *(Istanbul Kültür University, Türkiye)*

Türkiye'de Elektrikli Araç Satışlarının Gelecek Projeksiyonu: Kümeleme ve Bass Yayılım Modeli ile Bir Değerlendirme
Serkan Cebelli *(Doğuş Otomotiv, İstanbul Okan University, Türkiye)*
İrem Yalkı *(İstanbul Okan University, Türkiye)*

Convenor: **Ece Handan Güleryüz** (Marmara University, Türkiye)

ABSTRACTS

ÖZETLER

Macroprudential Policy and Inflation

Erdem Başçı[1]
TED University, Turkey
erdem.basci@tedu.edu.tr

Abstract
This paper focuses on the macroprudential dimension of monetary policy in its relation to inflation. Macroprudential policy has been eased substantially together with monetary and fiscal policies in many countries during the post Covid pandemic era. This easing has led to a significant monetization of government debt and hence has accentuated the effectiveness of the fiscal stimulus. The monetary expansion has led to an excess nominal expenditure growth and has hence been inflationary. This paper studies how the monetary expansion has begun through macroprudential easing in the US and how it has stopped after the subsequent normalization of macroprudential policy. The paper also argues why and how and why has the "money multiplier" ceased to be a useful concept in the post 2009 era after a massive expansion in bank reserves in the developed countries. Since then macroprudential policies, especially the capital adequacy requirements of Basel III, have become the binding constraints in the banking sector and therefore deserve more focus in academic studies.

Keywords: Macroprudential policy, Bank capital requirements, Broad money growth, Inflation.
JEL Codes: E31, E51, E52, E58

[1] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, TED University, 06420, Ankara, Türkiye. Phone: +90 312 5850429, e-mail: erdem.basci@tedu.edu.tr

Contextual Expectations: A Novel Framework for Modeling Inflation Dynamics

Ceyhun Elgin[2]
Bogazici University, Turkey
ceyhunelgin@gmail.com

Abstract
This paper introduces the Contextual Expectations (CE) framework, a novel approach to modeling inflation expectations. This approach aims to incorporate multiple dimensions of information and individual context. To this end, we develop a comprehensive mathematical formulation of the CE model, including a contextual relevance function that determines the weights assigned to different information sources. Theoretical analysis demonstrates that the CE model has significant implications for inflation dynamics, monetary policy effectiveness, and macroeconomic stability. A comparative analysis shows that the CE model can encompass both Rational Expectations and Adaptive Expectations as special cases while allowing for more complex dynamics. We also calibrate the model using Turkish economic data and conduct simulation exercises to illustrate its properties. Overall, the results suggest that the CE framework can provide valuable insights for monetary policy design and implementation, particularly regarding the role of central bank communication in shaping expectations. In the context of the Turkish economy, the model can also explain the recently observed inertia in inflation expectations in Turkey.

Keywords: expectation formation; monetary policy; inflation.
JEL Codes: D84; E31; E52

[2] **Correspondence:** Department of Economics, Bogazici University, 34342, Isranbul, Turkey. Phone: +90 536 326 7315, e-mail: ceyhunelgin@gmail.com

Ramadan and Food Prices: Evidence from Micro-level Data

Aslıhan Atabek-Demirhan[3]
Central Bank of the Republic of Türkiye
aslihan.atabek@tcmb.gov.tr

Saide Simin Bayraktar[4]
Central Bank of the Republic of Türkiye
simin.bayraktar@tcmb.gov.tr

Muhammed Bahça
Central Bank of the Republic of Türkiye
muhammed.bahca@tcmb.gov.tr

Abstract

Ramadan, the Islamic month of fasting, have a notable impact on food prices in Türkiye driven by shifts in consumption patterns and supply chain dynamics. This study examines the relationship between Ramadan and food inflation, focusing on unprocessed food items. Using historical price data and inflation trends, the analysis reveals that Ramadan leads to price increases, contributing to food inflation, especially in the weeks leading up to, during and after Ramadan. Additionally, using high-frequency retail market price data, the study analyzes price fluctuations before, during, and after Ramadan to identify seasonal trends. The findings reveal that, meat products experience the most pronounced price fluctuations, driven by increased household demand and potential supply constraints. Understanding these seasonal price movements is crucial for policymakers and market regulators to implement effective strategies, such as supply chain improvements and market monitoring, to stabilize food prices during Ramadan. This research contributes to the broader literature on food price seasonality and offers insights for managing price fluctuations during religious and cultural events.

Keywords: Seasonality, food prices, Ramadan effect.
JEL Codes: C81, C82, E31.

[3] All views and opinions expressed here are of the authors and do not necessarily represent the official views of the Central Bank of Republic of Türkiye and its staff.

[4] **Correspondence:** Foreign Economic Relations Department, Central Bank of the Republic of Türkiye, İstiklâl Street No:10 Ulus-Ankara, Türkiye. Phone: +90 312 507 80 22 e-mail: simin.bayraktar@tcmb.gov.tr

Banks' Non-Interest Income and Bank Risk: Turkey Case

Aykut Şengül
Central Bank of Republic of Turkey, Turkey
aykut.sengul@tcmb.gov.tr

Olcay Demirboğa
Central Bank of Republic of Turkey, Turkey
olcay.demirboga@tcmb.gov.tr

Mehmet Hanifi Ateş[5]
Central Bank of Republic of Turkey, Turkey
hanifi.ates@tcmb.gov.tr

Abstract
The banking sector's balance sheet assets have been increasing along with Turkey's Gross Domestic Product (GDP) over the years, and Turkish banks continue to be the main source of finance for retail and commercial customers. In addition, the importance of non-bank financial institutions and financial technology companies is increasing day by day. The continuation of traditional banking and the continuation of new products and services are only possible with the increase in banking revenues. As the product diversifies, banking income increases; As competition increases, developments in favor of the end user reveal.
In this study, the effect of non-interest income on bank risk is analyzed and the relationship between different models on the basis of sector groups is examined. It is possible to collect the contribution of the study to the literature in three main subjects. The first is to evaluate the banks individually by ordering them according to their sizes and classifying them according to their capital, secondly, to determine whether there is a significant difference in the risks of the banks listed on the stock exchange, and finally to determine how the change in some of fee and commission items affects the risk of banks.

Keywords: Noninterest income, Bank performance, Determinants of bank risk, ZSCORE.
JEL Codes: G21, G28, G32

[5] **Correspondence:** Central Bank of Republic of Turkey, 61040, Trabzon, Turkey. Phone: +90 4622302580 ex: 1201, e-mail: hanifi.ates@tcmb.gov.tr

Does Sustainability Matter in Differentiating Between Distressed and Healthy Firms?: Machine Learning-Based Evidence from BIST Non-Financial Corporates[6]

Zehra Çavuşoğlu Adıgüzel[7]
Central Bank of the Republic of Turkiye, İstanbul
zehra.cavusoglu@tcmb.gov.tr

Canan Özkan, PhD
Central Bank of the Republic of Turkiye, İstanbul
canan.ozkan@tcmb.gov.tr

Mehmet Hanifi Ateş
Central Bank of the Republic of Turkiye, İstanbul
hanifi.ates@tcmb.gov.tr

Abstract

This study investigates whether or not sustainability matters in differentiating between distressed and healthy (financially sound) companies, as a tool for financial decision making. A novelty of the article is that it integrates sustainability-related indicators into the usual models that focus solely on financial indicators to predict financial distress. Using firm-level data of BIST-All non-financial corporates with environment, social, governance (ESG) scores for the period 2020-2023, various machine learning models (Random Forest, Extreme Gradient Boosting (XGBoost), Light Gradient Boosting (LightGBM) and Logistic Regression) are employed. The estimation results indicate that quick ratio and net profit margin are strongly negatively associated with financial stress. More interestingly, higher scores on the environmental pillars are strongly associated with a lower probability of financial distress. Individual social and governance pillar scores as well as ESG scores have also negative associations with corporate stress, although these interrelations are relatively small compared to the one that the environmental pillar score has.

Keywords: Distressed Firms, Healthy Firms, Sustainability, Machine Learning, ESG Scores, BIST-All, Quick ratio, Net Profit Margin, Environmental Pillar Score, Social Pillar Score, Governance Pillar Score
JEL Codes: G11, G3, G32, M14, Q56

[6] The views expressed within are those of the authors and do not reflect the official view of the institutions they are affiliated with.

[7] **Correspondence:** Central Bank of the Republic of Turkiye, 34768, İstanbul, Turkiye. Phone:+90 216 7735078, e-mail: zehra.cavusoglu@tcmb.gov.tr

Sectoral Connectedness: Evidence from the Istanbul Stock Exchange

Hazar Altınbaş
Fenerbahçe University, Turkey
hazar.altinbas@fbu.edu.tr

Tuğba Baş[8]
Fenerbahçe University, Turkey
tugba.bas@fbu.edu.tr

Abstract
Global and local uncertainties, such as economic crises, political instability, and unforeseen events significantly affect financial markets by increasing volatility and altering risk-return dynamics. The Istanbul Stock Exchange (BIST) offers a unique setting for studying these effects due to its sensitivity to both global shocks (e.g., COVID-19) and domestic events (coup attempt). In this context, understanding sectoral connectedness is crucial for identifying transmission channels of shocks, as events often affect sectors differently. This study examines return connectedness among 15 major BIST sectoral indices from 2009 to 2025 using dynamic connectedness measures (Diebold and Yılmaz 2012; 2014) with a time-varying parameter vector autoregressive model (Antonakakis et.al., 2020). Our findings indicate the varying degrees of sectoral connectedness throughout the analysis period. We further employed Principal Component Analysis on sectoral index returns to extract latent factors representing common market dynamics. A subsequent change point analysis revealed structural breaks, highlighting key periods of market regime shifts. We then combine these findings with changes in connectedness structure to deepen understanding. By demonstrating how sectoral interconnectedness shifts in response to global and local shocks, our research provides valuable guidance for asset allocation, particularly during volatile market conditions and policymaking, to effectively manage stress in the market.

Keywords: Sectoral connectedness, Istanbul Stock Exchange, market volatility and shock transmission.
JEL Codes: G10, G15, C32

[8] **Correspondence:** Faculty of Economics, Administrative and Social Sciences, Fenerbahçe University, 34758, Istanbul, Turkey. Phone: +90 216 9101907, e-mail: tugba.bas@fbu.edu.tr

Co-Bubble Transmission between Meme Coins and Major Cryptocurrencies: A Network Analysis

Özkan Haykır[9]
Nigde Omer Halisdemir University, Turkey
ozkanhaykir@gmail.com

İbrahim Yağlı
Nevsehir Haci Bektas Veli University, Turkey
ibrahimyagli09@gmail.com

Gökçe Avbaz
Nigde Omer Halisdemir University, Turkey
gokceavbaz@gmail.com

Abstract
Meme coins, such as Dogecoin, exhibit high volatility primarily driven by speculation, social media influence, and retail investor sentiment. In contrast, major cryptocurrencies like Bitcoin is generally perceived as more stable and influenced by institutional investment. Given these differences, understanding the dynamics of bubble formation and the transmission of speculative behavior between meme coins and major cryptocurrencies is a critical area of research. This study investigates co-bubble transmission between the 10 largest cryptocurrencies by market capitalization and the 10 largest meme coins, analyzing their interconnectedness through network analysis. The sample period spans from January 1, 2024, to March 15, 2025. First, we employ the dual-scale log-periodic power law singularity (DS-LPPLS) model to identify positive and negative bubble days for each cryptocurrency. Next, we construct a co-bubble matrix following the methodology of Chen et al. (2024) and utilize the minimum spanning tree (MST) approach to generate a co-bubble network encompassing all cryptocurrencies. Lastly, we analyze the dynamics within and between the two groups—major cryptocurrencies and meme coins—to assess intra-group and cross-group bubble transmission patterns. The findings indicate the presence of co-bubble transmission between major cryptocurrencies and meme coins, suggesting interconnected speculative dynamics across these asset classes.

Keywords: Co-bubble, network analysis, cryptocurrencies.
JEL Codes: C22, E3

[9] **Correspondence:** Department of Finance and Banking, Faculty of Economics and Administrative Sciences, Nigde Omer Halisdemir University, 51240, Nigde, Turkey. Phone: +90 5359378604, e-mail: ozkanhaykir@gmail.com

Artificial Intelligence, Trade, and Firm Dynamics

Suleyman Gozen
School of Economics, University of Bristol, United Kingdom
suleyman.gozen@bristol.ac.uk

Pinar Gunes
Business School, University of Sussex, United Kingdom
P.Gunes@sussex.ac.uk

Mehmet Furkan Karaca[10]
Essex Business School, University of Essex, United Kingdom
m.f.karaca@essex.ac.uk

Abstract
This paper investigates the role of artificial intelligence (AI) workers in shaping firm sales through trade channels. We provide novel empirical evidence on the association between the AI workforce and firm-level sales across the firm-size distribution, with a particular focus on domestic and foreign sales. Using a propensity score matching approach, we establish causal estimates of the impact of AI workers on firm sales. Our results show that the presence of AI workers leads to an approximately 18.6% increase in total sales. Furthermore, we find that this positive impact is even stronger for exporting firms, suggesting that AI can provide advantages in international markets. Examining the relationship across the firm-size distribution, we observe that the positive association between AI workers and sales becomes weaker as firm size and AI worker share increase, indicating potential diminishing returns to expanding the AI workforce beyond a certain point. Our event study analysis offers additional insights into trade channels and firm size heterogeneity, revealing that smaller firms benefit more from AI in domestic sales, while larger firms experience greater gains in foreign sales. To illustrate the underlying mechanisms behind our empirical findings, we develop an illustrative model that incorporates AI as a production input alongside production labor, with a focus on trade channels under firm heterogeneity. Our model delivers equilibrium characterizations consistent with our empirical insights, showing that lower AI adoption costs and reduced trade costs lead to increased AI adoption and higher productivity, particularly among exporting firms.

Keywords: Artificial Intelligence, Trade, Firm Dynamics, Firm Size Distribution, Causal Inference.
JEL Codes: D22, F14, F16, L11, L25, O33

[10] **Correspondence:** Essex Business School, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, United Kingdom. Phone: +44 (0) 1206 876583, e-mail: m.f.karaca@essex.ac.uk

Moral Hazard in Crop and Livestock Insurance

Ahmet Bağcı[11]
Ministry of Agriculture and Forestry
ahmtbgc81@gmail.com

Müşerref Küçükbayrak
Central Bank of the Republic of Türkiye
muserref.kucukbayrak@tcmb.gov.tr

Abstract
Due to rapid population growth and shrinking arable land, role of agricultural production in global economy is growing significantly. However, it is also inherently risky, subject to unpredictable events such as drought, extreme weather conditions, floods, frosts, pests and volatility in the markets. Producers often turn to crop and livestock insurance as a financial safety net in order to mitigate these risks. Even though insurance can provide essential protection, it can also introduce complex behavior dynamics. Among them, moral hazard and adverse selection arise because of asymmetric information. Moral hazard implies that optimal decision of insured producer may change as a result of the insurance contract. Since the insurance contract reduces the loss associated with insured event, such changes in behavior will normally increase severity of loss or probability of the event occurring. Adverse selection means that people who are more likely to suffer the insured event will be more willing to purchase insurance at a given price. This paper analyzes moral hazard in crop and livestock insurance using a unique dataset of administrative records on all insured producers during 2006-2024 in Türkiye. We find that there is a risk of moral hazard when farmers are covered by crop insurance. This means that farmers will not take the necessary precautions to protect their crops, leading to greater losses.

Keywords: Moral hazard, crop insurance, livestock insurance.
JEL Codes: D22, D24, G22, Q20.

[11] **Correspondence:** Deputy Minister for Agriculture and Forestry of the Republic of Türkiye. e-mail: ahmtbgc81@gmail.com

Firm Assets, Credit Utilization and Price Expectations

Yusuf Emre Akgündüz
Central Bank of Republic of Türkiye, Türkiye
yusuf.akgunduz@tcmb.gov.tr

Mehmet Selman Colak
Central Bank of Republic of Türkiye, Türkiye
Selman.Colak@tcmb.gov.tr

Merve Demirbas Ozbekler[1]
Central Bank of Republic of Türkiye, Türkiye
Merve.DemirbasOzbekler@tcmb.gov.tr

Muhammed Hasan Yilmaz
Central Bank of Republic of Türkiye, Türkiye
Muhammed.Yilmaz@tcmb.gov.tr

Abstract
Firms' expectations about the prices of the goods and services they produce and their pricing strategies are a significant supply-driven factor affecting the inflation outlook and price stability. In fact, firms aiming to hedge against inflation uncertainty during periods of strong upward price pressures prefer to operate with high levels of cash equivalents and inventories (stocks), considering the possible high input costs in the following period. Using the case of Türkiye, this study analyzes the correlation between firms' balance sheet composition and their pricing expectations in periods when inflationary pressures gain strength and different monetary policy strategies (easing and tightening) were implemented. From a theoretical perspective, firms that have high levels of inventories are expected to be less likely to change their prices when demand conditions weaken (such as during monetary tightening) due to their relatively lower need to maintain production. On the other hand, if firms with large inventories also utilize a high amount of credit, the upside deterioration in price expectations is expected to increase amid shrinking demand conditions. In this case, increased financing costs due to monetary tightening and the effort to maintain production against contracting demand may play a role. The results of this analysis suggest that firms operating with high levels of inventory and liquid assets have much higher price expectations during periods of monetary easing. Moreover, it takes time for heightened price expectations of these firms to return to historical averages during periods of monetary tightening. Additional analysis reveals that the high course of price expectations is more pronounced for firms with high loan debt during periods of monetary expansion.

Keywords: Firm behavior, inflation expectations, monetary policy.
JEL Codes: D22, D84, E31, E52, E58

[1] **Correspondence:** Central Bank of the Republic of Türkiye Head Office Hacı Bayram Mah. İstiklal Cad. No:10 06050 Ulus Altındağ Ankara. Phone: (+90 312) 507 50 00, e-mail: Merve.DemirbasOzbekler@tcmb.gov.tr

Productivity Under Supportive and Hostile Pressure: Evidence from a High-Stakes Natural Experiment

Alperen Koçsoy[12]
Ankara Hacı Bayram Veli University, Turkey
alperen.kocsoy@hbv.edu.tr

Abstract
This paper examines the causal impact of social pressure on worker productivity in high-stakes competitive environments. Leveraging a natural experiment that exogenously altered the presence of external scrutiny, we compare periods with and without external pressure, distinguishing between supportive and hostile social contexts. Using a staggered difference-in-differences design, we estimate the effect of these varying conditions while controlling for objective performance expectations. This framework allows for a systematic comparison of how different social environments shape productivity and influence performance evaluations in highly competitive settings. By examining both supportive and hostile conditions separately, the study highlights the role of external scrutiny in shaping individual effort and output. The findings contribute to the broader literature on workplace performance, external influences on productivity, and behavioural responses to pressure. Additionally, the study underscores the importance of accounting for social context when assessing worker performance, particularly in settings where external evaluation plays a crucial role. By isolating the effects of supportive and hostile conditions, this paper offers new insights into the relationship between social scrutiny and productivity.

Keywords: External scrutiny, worker productivity, performance.
JEL Codes: D91, J24, L23.

[12] **Correspondence:** Department of Economics, Faculty of Economics, Ankara Hacı Bayram Veli University, 06500, Ankara, Turkey. Phone: +90 506 982 44 55, e-mail: alperen.kocsoy@hbv.edu.tr

The Impact of Corruption on International Plastic Waste Trade: An Empirical Analysis

Emrah Er
Ankara University, Turkey
emrah.er@politics.ankara.edu.tr

Işıl Şirin Selçuk[13]
Bolu Abant İzzet Baysal University, Turkey
isilselcuk@ibu.edu.tr

Abstract
The global plastic waste crisis is one of the most urgent environmental challenges today, made worse by international trade systems that are supposed to support recycling but often funnel waste into places that can't handle it safely. This research proposes investigating the under-explored role of corruption in shaping international plastic waste trade. We hypothesize that corruption in both exporting and importing nations facilitates illicit trade by weakening environmental enforcement, lowering transaction costs for illegal activities, and distorting regulatory frameworks. Using panel data techniques and employing datasets from Comtrade, the Corruption Perceptions Index, and World Governance Indicators, this study will empirically examine the causal effect of corruption levels on bilateral plastic waste trade flows across a broad sample of countries and over time. The econometric model will incorporate country and time fixed effects and robust control variables to isolate the impact of corruption. Therefore, rather than focusing on the dynamics of waste trade, the study also looks at the economic and environmental consequences of corruption and policy gaps in this sector. In other words, the expected findings will provide new evidence on the link between corruption and environmental crime in the waste sector and inform policy recommendations for strengthening anti-corruption measures in trade and environmental governance. Through this, the study seeks to develop strategies to tackle illegal plastic waste trade, support sustainable waste management, and strengthen international cooperation, with a focus on understanding the impact of corruption.

Keywords: Plastic waste trade, corruption, regulatory enforcement, global waste management.
JEL Codes: F18, Q53, D73

[13] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Bolu Abant İzzet Baysal University, 14030, Bolu, Turkey. Phone: +90 374 2541000 ex: 5464, Fax: +90 374 2534521, e-mail: isilselcuk@ibu.edu.tr

Cross Country Development Index (CCDI) and Environmental Kuznets Curve (EKC)

Adem Gök[14, 15]
Kırklareli University, Çukurova University, Türkiye
adem.gok@klu.edu.tr

Abstract
5 Cross-Country Development Indexes (CCDI) were obtained. The resulting CCDI1 consists of 130 countries, CCDI2 consists of 112 countries, CCDI3 consists of 99 countries, CCDI4 consists of 127 countries and CCDI5 consists of 87 countries. Dimension 1, Institutional Development, and Dimension 6, Environmental Development, are included in all 5 indices with the same scope. CCDI2 is the index with the widest coverage of the Economic Development dimension. CCDI3 is the index with the widest coverage of the Social Development dimension. CCDI4 is the index with the widest coverage of the Equality dimension. CCDI5 is the index with the widest coverage of the infrastructure dimension.
A 1-year lag of CO2 emissions (l.co2) has a positive significant effect on current CO2 emissions (co2). In all 5 specifications, the relevant development index has a positive significant effect on CO2 emissions and the square of the relevant development index has a negative significant effect on CO2 emissions. Considering both results, it is found that there is an inverted U curve, i.e. Environmental Kuznets Curve (EKC) relationship between development and CO2 emissions. In fact, by testing the inverted U curve relationship in each of the 5 specifications, the existence of an inverted U relationship or EKC is proven.
For each country group, development is found to have a negative significant effect on CO2 emissions. Hence, a fallacy of composition exists regarding the results of the empirical analysis.

Keywords:. CO2 Emissions, Cross Country Development Index, EKC, System GMM, Institutional Development, Economic Development, Social Development, Equality, Technological Development, Environmental Development.
JEL Codes: C33, O11, O20, O50

[14] **Correspondence:** Department of Economics, Kırklareli University, 39000, Kırklareli, Türkiye. e-mail: adem.gok@klu.edu.tr
[15] This study was supported by TUBITAK (the Scientific and Technological Research Council of Turkey). TUBITAK-ARDEB 3005 Research Project No: 123K292.

Allocation of Clean and Dirty Innovation in the Presence of Fossil Energy Cost and Technology Spillover: A Directed Technical Change Model

Bilal Çayır[16, 17]
Hasan Kalyoncu University, Turkey
bilal.cayir@hku.edu.tr

Onur Yeni
Hacettepe University, Turkey
oyeni@hacettepe.edu.tr

Abstract
Economic research addresses concerns about the productivity benefits of fossil energy in environmentally harmful production and suggests that technological change may serve as a driving force in mitigating global warming. This study develops a marginally modified directed technical change model to examine how industrial productivity levels, fossil energy costs, and technology spillovers shape the allocation of innovation between clean and dirty intermediate industries. Scientists direct their research efforts based on economic incentives, influencing the distribution of innovations. Our findings highlight three key factors that drive this process: the substitution rate between clean and dirty technologies, the strength of technology spillovers, and the fossil energy costs. Strong technology spillovers help close the productivity gap between industries, reinforcing the shift to clean technologies when substitution is high. Meanwhile, rising fossil energy costs encourage clean innovation when substitution and spillovers are strong but lead to efficiency improvements in dirty technologies when substitution is low. These results highlight the market-driven forces that guide technological transitions in the absence of policy interventions.

Keywords: Technology spillover, energy cost, innovation.
JEL Codes: 033, Q41, Q55.

[16] **Correspondence:** Department of Economics, Faculty of Economics, Administrative and Social Sciences, Hasan Kalyoncu University, 27000, Gaziantep, Turkey. Phone: +90 5300695618, e-mail: bilal.cayir@hku.edu.tr
[17] This study is based on the PhD thesis of the first author at Hacettepe University.

Striking While the Iron Is Hot vs Steady Does It: On the Welfare Gains from Cyclical Fluctuations in Aggregate Hours Worked

Christian Jensen[18]
University of South Carolina, USA
cjensen@alumni.cmu.edu

Abstract
Hours worked fluctuate in tandem with productivity over the business cycle, presumably to strike while the iron is hot, thus raising the average efficiency of production over time, increasing the number of goods obtained per hour of work. However, common utility functions imply a preference for smoothness that penalizes fluctuations in leisure. Furthermore, part of the fluctuations in aggregate hours worked over the business cycle are along the extensive margin, involving layoffs that lead to spells of unemployment and the loss of firm-specific human capital, as well as hiring that requires costly searches for workers and employers. Consequently, one might expect the rewards for enduring such costly adjustments to be correspondingly large. However, even when substituted with innocuous intensive-margin adjustments, we find that the gains to the economy from cyclical fluctuations in aggregate hours are trivially small. In terms of welfare, at most the equivalent of .12% of steady-state consumption, or $66 per capita per year in the U.S. in 2023, according to standard real business cycle models. Even when pushing the calibration to the extreme, the gains remain below .5% of consumption or $275.

Keywords: Aggregate hours worked, cyclical fluctuations.
JEL Codes: E32, E24

[18] **Correspondence:** Department of Economics, Darla Moore School of Business, University of South Carolina, USA. Phone: +1 8037772786, e-mail: cjensen@alumni.cmu.edu

The Impact of the Kahramanmaraş Earthquakes on the Turkish Labor Market: A Micro Level Analysis

Okan Akarsu
Central Bank of the Republic of Türkiye
okan.akarsu@tcmb.gov.tr

Abdurrahman Aydemir
Sabancı University
abdurrahman.aydemir@sabanciuniv.edu.tr

Muhammet Enes Çıraklı
Central Bank of the Republic of Türkiye
muhammetenes.cirakli@tcmb.gov.tr

Huzeyfe Torun
Central Bank of the Republic of Türkiye
huzeyfe.torun@tcmb.gov.tr

Abstract
This study investigates the labor market consequences of the devastating February 2023 Kahramanmaraş earthquakes in southeastern Turkey, which profoundly disrupted regional economies, causing extensive loss of life, displacement, and infrastructural damage. Utilizing unique administrative datasets combining firm-level financial statements with employer-employee matched records, we employ a difference-in-differences methodology complemented by an event-study approach to identify causal impacts on labor market outcomes. Our analysis reveals substantial disruptions, including increased internal migration (approximately 2 percentage points), higher probabilities of labor market exits (2.5 percentage points), prolonged unemployment spells (3 percentage points), and a decline in annual wage growth (approximately 2.6 percent). These effects exhibit pronounced heterogeneity across firm size, wage levels, skill groups, sectors, and gender. Workers in smaller firms and lower-wage earners experienced more severe consequences, facing greater displacement, unemployment, and wage losses. Gender disparities emerged distinctly, with female workers disproportionately affected in terms of employment stability and prolonged labor market exits

Keywords: Earthquake, labor market, wages, difference in difference
JEL Codes: J21, J31, R11, Q54

The Effects of Trade Openness on Employment: The Case of the Manufacturing Sector in Morocco

Nor-eddine OUMANSOUR[19],
Mohammed V University in Rabat, Morocco
noreddine.oumansour@um5.ac.ma

Ibtihal MIH
Mohammed V University in Rabat, Morocco
Ibtihal_mih@um5.ac.ma

Abstract
The analysis of the impacts of different macroeconomic policies on income distribution, social protection regulation, productivity, and employment is increasingly central to the concerns of public authorities, unions, employers' organizations, and academic researchers in developing countries. The main policies in question are tax reforms and the liberalization of foreign trade through the signing of free trade agreements. In this context, this article proposes an empirical evaluation of the impact of trade openness on employment. It examines, within the framework of a panel data model, the effect of trade on employment in the Moroccan industrial sector. To achieve this, econometric methods are employed to account for data heterogeneity, ensuring that the conclusions are robust. Our econometric study utilizes various estimation methods recently developed within the framework of panel data, drawn from a sample of five Moroccan industrial sectors over the period from 1988 to 2022. The results of the estimations indicate that value-added and variables measuring trade have a positive impact on employment, while wages exert a negative impact.

Keywords: international trade, Employment, fixed effects model.
JEL Codes: F16, J30, D24

[19] **Correspondence:** Department of Economics, FSJES-Agdal, Mohammed V University, BP 721 Boulevard des Nations Unies Rabat-Morocco, e-mail: noreddine.oumansour@um5.ac.ma

Labor Market Mobility and Wage Dynamics

Zeynep Yılmaz[20]
CBRT
zeynep.yilmaz@tcmb.gov.tr

Hatice Burcu Gürcihan
CBRT
burcu.gurcihan@tcmb.gov.tr

Barbaros Eriş
CBRT
barbaros.eris@tcmb.gov.tr

Abstract
Using administrative data from the Social Security Institution of Turkey (SGK), we examine how job-to-job transitions affect wage dynamics, leveraging firm-level variation. We find that job-to-job mobility is a key driver of wage inflation among job stayers, even after accounting for compositional effects. These findings are robust to analyses using sectoral and regional variation. We distinguish between job switchers—those moving between jobs from existing employment—and new hires entering from unemployment or outside the labor force. The pace of job-to-job reallocation emerges as the main factor influencing wage growth for stayers. This effect is especially strong within certain occupational groups, highlighting how wage responsiveness to labor market mobility varies across different segments of the workforce.

Keywords: Wage Level and Structure, Wage Differentials
JEL Codes: J30, J31

[20] **Correspondence:** Central Bank of the Republic of Türkiye, İstanbul, Turkey. Phone: +90 543 8618387 e-mail: zeynep.yilmaz@tcmb.gov.tr

Inflation Dynamics: An Agent-Based Modeling Approach to Market Structures, Pricing Behaviors, and Expectations

Şükrü C Demirtaş[21,]
Yildiz Technical University, Turkey
demirtasukru@gmail.com

Senem Çakmak Şahin
Yildiz Technical University, Turkey
cakmaks@yildiz.edu.tr

Abstract
The persistence of inflation in both advanced and developing economies necessitates a deeper understanding of its underlying mechanisms. This study presents an agent-based model (ABM) that explores the interplay between market structures, pricing behaviors, and evolving expectations in shaping inflationary outcomes. The model incorporates firms, consumers, a central bank, and investors, capturing their interactions under external shocks such as supply chain disruptions, energy price fluctuations, and trade policy changes. Firms set prices based on cost structures and profit markups, while consumers adjust their consumption patterns and inflation expectations dynamically. The central bank responds to inflation deviations by adjusting interest rates, whereas investors reallocate wealth based on market conditions. The parametrization of key economic variables allows for scenario testing, offering insights into inflation management strategies. Simulation results illustrate the non-linear and feedback-driven nature of inflationary dynamics. This research contributes to economic policy discussions by demonstrating how different monetary and fiscal interventions impact inflation trajectories.

Keywords: Inflation Dynamics, Agent-Based Modeling, Monetary Policy, Pricing Behavior.
JEL Codes: E31, E52, E63, D22, D84

[21] **Correspondence:** Graduate School of Social Sciences, Yildiz Technical University, ORCID ID: 0000-0002-6953-3599, İstanbul, Turkey.

The Impact of Global Supply Chain Pressure, Commodity Prices, and Climate Uncertainty on Inflation, Industrial Production, and Exports in Turkey: A Bayesian TVC-VAR Approach

Figen Tombak[22]
Yozgat Bozok University, Turkey
figen.tombak@bozok.edu.tr

Abstract
In recent years, the global economic system has been increasingly exposed to external shocks. In particular, pressures in global supply chains, fluctuations in commodity prices, and climate-related uncertainties have directly affected the macroeconomic balances of countries. In countries like Turkey, which have an open and globally integrated economy, it is important to understand how the effects of these shocks change over time. In this context, this study examines the effects of external shocks on inflation, industrial production, and exports in Türkiye using the Bayesian TVC-VAR method using data from the period 1998m01 to 2024m04. The analysis of time-varying coefficients reveals that global supply chain shocks and climate uncertainty increase inflation in the post-pandemic period, while exerting downward pressure on industrial production and exports. According to the impulse-response analysis, supply chain shocks initially cause inflation to rise, while industrial production responds positively in the periods after 2020 and 2022, and negatively in 2001 and 2008. The response of exports to these shocks is generally positive. While inflation responds negatively to commodity price shocks, industrial production responds positively, especially after the 2020 pandemic. The most pronounced inflationary responses to climate uncertainty occurred in the 2001 and 2008 crises.

Keywords: Global Supply Chain Pressure, Commodity Price, Climate Uncertainity Index, Bayesian TVC-VAR
JEL Codes: F01, Q02, Q54, C11

[22] **Correspondence:** Department of Economics, Faculty of Economics and Adminisrative Sciences, Yozgat Bozok University, 66100, Yozgat, Turkey. Phone: +90 5368268010, e-mail: figen.tombak@bozok.edu.tr

Decoding Price Setting Behavior: A Tendency Survey Approach in Türkiye

Aslıhan Atabek Demirhan[23]
Türkiye Cumhuriyet Merkez Bankası, Türkiye
aslihan.atabek@tcmb.gov.tr

Evren Erdoğan Coşar
Türkiye Cumhuriyet Merkez Bankası, Türkiye
evren.erdogan@tcmb.gov.tr

Abstract
Price setting behavior is critical factor for central banks as it determines the nature of price stickiness and influences the effectiveness of monetary policy. Understanding the extent and causes of price stickiness is essential for assessing inflation dynamics and guiding monetary interventions. While extensive literature explores this phenomenon, sector-specific insights particularly for Türkiye, remain fairly limited. This study investigates the pricing behavior of firms in Türkiye's manufacturing and services sectors using tendency surveys, offering a comparative perspective on price-setting dynamics. By analyzing firms' price-setting tendencies, expectations, and responsiveness to cost and demand shocks, we identify key heterogeneities in pricing strategies across sectors. Employing micro-level statistical and econometric techniques, we examine variations in price adjustments, asymmetries and persistence in pricing decisions. The findings of this study provide insights into how firms adjust prices in response to economic conditions, which is critical for designing effective monetary policies. By identifying sectoral differences in pricing behavior enables better understanding of inflation dynamics and anticipating inflationary pressures more accurately.

Keywords: Firm level pricing behavior, tendency surveys, manufacturing sector, services sector, Türkiye
JEL Codes: E31, D22, G20, L60

[23] **Correspondence:** Directorate General of Foreign Economic Relations, Central Bank of the Republic of Türkiye Hacı Bayram Mah. İstiklal Cad. No:10 06050 Ulus Altındağ Ankara. Phone: +90 312 507 8012, e-mail: aslihan.atabek@tcmb.gov.tr

Macroeconomic and Behavioral Determinants of Inflation Expectations in Türkiye: A Bootstrap Fourier ARDL Analysis

Aslı Güler[24]
OrduUniversity, Turkey
asliguler@odu.edu.tr

Abstract
Policymakers have increasingly recognized the importance of expectations management to achieve price stability. In this regard, identifying the factors that shape expectations to understand the expectation formation process is an indispensable part of effective policy design. However, while there is substantial literature on the determinants of inflation expectations in advanced economies, studies focusing on Türkiye remain relatively limited. Moreover, the influence of behavioral and psychological factors—such as confidence, optimism, and perceptions of risk and uncertainty—on inflation expectations has largely been overlooked. This study aims to address this gap by examining the potential impact of key macroeconomic, behavioral, and psychological variables on 12-month inflation expectations in Türkiye and to provide insights into how these factors shape inflation expectations in the Turkish economy. To this end, the study examines the long- and short-run relationships between past inflation rates, crude oil prices, exchange rate expectations, propensity to save, consumer confidence, and 12-month-ahead inflation expectations using the bootstrap Fourier ARDL method for the period 2013Q1–2024Q2. The findings indicate that inflation expectations are positively and strongly influenced by past inflation rates, oil prices, exchange rate expectations, and consumer confidence, while the propensity to save has a negative impact. The results suggest that inflation expectations are significantly and positively affected by past inflation rates, oil prices, exchange rate expectations, and consumer confidence. On the other hand, the tendency to save appears to have a negative influence on inflation expectations. These results underscore the critical role of perception management regarding these indicators in ensuring the effectiveness of expectation management.

Keywords: Inflation expectations, Monetary policy, Behavioral economics
JEL Codes: E31, E58, D84

[24] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Ordu University, 52300, Ordu, Türkiye. Phone: +90 452 323 86 96 ex:3037 , Fax: 04523238256, e-mail: asliguler@odu.edu.tr

Connection Between R&D and Pharmaceutical Trade: A Macro and Micro Data Analysis

Alper Akpınar[25,26,27]
Ege University, Turkey
alper.akpinar@ibg.edu.tr

Mert Abay[2]
Dokuz Eylul University, Turkey
mert.abay@ibg.edu.tr

Bülent Kılıç
Dokuz Eylul University, Turkey
bulent.kilic@deu.edu.tr

Sedef Akgüngör
Dokuz Eylul University, Turkey
sedef.akgungor@deu.edu.tr

Abstract
The study examines the impact of pharmaceutical R&D expenditures on pharmaceutical foreign trade by utilizing macro and microdata. The macro data is sourced from open-access databases provided by OECD and TURKSTAT, while the microdata analysis was conducted at the TURKSTAT data research center. The macro-level data analysis involves a cointegration test followed by estimating long-term coefficients. The results indicate that pharmaceutical R&D expenditures positively affect pharmaceutical exports in the long run, while they negatively affect pharmaceutical imports. In addition, pharmaceutical R&D expenditures positively affect total exports but not total imports. The micro-level data analysis involves POLS, fixed and random effect panel models. The findings reveal that pharmaceutical firm's R&D expenditure is positively correlated with exports and negatively correlated with imports. The macro and micro data findings align with our expectations, reinforcing each other intensely.

Keywords: Pharmaceutical R&D Expenditures; Pharmaceutical Trade; Health Economics; Time-Series Analysis; Panel Data Analysis.

JEL Classification: I10; C32; C33; F10.

[25] **Correspondence:** Department of Economics, Graduate School of Social Sciences, Ege University, Izmir, Turkiye. Phone: 05413857653, E-Mail: contact@alperakpinar.com.
[26] Project Researcher, Izmir Biomedicine and Genome Center.
[27] This study was supported by TUBITAK (the Scientific and Technological Research Council of Turkey). TUBITAK-ARDEB 1004 Research Project No: 20AG006.

İlaç Ar-Ge Harcamalarının Dış Ticaret Üzerindeki Etkisi: Makro ve Mikro Verilerle Bir Analiz

Özet

Çalışmada son yıllarda önem kazanan ilaç Ar-Ge harcamalarının ilaç dış ticaretine etkisi makro ve mikro veriler kullanılarak incelenmektedir. Makro veriler OECD ve TÜİK tarafından sağlanan açık erişimli veri tabanlarından elde edilmiştir. Mikro veriler ile yapılan analizler ise TÜİK veri araştırma merkezinde gerçekleştirilmiştir. Makro veri analizinde eşbütünleşme testinin ardından uzun vadeli katsayıların tahmini yapılmıştır. Sonuçlar, ilaç Ar-Ge harcamalarının uzun dönemde ilaç ihracatını pozitif yönde etkilerken, ilaç ithalatını negatif yönde etkilediğini göstermektedir. Bunun yanı sıra, ilaç Ar-Ge harcamaları toplam ihracatı pozitif etkilerken, toplam ithalatı etkilememektedir. Mikro verilerin analizi ise havuzlanmış en küçük kareler (POLS), sabit etkiler modeli ve rassal etkiler modeli kullanılarak gerçekleştirilmiştir. Bulgular, ilaç firmalarının Ar-Ge harcamaları ile ihracat arasında pozitif yönlü, ithalat arasında ise negatif yönlü bir ilişki olduğunu göstermektedir. Gerek makro, gerekse de mikro analizlerden elde edilen sonuçlar beklentilerle uyumlu ve birbirini destekler niteliktedir.

Anahtar kelimeler: İlaç Ar-Ge Harcamaları, İlaç Dış Ticareti, Zaman Serisi Analizi, Panel Veri Analizi.
JEL Kodları: I10; C32; C33; F10.

Economic Impacts of Potential Vaccines: The Case of Helicobacter Pylori in Türkiye

Mahir Tosunoğlu[28, 29]
Ege University, Türkiye
mtosunoglu00@gmail.com

Mert Abay
Dokuz Eylül University, Türkiye
mert.abay@ibg.edu.tr

Bülent Kılıç
Dokuz Eylül University, Türkiye
bulent.kilic@deu.edu.tr

Melih Kaan Sözmen
Katip Çelebi University, Türkiye
melihkaan.sozmen@ikcu.edu.tr

Abstract
Helicobacter pylori (H. pylori) infection contributes to significant health and economic burdens by causing serious diseases such as gastric cancer and peptic ulcers. These burdens manifest not only as direct healthcare costs but also as indirect economic impacts, including loss of workforce productivity. This study evaluates the cost-effectiveness of a potential H. pylori vaccine currently under development within the scope of the TÜBİTAK 1004 KORTUP (National Platform for Prevention and Treatment) project in Türkiye. A Markov model-based simulation analysis was employed, stratified by age groups, to assess the effectiveness of vaccination interventions in terms of life years gained (LYG) and quality-adjusted life years (QALY) up to the age of 79. The scenarios compare the potential vaccine intervention against a no-vaccination alternative. The analysis incorporates variables such as vaccine cost, direct medical costs associated with gastric cancer and peptic ulcers, vaccine efficacy, and discount rates. Deterministic cost-effectiveness and sensitivity analyses were conducted under various disease prevalence scenarios. According to the findings, the cost per benefit ($1,406/LYG and $1,583/QALY) remains well below the national per capita income ($14,714), indicating a high level of cost-effectiveness. Furthermore, a vaccinated individual gains approximately 2.4 more life years compared to an unvaccinated counterpart. Vaccination reduces disease burden, lowers healthcare expenditures, and contributes to a healthier workforce. In this regard, the vaccination program not only enhances individual well-being but also promotes long-term economic sustainability.

Keywords: Markov model, health economics, cost-effectiveness.
JEL Codes: C15, D00, I10, I18

[28] **Correspondence:** Department of Economics, Graduate School of Social Sciences, Ege University, Izmir, Türkiye. Phone: +90 554 2479523, e-mail: mtosunoglu00@gmail.com
[29] This study was supported by TUBITAK (the Scientific and Technological Research Council of Türkiye). TUBITAK-ARDEB 1004 Research Project No: 22AG076.

Potansiyel Aşıların Ekonomik Etkileri: Türkiye'de Helicobacter Pylori Örneği

Özet

Helicobacter pylori (H. pylori) enfeksiyonu, mide kanseri ve peptik ülser gibi ciddi hastalıklara yol açarak hem sağlık sistemi üzerinde maliyet baskısı oluşturmakta hem de iş gücü kaybı ve üretkenlik azalması gibi dolaylı ekonomik etkiler yaratmaktadır. Bu çalışmada, TÜBİTAK 1004 KORTUP (Korunma ve Tedavi Ulusal Platformu) projesi kapsamında geliştirilmekte olan potansiyel bir H. pylori aşısının Türkiye'de maliyet-etkililiği değerlendirilmektedir. Çalışmada Markov modeli tabanlı bir simülasyon analizi kullanılarak, yaş gruplarına göre sınıflandırma yapılmış ve aşılama müdahalelerinin etkililiği kazanılan yaşam yılları (LYG) ve kaliteye uyarlanmış yaşam yılı (QALY) cinsinden 79 yaşına kadar simüle edilerek değerlendirilmiştir. Senaryolar, potansiyel H. Pylori aşısı ile aşısız durumu karşılaştırmaktadır. Analizde, aşının maliyeti, mide kanseri ve peptik ülserin doğrudan tıbbi maliyetleri, aşı etkinliği, iskonto oranı gibi değişkenler dikkate alınmıştır. Farklı hastalık prevalans senaryoları altında deterministik maliyet-etkililik analizi, duyarlılık analizleri gerçekleştirilmiştir. Bulgulara göre fayda başına maliyet (1,406$/LYG ve 1,583$/QALY) kişi başına düşen milli gelirin (14,714$) altında kalarak oldukça maliyet etkilidir. Ayrıca H. Pylori aşısı yapılan bir hasta, aşı yapılmayan başka bir hastaya göre yaklaşık olarak 2.4 yıl daha fazla yaşam yılı kazanmaktadır. Aşılama, hastalık yükünü azaltmakta, sağlık harcamalarını düşürmekte ve iş gücünün sağlıklı kalmasına katkı sunmaktadır. Bu yönüyle aşılama programı hem bireysel refahı artırmakta hem de uzun vadede ekonomik sürdürülebilirliği desteklemektedir.

Anahtar Kelimeler: Markov model, sağlık ekonomisi, maliyet-etkililik.
JEL Kodları: C15, D00, I10, I18

The Decline in Fertility Rate in Turkey: The Impact of Economic and Socio-Cultural Factors

Derya Bilgin[30]
İstanbul Kültür Üniversitesi, Türkiye
d.bilgin@iku.edu.tr

Abstract
A decline in the birth rate may have various negative effects on the economy in the long run. One of the most important effects is the decline in the labour force. This is because as the population ages, the number of working-age individuals decreases while the number of retired population increases, which reduces productivity levels and slows economic growth. On the other hand, the pressure on social security systems increases. The decline in the birth rate leads to a decrease in the working population in the long run, creating problems in the financing of pension and health systems. When all these factors are taken into account, it is observed that the fertility rate in Turkey has been declining, and especially in recent years, the fertility rate has been below the population replacement rate of 2.1. In this study, which investigates the reasons for the decline in fertility rate in Turkey, data from the World Values Survey 7 (2017-2022) were utilised. Based on Becker's (1960) study, this study investigates the variables affecting the demand for children. In the study, in which the number of children had is taken as the dependent variable, the effects of economic variables, especially the social and cultural values of women on fertility are evaluated. It has been observed that the education level and income level of women and men play an important role on fertility rate, and it has also been determined that social and cultural values are also determinant.

Keywords: Fertility, Behavioural Economics, Social Capital, Child Demand
JEL Codes: J130, D910, D120, Z130

[30] İstanbul Kültür Üniversitesi, İİBF, İktisat bölümü

Türkiye'de Doğurganlık Oranının Düşüşü: Ekonomik ve Sosyo-Kültürel Faktörlerin Etkisi

Özet

Doğum hızının düşmesi, uzun vadede ekonomi üzerinde çeşitli olumsuz etkiler yaratabilmektedir. En önemli etkilerden biri, işgücünün azalmasıdır. Çünkü nüfus yaşlandıkça, emekli nüfus artarken çalışma çağındaki bireylerin sayısı azalmakta ve bu durum üretkenlik seviyelerini düşürürken ekonomik büyümeyi yavaşlatmaktadır. Diğer taraftan, sosyal güvenlik sistemleri üzerindeki baskı artmaktadır. Doğum hızının düşmesi, uzun vadede çalışan nüfusun azalmasına neden olarak emeklilik ve sağlık sistemlerinin finansmanında sorun yaratmaktadır. Bütün bunlar dikkate alındığında, Türkiye'de de doğurganlık hızının düştüğü, özellikle son yıllarda doğurganlık hızının nüfusun kendini yenileme oranı olan 2,1'in altında olduğu görülmektedir. Türkiye'de meydana gelen doğurganlık oranının düşmesinin sebeplerinin araştırıldığı bu çalışmada Dünya Değerler Anketi 7 (2017-2022) verilerinden yararlanılmıştır. Becker (1960)'ın çalışmasından yola çıkarak hazırlanan bu çalışmada çocuk talebini etkileyen değişkenler araştırılmaktadır. Sahip olunan çocuk sayısının bağımlı değişken olarak alındı çalışmada, ekonomik değişkenlerin yanında özellikle kadının sosyal ve kültürel değerlerinin de doğurganlığa olan etkileri değerlendirilmektedir. Doğurganlık oranı üzerinde kadının ve erkeğin eğitim düzeyi ile gelir seviyesinin önemli bir rol oynadığı görülmüş, ayrıca sosyal ve kültürel değerlerin de belirleyici olduğu tespit edilmiştir.

Anahtar Kelimeler: Doğurganlık, Davranışsal Ekonomi, Sosyal Sermaye, Çocuk Talebi
JEL Kodları: J130, D910, D120, Z130

Foreign Debt Spiral in The Last Two Decades in Turkey

Aynur Uçkaç[31]
Aydın Adnan Menderes University, Turkey
auckac@adu.edu.tr

Abstract
The focus in this paper is the structural specificity of foreign debt within the context of economic policies in the last two decades in Turkey. That the integration of Turkey to foreign markets and the formation of economic policies accordingly rendered foreign debt inevitable due to lack of domestic savings. It has been demonstrated in the paper that during the covered period Turkey suffers from twin deficit; both public deficit and foreign exchange deficit as well. Increased foreign debt due to such conditions has increased the dependency of Turkey to international capital markets. According to data, especially during the 2008 crisis, in the period between 2008-2024 the foreign debt stock that covered both private sector debt and short-run debts had reached to 525.800 million dollars by increasing at a rate of 74,1 % over the period. The issues that stem from such condition are manifold; firstly, default of any private debts would be covered by the state budget, and unpaid short-run debts would be consolidated under the same prerogative. It is natural that such conditions had detrimental effects in income distribution. Turkey has found herself sunk deeply in neoliberal policies as the result of resorting to foreign debt during crisis periods.

Key Words: Foreign Debt, Foreign Exchange Deficit, Political Economy
JEL Codes: H63, H62, F5

[31] **Correspondence:** Department of Economics, Faculty of Economics, Aydın Adnan Menderes University, 09800, AYDIN-Nazilli Turkey. Phone: +90 256 2206700 ex: 6755, Fax: +90 256 2206899, e-mail: auckac@adu.edu.tr

Türkiye'de 2000'li Yıllarda Oluşan Dış Borç Sarmalı

Özet

Bu çalışma Türkiye'de dış borçlanmanın ekonomi politiğine ve dış borcun yapısal özelliklerine odaklanmaktadır. Türkiye'nin uluslararası piyasalarla entegrasyonu sonucu oluşan ekonomi-politiği tasarruf yetersizliği nedeniyle kaynak arayışında dış borçlanmanın kaçınılmazlığını ortaya koymaktadır. Ele alınan dönemler içinde Türkiye ekonomisinin hem cari açık hem de mali açık veren bir ekonomi sarmalına sahip olduğu tespit edilmiştir. Bu şartlar altında büyüyen cari açık ve mali açık çıkmazı Türkiye ekonomisi açısından dış borçlanma yoluyla ülkenin uluslararası sermayeye bağımlı hale geldiğini ortaya koymaktadır. Verilere göre, Türkiye'nin özellikle 2008 krizi ve sonrasındaki dönemi kapsayan 2008-2024 yılları arasında toplam dış borç stoku yaklaşık olarak % 74,1 oranında artarak 525.800 milyon dolara ulaşmıştır. Bu artış içinde özel sektör borcunun ve kısa vadeli borçların da artmakta olduğu görülmektedir. Burada ortaya çıkabilecek en önemli sorunlar sırasıyla; şayet özel sektör dış borçları ödemede kendi yükümlülüğünü yerine getirmezse bunların toplumsallaştırılarak bütçeden ödenmesi söz konusu olabilmekte ve kısa vadeli borçlar konusunda da teorik olarak borcun zamanında ödenmemesi nedeniyle konsolidasyona gidilmesi riski bulunmaktadır. Bu sonuçların gelir dağılımında adaletsizliğin artmasına yol açması olasıdır. Türkiye'nin ekonomi politiği her yaşadığı krizde yeniden borçlanma yoluyla neoliberal politikalara bağlılığını daha da derinleştirmek zorunda kalmıştır.

Anahtar Kelimeler: Dış Borç, Cari Açık, Ekonomi Politik
JEL Kodları: H63,H62,F5

Institutions, Innovation, and Total Factor Productivity in Turkey: An Analysis of the 1923–2023 Period

Eşref Uğur Çelik[32]
Atılım University, Turkey
esref.celik@atilim.edu.tr

Elif Boduroğlu[33]
Atılım University, Turkey
elif.boduroglu@atilim.edu.tr

Abstract
Total Factor Productivity (TFP) represents the efficiency gains in production that arise from technological progress, innovation, education, and institutional structures, independent of input increases. The effectiveness of institutions plays a crucial role in economic growth and productivity improvements. Strong property rights, efficient regulatory frameworks, the rule of law, political stability, and good governance directly influence TFP.
This study constructs a TFP dataset for Turkey covering the period 1923–2023 using the growth accounting method and provides a historical analysis. The findings indicate that Turkey's TFP has followed a fluctuating pattern over time and has been significantly influenced not only by domestic and international economic and political developments but also by institutional transformation processes. The study particularly examines the effects of economic crises, structural reforms, trade policies, and changes in institutional capacity on TFP trends. The analysis highlights the critical importance of institutional stability, effective governance, and policies that foster innovation for ensuring long-term productivity growth. Accordingly, policy recommendations are presented to support sustainable economic development.

Keywords: Total factor productivity (TFP), Turkey's economic history, governance and productivity, institutional change
JEL Codes: O43,E02, O47

[32] **Correspondence:** Department of Economics, School of Business, Atilim University, 06805, Ankara, Turkey. E-mail: esref.celik@atilim.edu.tr
[33] **Correspondence:** Department of Business, School of Business, Atilim University, 06805, Ankara, Turkey. E-mail: elif.boduroglu@atilim.edu.tr

Kurumsal Yapılar, İnovasyon ve Türkiye'de Toplam Faktör Verimliliği: 1923-2023 Dönemi Üzerine Bir Analiz

Özet

Toplam Faktör Verimliliği (TFV), üretimde kullanılan fiziksel ve beşeri sermaye girdilerinden bağımsız olarak, teknolojik ilerleme, inovasyon, eğitim ve kurumsal yapılar gibi unsurların katkısıyla ortaya çıkan verimlilik artışını ifade eder. Kurumların etkinliği, ekonomik büyüme ve verimlilik artışında belirleyici bir rol oynar. Güçlü mülkiyet hakları, etkin düzenleyici çerçeveler, hukukun üstünlüğü, siyasi istikrar ve iyi yönetişim gibi faktörler TFV'yi doğrudan etkilemektedir.

Bu çalışma, Türkiye'nin TFV'sini 1923-2023 dönemi için büyüme muhasebesi yöntemiyle hesaplamakta ve tarihsel bir analiz sunmaktadır. Bulgular, Türkiye'de TFV'nin dönemler itibarıyla dalgalı bir seyir izlediğini ve iç-dış ekonomik, politik gelişmelerin yanı sıra kurumsal dönüşüm süreçlerinden önemli ölçüde etkilendiğini göstermektedir. Özellikle ekonomik krizler, yapısal reformlar, dış ticaret politikaları ve kurumsal kapasitedeki değişimlerin TFV üzerindeki etkileri incelenmiştir. Analiz, kurumsal istikrarın, etkin yönetişimin ve inovasyonu teşvik eden politikaların Türkiye'nin uzun vadeli verimlilik artışı için kritik olduğunu ortaya koymaktadır. Bu bağlamda, sürdürülebilir büyümeyi destekleyecek politika önerileri sunulmaktadır.

Anahtar Kelimeler: Toplam faktör verimliliği (TFV), Türkiye'nin ekonomik tarihi, Yönetişim ve verimlilik, kurumsal değişim.
JEL Kodları: O43,E02, O47

Comparative Analysis of Digital and Traditional Financial Inclusion in Türkiye in Provincial Level

Dilan Teber Koçer[34]
Central Bank of the Republic of Türkiye, Turkey
dilan.teberkocer@tcmb.gov.tr

Saygın Çevik[35]
Central Bank of the Republic of Türkiye, Turkey
saygın.cevik@tcmb.gov.tr

Aybüke Töre Altunel[36]
Central Bank of the Republic of Türkiye, Turkey
aybuketore.altunel@tcmb.gov.tr

Abstract
In recent years, the financial services industry has experienced a significant acceleration in technological adoption, leading to transformative changes in financial inclusion. This study attempts to construct digital and traditional financial inclusion indices to investigate the evolution of financial inclusion across Türkiye's provinces. To do this, we use data from the Banking Regulation and Supervision Agency, the Turkish Statistical Institute, the Banks Association of Türkiye, the Information and Communication Technologies Authority, and the Ministry of Trade. Financial Inclusion Indices consist of two dimensions: access to financial services and the usage of financial services. In the traditional Financial Inclusion Index, access and usage dimensions are analyzed using indicators such as ATM and branch penetration, card ownership, credit and deposit distributions, and credit performance ratios. The Digital Financial Inclusion Index, on the other hand, is constructed using technological innovation indicators such as e-commerce transactions, POS device penetration, and the number of mobile phone and broadband internet subscribers. To the best of the authors' knowledge, this study is the most extensive study that represents a comprehensive analysis of regional disparities in both digital and traditional financial inclusion across Türkiye.

Keywords: Financial inclusion, Financial access, Digital financial inclusion index, Digitization.
JEL Codes: F65, G29, G59, O31, O33

[34] **Correspondence:** Banknote Analysis Division, Issue Department, Central Bank of the Republic of Türkiye, Ankara, Türkiye, e-mail: dilan.teberkocer@tcmb.gov.tr
[35] Banknote Analysis Division, Issue Department, Central Bank of the Republic of Türkiye, Ankara, Türkiye, e-mail: saygın.cevik@tcmb.gov.tr
[36] Banknote Analysis Division, Issue Department, Central Bank of the Republic of Türkiye, Ankara, Türkiye, e-mail: aybuketore.altunel@tcmb.gov.tr

Türkiye'de Dijital ve Geleneksel Finansal Kapsayıcılığın İl Bazlı Karşılaştırmalı Analizi

Özet

Son yıllarda finansal hizmetler sektöründe gözlenen teknoloji kullanımındaki hızlı artış, finansal kapsayıcılıkta köklü değişimlere yol açmıştır. Bu çalışmada, Türkiye'de il bazında finansal kapsayıcılığın gelişiminin incelenmesi amacıyla dijital ve geleneksel finansal kapsayıcılık endeksleri oluşturulmuştur. Söz konusu endekslerin hesaplanmasında, Bankacılık Düzenleme ve Denetleme Kurumu, Türkiye İstatistik Kurumu, Türkiye Bankalar Birliği, Bankalararası Kart Merkezi, Bilgi Teknolojileri ve İletişim Kurumu ve Ticaret Bakanlığına ait veriler kullanılmıştır. Finansal Kapsayıcılık Endeksleri, finansal hizmetlere erişim ve finansal hizmetlerin kullanımı boyutlarından oluşmaktadır. Geleneksel finansal kapsayıcılık endeksinin erişim ve kullanım boyutları ATM ve şube yaygınlığı, kart sahipliği, kredi ve mevduat dağılımları ve kredi performans oranları gibi göstergeler kullanılarak analiz edilirken; dijital finansal kapsayıcılık endeksi, e-ticaret işlemleri, POS cihazı yaygınlığı, mobil telefon ve geniş bant internet abone sayıları gibi teknolojik yenilik göstergeleri kullanılarak oluşturulmuştur. Bu çalışma, Türkiye'de hem dijital hem de geleneksel finansal kapsayıcılıktaki bölgesel farklılıkların ayrıntılı olarak anlaşılmasına katkı sağlaması açısından önem taşımaktadır.

Anahtar Kelimeler: Finansal kapsayıcılık, Finansal erişim, Dijital finansal kapsayıcılık endeksi, Dijitalleşme.
JEL Kodları: F65, G29, G59, O31, O33

How Does COVID-19 Affect the Students' Experiences and Expectations?: Does Pandemic Really Matter?

Deniz Karaoğlan Yurtseven[37]
Gebze Technical University, Turkey
hdyurtseven@gtu.edu.tr

Burcu Düzgün Öncel
Marmara University, Turkey
burcu.duzgun@marmara.edu.tr

Abstract
This study examines the factors which possibly affect the probability of change in students' future education and occupation plans after the COVID-19 pandemic in Türkiye by using 2022 wave of Child Research Survey, prepared by Turkish Statistical Institute (TURKSTAT). In this study, we focus on the respondents between 13-17 years old who are enrolled in education. We first investigate the association between the obstacles the students face during pandemic and parents' socio-economic status, as well as household characteristics. The difficulties during the pandemic are listed as: Difficulty in reaching digital sources, having problems with internet, having problems regarding motivation, responsibility and having difficulty in studying and doing homework. Ordered probit estimation results suggest that children with more-educated mothers are less likely to have these difficulties, whereas children with unemployed or disabled fathers are more likely to experience these difficulties. Moreover, the prevalence of these difficulties significantly decreases as household income level rises and children from more conservative families are more likely to have difficulties during the pandemic. Next, we investigate the factors that may affect the probability of changing the students' future plans after pandemic. Probit estimation results suggest that father's employment status plays no significant role about students' expectations, whereas mother's education level does. We also find suggestive evidence that as household income level rises, probability of changing plans about the future decreases. Interestingly, if the student reports that he/she is usually unhappy or he/she has poor health status; the probability of changing future plans significantly increases, controlling for all other factors. Therefore, we conclude that the students' current mood is an essential factor that explains the variation in future plans and it needs to be addressed.

Keywords: COVID-19, High School Students, Expectations, Household Characteristics, Türkiye
JEL Codes: I10, I20

[37] **Correspondence:** Department of Economics, Faculty of Management, Gebze Technical University, 41400, Gebze,Kocaeli, Turkey. Phone: +90 262 605 1449, e-mail: hdyurtseven@gtu.edu.tr

Türkiye'nin Dijital Dönüşüm Endeksi

Ümit İzmen
Tekirdağ Namık Kemal Üniversitesi, Türkiye
uizmen@nku.edu.tr

Yılmaz Kılıçaslan
Anadolu Üniversitesi, Türkiye
ykilicaslan@anadolu.edu.tr

Yeşim Üçdoğruk Gürel[38]
Dokuz Eylül Üniversitesi, Türkiye
yesim.ucdogruk@deu.edu.tr

Özet
Bu çalışmanın amacı; Türkiye için dijital dönüşüm üzerinde etkili olan mevzuat, altyapı, kullanım ve beceri ile dönüşümün ekonomik ve toplumsal etki boyutlarını kapsayan bir dijital dönüşüm endeksi hesaplamaktır. Türkiye'nin dijital dönüşüme ne ölçüde hazır olduğu, dijital dönüşüm performansının iyileşip iyileşmediği, hangi alanlarda daha iyi, hangi alanlarda ise daha fazla iyileşmeye ihtiyaç olduğunun tespit edilmesi amacıyla Türkiye için hem genel bir endeks hem de dört bileşen ve on alt boyut için ayrı dijitalleşme endeks değerleri oluşturulmuştur. Ekosistem, Yeterlilik, Kullanım ve Dönüşüm ana bileşenleri altında 10 farklı alt başlıkta 61 gösterge üzerinden hesaplanarak hazırlanan bu endeks 2019-2023 yıllarını kapsamaktadır. Türkiye'nin dijital dönüşüm performansının zaman içinde değerlendirilmesi için önemli bir referans sağlamayı hedefleyen bu endekste, Türkiye'nin yanı sıra 139 ülkenin verileri kullanılarak endeks değerinin belirlenmesinde sadece Türkiye'nin dijitalleşmesi değil, diğer ülkelerin Türkiye'yle birlikte küresel dijital dönüşümdeki konumları da dikkate alınmaktadır. Türkiye dijitalleşme endeksi 2019-2023 yılları için beş üzerinden sırasıyla 2,90, 3,00, 3,20, 3,09 ve 3,09 olarak hesaplanmıştır. 2019'dan 2021'e kadar sürekli artış gösteren endeks, 2022 yılında itibaren düşüş göstermiş ve son iki yılda 3,09 olarak hesaplanmıştır. Ayrıca 2023 yılında, endeksi oluşturan dört alt bileşenden "Ekosistem" ve "Dönüşüm" alt bileşenlerinin endeks değerinin değişmediği, "Yeterlilik" alt bileşenin endeks değerinin düştüğü, "Kullanım" alt bileşenin endeks değerinin ise yükseldiği görülmektedir.

Anahtar Kelimeler: dijital dönüşüm, bilgi ve iletişim teknolojileri.
JEL Kodları: O30, L63.

[38] **Correspondence:** Department of Economics, Faculty of Business, Dokuz Eylül University, İzmir, Türkiye. Phone: +90 232 301 82 15, e-mail: yesim.ucdogruk@deu.edu.tr

The Future of Occupations: Evaluating Automation Risk with AI and Robotics

Egemen Can Toker[39]
Dokuz Eylul University, Turkey
egemencan.toker@deu.edu.tr

Kerim Eser Afşar
Dokuz Eylul University, Turkey
eser.afsar@deu.edu.tr

Abstract
During periods of accelerated automation, such as the Industrial Revolution, widespread unemployment, low wages, and related social crises emerged due to the substitution effect, particularly in jobs more suited for automation. However, as automation created new jobs (complementarity effect), these issues became less visible over time. Many consider AI to be a factor that will trigger a similar process. This study proposes a method to measure the automation risk posed by Artificial Intelligence (AI) and Robotics technologies on occupations. For this purpose, the definitions and task responsibilities of three occupations, which have attracted attention in the literature, were examined in detail among 436 occupations classified under ISCO-08. This information was shared with ChatGPT and DeepSeek via prompts, and they were asked to define a coefficient between 0 and 1 representing how these occupations would be affected by AI, along with a justification. When ChatGPT evaluated only Large Language Models (LLMs), it estimated an average exposure of 0.3 for Mining and Quarry Workers, 0.65 for Shop Sales Assistants, and 0.78 for Accounting and Bookkeeping Clerks. When robotics was included in the evaluation, these coefficients were estimated as 0.81, 0.78, and 0.88, respectively. For DeepSeek, these coefficients were 0.2, 0.57, and 0.74 when only LLMs were considered, and 0.77, 0.7, and 0.92 when robotics was included.

Keywords: artificial intelligence, ChatGPT, DeepSeek, occupation, technology.
JEL Codes: O33, J24, J21

[39] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Dokuz Eylül University, 35160, İzmir, Turkey. Phone: +90 232 420 41 80 ex: 10623, Fax: +90 232 420 17 89, e-mail: egemencan.toker@deu.edu.tr

Mesleklerin Geleceği: YZ ve Robotik ile Otomasyon Riskinin Değerlendirilmesi

Özet

Sanayi devrimi gibi otomasyonun hız kazandığı çağlarda özellikle otomasyona daha uygun işlerde ikame etkisi nedeniyle yaygın işsizlik, düşük ücretler ve buna bağlı sosyal krizler ortaya çıkmış daha sonrasında otomasyonun ortaya çıkarttığı yeni işlerle (tamamlayıcılık etkisi) bu sorunlar daha az görünür hale gelmiştir. YZ'yi benzer bir süreci ortaya çıkarak bir unsur olarak görenler hiç de az değildir. Bu çalışma Yapay Zekâ ve Robotik teknolojilerinin (YZ) meslekler üzerinde yaratacağı otomasyon riskinin nasıl ölçülebileceğine dair bir öneri geliştirmektedir. Bu amaçla ISCO-08 sınıflandırmasına göre tanımlanmış 436 meslekten, literatürde dikkat çeken 3'ünün tanımları ve bu mesleği icra ederken yapılması gereken görev ve sorumlulukların tümü detaylıca incelendi. Bu bilgiler, istemler aracılığıyla ChatGPT ve DeepSeek ile paylaşıldı ve onlardan bu mesleklerin YZ'den nasıl etkileneceğine dair 0 ile 1 arasında bir katsayı tanımlaması ve gerekçesini de açıkça belirtmesi istendi. ChatGPT sadece LLM'leri (Büyük Dil Modelleri) değerlendirdiğinde Maden ve Taş Ocağı işçiliği için ortalama 0,3; Mağaza Satış Asistanları için 0,65 ve Muhasebe ve Defter Tutan Memurlar grubu içinse 0,78 maruziyet buldu. Robotik değerlendirmeye katıldığında bu katsayılar sırasıyla 0,81; 0,78 ve 0,88 olarak tahmin edildi. DeepSeek için bu katsayılar sırasıyla sadece LLM'ler değerlendirildiğinde 0,2; 0,57 ve 0,74 iken robotik değerlendirmeye eklenince 0,77; 0,7 ve 0,92 olmuştur.

Anahtar Kelimeler: yapay zeka, ChatGPT, DeepSeek, meslek, teknoloji.
JEL Kodları: O33, J24, J21

Analysing the Effect of Structural Transformation on Income Inequality in Türkiye through Kuznets' Hypothesis: Evidence from the Augmented ARDL Methodology

Cem Arık[40]
Atatürk University, Türkiye
cem.arik@atauni.edu.tr

Kerem Fırat COŞKUN
Atatürk University, Türkiye
keremfirat.coskun@atauni.edu.tr

Abstract
Kuznets states that structural transformation, which refers to workers' movement from low-productivity to high-productivity activities and sectors, is a fundamental characteristic of rapid and sustained growth. Furthermore, during the early stages of transformation, employees encounter increasing inequality as they transition from sectors characterized by low average incomes and low intra-sectoral inequality (agriculture) to sectors with higher average incomes and considerable intra-sectoral inequality (manufacturing or services). However, it presents an inverted-U relationship suggesting that income inequality will decrease with increased employment shares in the labor-absorbing sector in the later stages of structural information. Recent studies in the literature contain discussions suggesting that this relationship is not clearly observed in specific country experiences. Until the early 2000s, the agricultural sector provided the highest employment in Turkey. However, in the 2000s, the share of employment in the services and manufacturing sectors surpassed agricultural employment. The structural transformation of labor from traditional to modern sectors affects income inequality due to differences in average income across sectors. In this context, the study aims to investigate the impact of the structural transformation Türkiye underwent between 1991 and 2022 on income inequality. Sectoral employment shares and Gini coefficient data measuring income inequality in Türkiye were analyzed using the Augmented ARDL (A-ARDL) method. The findings support Kuznets' inverted-U relationship in the structural transformation of the manufacturing and services sectors in Türkiye.

Keywords: Structural transformation, Income inequality, Sectoral labor.
JEL Codes: 014, 015, L16.

[40] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Science , Atatürk University, 25100, Erzurum, Türkiye. Phone: +90 531 277 4846, e-mail: cem.arik@atauni.edu.tr

Türkiye'de Yapısal Dönüşümün Gelir Eşitsizliğine Etkisinin Kuznets Hipoteziyle İncelenmesi: Genişletilmiş ARDL Yaklaşımından Kanıtlar

Özet

Kuznets'e göre işçilerin düşük üretkenlikten yüksek verimli faaliyetlere ve sektörlere hareketini ifade eden yapısal dönüşüm, hızlı ve sürekli büyümenin temel bir özelliğidir. Ayrıca dönüşümün erken aşamalarında işçiler, düşük ortalama gelirli ve sektör-içi eşitsizliklerin az olduğu sektörlerden (tarım), daha yüksek ortalama gelirli ve sektör-içi eşitsizliğin yüksek olduğu sektörlere (imalat veya hizmetler) geçtikçe eşitsizliğin arttığını belirtir. Ancak yapısal dönüşümün ilerleyen aşamalarında emeği emen sektördeki istihdam paylarının artmasıyla gelir eşitsizliğinin azalacağını öne süren bir ters -U- ilişkisi ortaya koyar. Literatürdeki son çalışmalar ülke deneyimleri özelinde bu ilişkinin net bir şekilde görülemediğine dair tartışmalar barındırmaktadır. Türkiye'de 2000'li yılların başına kadar tarım sektörü en yüksek emek istihdamını sağlarken, 2000'li yıllarla birlikte önce hizmetler sektöründeki istihdam payı ve ardından imalat sektöründeki istihdamın payı tarım istihdamının üzerine çıkmıştır. Emeğin geleneksel sektörden modern sektörlere doğru yapısal dönüşümü, sektörlerdeki ortalama gelir farklılıkları nedeniyle gelir eşitsizliğini etkilemektedir. Bu bağlamda çalışmanın amacı, 1991-2022 yılları arasında Türkiye'nin geçirdiği yapısal dönüşümün gelir eşitsizliği üzerindeki etkisini araştırmaktır. Türkiye'de sektörel istihdam payları ve gelir eşitsizliğini ölçen Gini katsayısı verileri Genişletilmiş-ARDL (Augmented ARDL, A-ARDL) yöntemiyle analiz edilmiştir. Elde edilen bulgular, Türkiye'de imalat ve hizmetler sektöründeki yapısal dönüşümde Kuznets'in bahsettiği ters -U- ilişkisini desteklemektedir.

Anahtar Kelimeler: Yapısal dönüşüm, Gelir eşitsizliği, Sektörel istihdam.
JEL Kodları: 014, 015, L16.

Powering Sustainable Futures: Cross-Country Insights on Green Energy Transition and Economic Development

Ece Handan Guleryuz[41]
Marmara University, Türkiye
ece.guleryuz@marmara.edu.tr

Abstract
This paper investigates the economic implications of the green energy transition on sustainable development through a cross-country analysis. Utilizing panel data from emerging and developed economies, the study examines the impact of renewable energy investments on economic growth, employment, and environmental sustainability. The empirical analysis employs panel data econometric techniques, including fixed effects and dynamic panel models, to explore the relationship between renewable energy adoption and macroeconomic indicators. The findings aim to provide valuable insights into how transitioning to green energy contributes to sustainable economic development, reduces reliance on fossil fuels, and enhances industrial competitiveness. By identifying the macroeconomic benefits and challenges associated with green energy policies, this study offers policy implications for countries aiming to balance economic growth and environmental sustainability. The results contribute to the growing literature on green growth and energy economics, highlighting the significance of strategic investments in renewable energy for achieving sustainable development goals.

Keywords: Green Energy Transition, Sustainable Development, Renewable Energy Investments, Economic Growth.
JEL Codes: Q42, Q56, O44

[41] **Correspondence:** Department of Economics, Faculty of Economics, Marmara University, Recep Tayyip Erdogan Campus, Başıbüyük, Süreyyapaşa Başıbüyük Yolu Sk No:6, 34854 Maltepe/İstanbul, Türkiye. Phone: +90 777 00 00, e-mail: ece.guleryuz@marmara.edu.tr

Time-Varying Cointegrating Relation Between CO_2 Emissions and Clean Energy Consumption

Saliha Ergün Tanrıverdi
Bahçeşehir University, Türkiye
saliha.tanriverdi@bau.edu.tr

Dilem Yıldırım
Middle East Technical University, Türkiye
dilem@metu.edu.tr

Abstract
This study aims to examine the long-run relationship between CO_2 emissions and clean energy consumption. To gain a comprehensive understanding of the global clean energy sector, a country-specific analysis is conducted for ten countries with the highest levels of clean energy consumption. We use the share series of clean energy consumption instead of levels because the share series represent both environmental considerations and excessive energy consumption concerns. The study covers the timeline from 1950 to 2020, which includes the most prominent events leading to structural breaks in the relationship between emissions and clean energy consumption. The existence of structural breaks complicates the conclusions and interpretations of conventional tests for cointegration. In this study, Bierens and Martins' (2010) Time-Varying Cointegration Test is used, approximating structural breaks as smooth regime changes. When structural breaks are considered, emissions are cointegrated with the shares of clean energy. GDP growth is found to have a dominant explanatory power over emissions. We found evidence that only in China, after the 2000s, growth of the renewables shares results in a decrease in emissions growth. Additionally, France and Germany exhibit a slight negative relation between nuclear energy shares and CO_2 emissions.

Keywords: Energy economics, cointegration, time-varying parameters.
JEL Codes: Q4, C32, C22

Economic Analyses of Utilization of Biomethane in Turkey

Batuhan Gürler[42,43]
Hacettepe University, Turkey
batu06han@hotmail.com.tr

Shihomi Ara Aksoy
Hacettepe University, Turkey
sara@hacettepe.edu.tr

Abstract
Biomethane is a globally flourishing, renewable, and sustainable fuel with strong potential in waste management, carbon reduction, and cost competitiveness. This study evaluates the economic feasibility and carbon reduction potential of a prospective biomethane facility in Turkey. Since biomethane is derived from biogas, the study first examines key cost determinants for biogas firms producing electricity, identifying repair and maintenance costs, labor costs, and raw material costs as the main cost drivers. A hypothetical biogas production cost is calculated as an input for biomethane production. The feasibility analysis compares various biomethane production technologies at different scales, concluding that the Pressurized Water Scrubbing method is the only economically viable option. Additionally, spatial analysis identifies Çorum and Kars as optimal locations for a biomethane facility based on biogas potential from layer chicken manure and cattle manure. The proposed facility is estimated to generate 81,952 tons of net annual carbon savings, equivalent to $15,161,094 in yearly social benefits. These findings highlight biomethane's viability as a sustainable energy source and its potential to enhance energy security, support decarbonization efforts, and promote sustainable development in Turkey.

Keywords: Sustainability, Waste Management, Renewable Energy, Biomethane, Feasible Technology, Carbon-Neutral.
JEL Codes: Q16, D61, Q21

[42] Correspondence: Department of Economics, Hacettepe University, Ankara, Türkiye; batu06han@hotmail.com.tr, Phone :+905541251942
[43] GÜRLER, Batuhan. Economic Analyses of Utilization of Biomethane in Turkey, Master's Thesis, under the supervision of Shihomi ARA-AKSOY, Hacettepe University, Ankara, 2024.

Uncertain Times: Assessing the Impact of Economic Policy Uncertainty on the Value of Energy Firms[44]

Canan Özkan[45]*
Central Bank of the Republic of Türkiye
ozkancanan8@gmail.com

Mehmet Hanifi Ateş[46]
Central Bank of the Republic of Türkiye
mehmetates@marun.edu.tr

Zehra Çavuşoğlu Adıgüzel[47]
Central Bank of the Republic of Türkiye
cavusoglu04z@gmail.com

Sabri Kurtoglu[48]
Central Bank of the Republic of Türkiye
sabrikurtoglu@gmail.com

Yusuf Yıldırım[49]
Central Bank of the Republic of Türkiye
yyildiri@ucsc.edu

Abstract
Economic policy uncertainty (EPU) refers to the uncertainty in the economic environment, caused by unpredictable government policies, political instability, and market volatility. EPU creates challenges for all economic agents in their planning as well as investment decisions. This study investigates the impact of Economic Policy Uncertainty (EPU) or Global Economic Policy Uncertainty (GEPU) on the value of energy firms headquartered in Europe. The value of energy firms is proxied by Tobin's q measure. While the dynamic nature of the investigated interrelation between firm value and EPU is captured by an Arellano-Bond Dynamic Panel approach, a system Generalized Method of Moments (GMM) estimator is employed to address the endogeneity problem in the dataset. Based on the assumption that EPU has interrelation not only with Tobin's q but also with other financial ratios of the firm, the model additionally includes interaction terms to capture the differential impact of EPU on the selected financials of energy firms included in the sample. More specifically, the analysis includes multiple periods of heightened global economic uncertainty, such as periods associated with significant global events, namely the Global Financial Crisis, the COVID-19 pandemic, and the most

[44] The views expressed within are those of the authors and do not reflect the official view of the institutions they are affiliated with.
[45]* PhD, Director, Green Economy and Climate Change Division of the Central Bank of the Republic of Türkiye (CBRT), **Correspondence:** ozkancanan8@gmail.com
[46] Specialist, Trabzon Branch of CBRT, PhD Candidate, Marmara University, İstanbul
[47] Specialist, Structural Economic Research Department of CBRT
[48] Specialist, Structural Economic Research Department of CBRT, PhD Candidate, Marmara University, İstanbul
[49] PhD, Specialist, Financial Stability Division of CBRT.

recent Energy Crisis. Utilizing a firm-level panel dataset spanning from 1997 to 2023, two models were created and tested, namely Model I with global EPU and Model II with domestic EPU. The results indicate that firm value becomes more sensitive to the uncertainty in economic policies during times of global economic turmoil. In other words, GEPU has a substantially adverse effect on the valuation of European energy companies, particularly during times of global financial crisis. Another important finding of this study is that the effect of financial leverage on the value of firm is negative, while this effect diminishes during times of elevated global policy uncertainty. These findings indicate that energy companies are especially susceptible to uncertainties regarding global economic policies, highlighting the need for robust risk management strategies.

Keywords: Economic Policy Uncertainty, Global Economic Policy Uncertainty (GEPU), Tobin's Q, Interaction Term, Dynamic Panel, Firm Value, Generalized Method of Moments (GMM).
JEL Codes: G18, G32

Analyzing Educational Mismatch in Turkish Labor Market Addressing Different Estimation Methods

Gülbin Erdem Karahanoğlu[50]
Istanbul Medeniyet University, Turkey
gulbin.erdem@medeniyet.edu.tr

Abstract
This study investigates the wage effects of educational mismatch in Turkey, focusing on how overeducation and undereducation influence earnings under various estimation methods. The analysis addresses key econometric challenges by first correcting for sample selection bias through an augmented Heckman selection model, and then tackling multiple endogeneities in education and mismatch using instrumental variable (IV) techniques. These methodological improvements are crucial for obtaining unbiased estimates of the true impact of educational mismatch on wages. The empirical findings show that accounting for selection bias notably alters the estimated wage effects of mismatch: for instance, the wage penalty for undereducated workers becomes larger once non-random selection into employment is controlled for. More strikingly, addressing endogeneity reveals that both educational attainment and mismatch exert much stronger causal effects on earnings than conventional estimates suggest. The IV results indicate a substantially higher return to schooling (nearly double the OLS estimate) and far greater wage penalties for mismatch. In contrast to baseline OLS findings, which implied a negligible effect of overeducation and only a mild wage loss for undereducation, the advanced estimations uncover significant earnings losses for mismatched workers. Overeducated employees are found to earn markedly less than comparable well-matched peers, and undereducated employees suffer a considerably larger wage deficit than previously estimated. Overall, the study's results demonstrate that standard methods severely underestimate the wage penalties associated with educational mismatch. By jointly correcting for selection bias and endogeneity, this research provides a more accurate and robust assessment of how educational mismatches affect earnings in the Turkish labor market.

Keywords: Educational Mismatch; Wages; Selection Bias; Instrumental Variables
JEL Codes: I21, J24, J30, C34, C36

[50] **Correspondence:** Department of Economics, Faculty of Political Science, Istanbul Medeniyet University, 34700, Istanbul, Turkey. Phone: +90 216 2802529, e-mail: erdem.gulbin@metu.edu.tr

Job polarization and routinization: Evidence for Turkey

Ensar Yılmaz
Yildiz Technical University , Turkey
enyilmaz@yildiz.edu.tr

Evren Gülser[51]
Işık University, Turkey
evren.gulser@isikun.edu.tr

Abstract
We investigate the dynamics of labor market polarization in Turkey by integrating task measures from O*NET and PIAAC with the Turkish Household Labor Force Series. Leveraging highly refined micro data, we classify tasks into abstract, routine, and manual categories at the occupation level, tailoring our framework to Turkey's labor market. This occupation-task level analysis offers a more nuanced perspective than sector-level studies. By categorizing jobs into these broad task classifications and employing shift- share instruments, we uncover strong evidence of polarization driven by technological advancements (routinization hypothesis), educational attainment, and the growing participation of women in both low- and high-wage occupations. Than, we examine the tasks performed by workers within their respective jobs, accounting for factors such as individual human capital, demographic characteristics, and job-specific technical requirements. Despite persistent variations in job tasks across and within occupations, our findings underscore the crucial role of structural context in shaping task composition and the broader trajectory of labor market polarization in Turkey.

Keywords: Routinization, job tasks, structural change.
JEL Codes: C18, J21, J31

[51] **Correspondence:** Department of Economics, Faculty of Economics, Administrative and Social Sciences, Isik University, 34980, Sile, Istanbul, Turkey., e-mail: evren.gulser@isikun.edu.tr

The Employment Impact of Technological Innovation: Resilience During the COVID-19 Pandemic

Bilgen Cebir
Middle East Technical University, Turkey

Hakan Ercan
Middle East Technical University, Turkey
hercan@metu.edu.tr

Abstract
This paper examines the employment impact of technological innovation using firm-level survey data from the World Bank Enterprise Survey. We model product and process innovation across world regions, pre and post the COVID-19 pandemic. The analysis of how pre-shock technological innovation affects employment during crises, such as the COVID-19 pandemic, provides insights on resilience of firms during shocks. Also, highlighting the varying impacts of innovation across different world regions helps us understand the specific conditions of each area. Overall, this research contributes to a deeper understanding of the complex relationship between technological innovation and employment, which is crucial for fostering sustainable and inclusive economic growth in developing countries. We find that firms engaging in product innovation pre-pandemic (prior technological advancements) were more resilient in maintaining employment levels during the pandemic. As to process innovation, there was no significant impact on employment during the pandemic. Still, its labor-saving effect is visible in the pooled sample (and robust for Africa) in line with the literature. Inclusion of perceived business obstacles in the analysis, a unique contribution of the paper, improves the statistical significance of our results in South Asia, ECA (Europe and Central Asia), and MENA (Middle East and North Africa).

Keywords: Technological Innovation, Labor Demand, Product Innovation, Process Innovation, Business Obstacles, COVID-19 Pandemic, Firm-Level Survey Data
JEL Codes: O33, J23, O31, O57

Digital Renaissance Amidst Crisis: Impact of Digitalization on Firm Performance during the Pandemic

Yusuf Emre Akgündüz[52]
Central Bank of Republic of Türkiye, Türkiye
yusuf.akgunduz@tcmb.gov.tr

Gökçe Karasoy Can
Central Bank of Republic of Türkiye, Türkiye
gokce.karasoy@tcmb.gov.tr

Elif Özcan Tok
Bank of England, Türkiye
elif.ozcantok@bankofengland.co.uk

Abstract
This paper examines the impact of pre-pandemic digitalization investments on post-pandemic performance, using data from Türkiye. We compare firms that adopted digital technologies before the pandemic with those that did not, employing a coarsened exact matching and difference-in-differences approach. Our first contribution is the development of a novel firm-level digitalization index, constructed using firm-to-firm trade data. The findings show that digitalized firms outperformed their non-digitalized pairs across key metrics, including assets, sales, employment, profitability, and export shares. To explain these results, we identify key channels through which digitalization enhanced performance which is our second contribution. Specifically, we show that digitalized firms expanded their trade networks—adding more partners and operating over greater distances—reduced labor churn rates, and improved productivity and competitiveness.

Keywords: Digitalization, COVID-19, Firm Performance.
JEL Codes: O33, C55, D22

[52] The views expressed in this paper are those of the authors and do not necessarily represent views of the Central Bank of the Republic of Türkiye or Bank of England. Corresponding author:gokce.karasoy@tcmb.gov.tr

The Relationship Between Exchange Rates and Foreign Trade in the Turkish Economy: An Analysis within the Framework of the Dynamic Elasticity Pessimism Model

Onur Akkaya[53]
Kilis 7 Aralık University, Turkey
onurakkaya@kilis.edu.tr

Sumru Bakan[54]
Kilis 7 Aralık University, Turkey
sumrubakan@kilis.edu.tr

Abstract
This study examines the impact of exchange rate fluctuations on Turkey's foreign trade during the 2016-2023 period within a dynamic framework. Based on J.M. Keynes' "elasticity pessimism model," this dynamic approach incorporates not only traditional price elasticities but also other critical factors affecting the trade balance. The short- and long-term effects of exchange rate movements on exports and imports are analyzed using ARDL and Nonlinear ARDL methods. Additionally, the asymmetric effects of exchange rate shocks on trade and the role of global economic uncertainties are evaluated using indicators such as the VIX index. The analysis utilizes data from the Federal Reserve Economic Data (FRED). Key variables such as the real effective exchange rate, external demand indicators, energy prices, and Turkey's domestic demand are incorporated into the model. The findings reveal the sensitivity of Turkey's foreign trade to exchange rate fluctuations, the validity of the Marshall-Lerner condition, and the effects of structural breaks. This study offers significant insights for policymakers in assessing the impact of exchange rate policies and trade strategies on the trade balance.

Keywords: Exchange rate, foreign trade, ARDL, NARDL.
JEL Codes: F10, F31

[53] **Correspondence:** Department of International Trade and Logistics, Faculty of Economic and Administrative Sciences, Kilis 7 Aralık University.
[54] Department of Economics, Faculty of Economic and Administrative Sciences, Kilis 7 Aralık University.

The impact of exchange rate on foreign direct investment: The case of Algeria

Ahmed Smahi[55],
Tlemcen University, Algeria
ahmed.smahi@univ-tlemcen.dz

Brahim KARA
University of Relizen
Karabrahim@yahoo.com

Samira DJEMAI
Higher school of Economics
djemai.samira@gmail.com

Abstract
The exchange rate is considered one of the economic indicators that reflect the government's success in managing the economy, as the exchange rate expresses the price of the local currency expressed in a foreign currency. This indicator occupies great importance in terms of evaluating both assets and liabilities expressed in foreign currencies, and its fluctuations are also considered measuring the size of the risk. This study aims to testing and analyzing the relationship between exchange rate and foreign direct investment in Algeria over the period (1980 -2021), using vector autogressive model VAR and Granger causality test , the PP test of stationnarity test show that all time series are integrated for order one I(1) , the VAR model estimations results suggest that the impact of exchange rate on FDI is not statistically significant , also granger causality test results indicates that exchange rate does not causes the FDI inflows in algerian economy

Keywords: exchange rate, foreign direct investment, VAR model, Granger causality test, Algeria.
JEL Codes: B27 F21 F31

[55] **Correspondence:** Department of Economics, Faculty of Economics, Tlemcen University, BP226, Tlemcen, Algeria. Phone: +0021343212166, Fax: +00213212166

Extensive vs. Intensive Margins in Turkey's Exports: A Firm and Product-Country Analysis

Enver Sait Kurtaran[56]
Central Bank of the Republic of Türkiye, Türkiye
Yıldız Technical University, Türkiye
enver.kurtaran@tcmb.gov.tr

Abstract
This study examines Turkey's export performance from 2018 to 2024, using monthly export data analyzed through extensive and intensive margin frameworks at the firm, firm-product-country, and product-country levels. Export markets are defined at the product-country intersection, categorizing annual export changes into three components: expansions in existing markets, entries into new markets, and exits from markets. The analysis indicates that during 2018-2024, Turkey's export growth was significantly supported by the extensive margin, particularly at the firm-product-country level, rather than by the intensive margin. Gains from new market entries substantially outweighed losses from exited markets, emphasizing market and product diversification.
A breakdown by technological intensity reveals that high and medium-high technology products exhibited the strongest growth, driven by both extensive and intensive margins. Notably, the net extensive margin for high technology products averaged 1.86% while intensive margin averaged 6.49%, contributing to a total growth rate of 8.35%. Similar patterns were observed in medium-high and medium-low technology groups, suggesting that innovation and product upgrading have played a strategic role in export expansion.

Keywords: Turkey exports, Extensive margin, Intensive margin, Technological intensity.
JEL Codes: F10, F14

[56] **Correspondence:** Structural Economic Research Department, Central Bank of the Republic of Türkiye, Türkiye. Phone: +90 216 7737861, e-mail: enver.kurtaran@tcmb.gov.tr

The Impact of Gold on House Prices: Using Geographical Heterogeneity to Measure the Wealth Effect

Mehmet Emre Şamcı[57]
Specialist, Central Bank of Republic of Türkiye
emre.samci@tcmb.gov.tr

Mehmet Selman Çolak[58]
Director, Central Bank of Republic of Türkiye
Selman.colak@tcmb.gov.tr

Abstract
There was a significant surge in the price of gold in global markets in the years 2023 and 2024 driven by the rise in global inflation with COVID-19 pandemic, fears of financial fragmentation intensifying with the onset of Ukraine-Russia war in 2022 and growing US fiscal deficit. We analyze the wealth effects of the increase in gold prices on house prices in Türkiye using the heterogenous distribution of the gold savings across Turkish provinces. Using simple difference in differences setup, we find that rise in the gold prices lead to a disparate movement of hedonic house price index as well as house prices per unit, in region and provinces with higher gold saving tendency.

Keywords: Wealth Effect, House Prices, Gold Prices, Difference in Differences.
JEL Codes: C15, C33, C52, C63.

[57] **Correspondence:** Banking and Financial Institutions, Central Bank of Republic of Türkiye, 34768, İstanbul, Türkiye. Phone: +90 216 7735892 ex: 5892, Fax: +90 216 7735854, e-mail: emre.samci@tcmb.gov.tr
[58] **Correspondence:** Banking and Financial Institutions, Central Bank of Republic of Türkiye, 34768, İstanbul, Türkiye. Phone: +90 216 7737809 ex: 7809, Fax: +90 216 7735854, e-mail: selman.colak@tcmb.gov.tr

Post-COVID Inflation and Incomes Policy in A Two Household SFC Model for the UK Economy

Oktay Özden
İstanbul 29 Mayis University
oozden@29mayis.edu.tr

Abstract
This research examines the dynamics of post-COVID inflation in the UK economy, focusing on the interplay between inflation and income distribution through the lens of income conflict theory. It introduces a two-household Stock-Flow Consistent (SFC) model tailored to the UK economy, providing comprehensive policy implications of various incomes policy scenarios. The model's insights are further enhanced by the development of the UK-SFC App, an innovative R Shiny-based tool enabling interactive policy simulations and educational applications. The findings reveal that income claims, driven by distributive dynamics, play a central role in inflationary pressures and demonstrate the critical role of incomes policy design. Simulation results indicate that an incomes policy, when well-designed by addressing income inequality, may simultaneously reduce inflation and income inequality.

Keywords: Income conflict, incomes policy, post-COVID inflation, SFC model
JEL Codes: E12

Do Policy Incentives Foster Wise Financial Choices or Encourage Missteps?

Yunis Dede[59, 60]
Gebze Technical University, Türkiye.
ydede@gtu.edu.tr

Sadettin Haluk Çitçi
Gebze Technical University, Türkiye.
hcitci@gtu.edu.tr

Halit Yanıkkaya
Gebze Technical University, Türkiye.
halityanikkaya@gtu.edu.tr

Abstract
This paper investigates the unintended cognitive consequences of a major retirement savings policy and their implications for intervention design. While previous studies recognize that various heuristics and biases hinder optimal retirement decisions, policy efforts have largely focused on increasing savings rather than addressing the cognitive processes behind them. We take a step in this direction by examining how a nationwide matching contributions policy introduced in Türkiye's Individual Pension System affected the reinforcement learning (RL) heuristic—individuals' tendency to over-extrapolate from past returns. Analyzing a large administrative dataset spanning both pre- and post-policy periods, we find that participants' responsiveness to contemporaneous and lagged returns increases dramatically—by more than five-fold—after the policy is implemented. These results persist after testing alternative explanations. Rather than curbing cognitive distortions, the policy unintentionally amplifies them. These findings highlight the importance of evaluating interventions not just by their impact on overall savings but also by their influence on the cognitive foundations of decision-making.

Keywords: Reinforcement learning, heuristics, decision-making, retirement policies, household saving.
JEL Codes: D80, G41, D70, J26, G51.

[59] **Correspondence:** Department of Economics, Faculty of Business Administration, Gebze Technical University, 41400, Kocaeli, Türkiye. Phone: +90 262 6051441, Fax: +90 262 6538490, e-mail: ydede@gtu.edu.tr
[60] This study was supported by TUBITAK (the Scientific and Technological Research Council of Turkey). TUBITAK-ARDEB-SOBAG 1001 Research Project No: 222K023.

Predicting Inflation Inertia in Türkiye: A Hybrid Approach Integrating Machine Learning and Time Series Models with Macro-Financial Data

Onur Polat[61, 62]
Bilecik Şeyh Edebali University, Social Sciencies University of Ankara, Türkiye
onur.polat@bilecik.edu.tr
onur.polat@asbu.edu.tr

Hasan Murat Ertuğrul
Anadolu University, Türkiye
hmertugrul@anadolu.edu.tr

Burçhan Sakarya
Başkent University, Türkiye
Bsakarya@baskent.edu.tr

Abstract
Inflation inertia, characterized by the persistent nature of inflation despite shifts in economic conditions, poses a significant challenge for policymakers aiming to achieve price stability. This study addresses this issue by harnessing a comprehensive dataset spanning from March 2004 to September 2024, which includes a wide range of macroeconomic and financial indicators. We employ a dynamic Kalman Filter model to quantify inflation inertia and combine it with a robust framework of traditional time series models—including ARDL and Markov Switching Models—alongside advanced machine learning (ML) algorithms. To enhance the analysis, dimensionality reduction is performed using Principal Component Analysis (PCA), which isolates key macro-financial trends through principal components. The findings offer actionable insights into the integration of machine learning into economic forecasting, offering a modernized approach to tackling inflation inertia in policy design. This research highlights the transformative potential of machine learning in broadening macroeconomic estimation capacity and improving central bank strategies. The findings of this study also indicate that the Turkish economy is experiencing a regime shift, during which the strengths of machine learning (ML) models—such as random forests and decision trees—in dealing with non-linearities, high-dimensional data, and structural breaks prove to be particularly effective.

Keywords: Inflation Inertia; Machine Learning; Time Series Models; Macro-Financial Indicators; Economic Forecasting; Türkiye
JEL Codes: C22, C45, C53, E58

[61] **Correspondence:** Department of Public Finance, Faculty of Economics and Administrative Sciences, Bilecik University, 11120, Bilecik, Turkey. Phone: +90 228 214 24 15 e-mail: onur.polat@bilecik.edu.tr
[62] This study was supported by TUBITAK (the Scientific and Technological Research Council of Turkey). TUBITAK-ARDEB-SOBAG 3005 Research Project No: 224K511.

An Evolutionary Game Theoretical Approach to Pirate Economics

Aras Yolusever[63]
Istanbul Kültür University, Türkiye
a.yolusever@iku.edu.tr

Ercan Eren[64]
Türkiye
ercaeren@gmail.com

Abstract
Piracy has long been an economic and strategic phenomenon shaped by shifting incentives, enforcement mechanisms, and geopolitical contexts. This study utilizes an Evolutionary Game Theory (EGT) framework to analyze and contrast the economic frameworks and strategic behaviors associated with piracy in the Ottoman Empire against contemporary piracy phenomena, notably in key maritime regions, including the Gulf of Aden and the Strait of Malacca. By modeling the dynamic interactions between pirates, state actors, merchants, and local communities, we analyze how piracy strategies evolve in response to economic conditions, enforcement intensity, and technological advancements. Using replicator dynamics, we explore how different equilibria emerge, from sustained piracy under weak enforcement to deterrence-driven stability. The study further examines historical piracy's informal economic networks, such as the Barbary Corsairs, and contrasts them with modern decentralized piracy operations. The findings from this analysis can enhance the comprehension of the adaptive strategies of piracy in response to economic and institutional shifts, thereby informing policy considerations for current anti-piracy initiatives.

Keywords: Evolutionary Game Theory, Piracy Economics, Strategic Behavior
JEL Codes: C73, N43, K40.

[63] **Correspondence:** Dr., Department of Economics, Faculty of Economics and Administrative Sciences, Istanbul Kültür University, 34156, Istanbul, Türkiye. Phone: +90 212 498 4793, e-mail: a.yolusever@iku.edu.tr
[64] Prof. Dr., Türkiye, Phone: +90 533 216 92 44, e-mail: ercaeren@gmail.com

Korsan Ekonomisine Evrimsel Oyun Teorik Bir Yaklaşım

Özet

Korsanlık, tarih boyunca değişen jeopolitik koşullar, devletlerin uyguladığı yaptırım mekanizmaları ve ticari teşvikler doğrultusunda şekillenen uyumlu bir sistem olarak varlığını sürdürmüştür. Geçmiş çağlarda olduğu gibi, günümüzde de varlığını sürdüren korsanlık, deniz ticaretini etkilemeye devam etmektedir. Bu çalışmada, Osmanlı İmparatorluğu dönemindeki korsan ekonomisi ile günümüz korsanlık faaliyetleri, Evrimsel Oyun Teorisi (EOT) çerçevesinde karşılaştırmalı olarak incelenmektedir. Özellikle Osmanlı döneminde Kuzey Afrika'daki Cezayirli, Tunuslu ve Trablusgarplı korsanların ticaret yolları üzerindeki etkileri ile günümüzde Somali ve Güneydoğu Asya'da faaliyet gösteren korsanların ekonomik motivasyonları arasındaki benzerlikler ve farklılıklar analiz edilmektedir. Çalışmada ayrıca korsanlar, devlet aktörleri, tüccarlar ve yerel topluluklar arasındaki dinamik etkileşimleri modellenerek korsanlık stratejilerinin ekonomik koşullar, yaptırım şiddeti ve teknolojik gelişmelere nasıl tepki verdiği incelenmektedir. Modellemelerde replikatör dinamikleri kullanılarak farklı stratejik denge durumları incelenmekte ve sürdürülebilir korsanlık ile caydırıcılık mekanizmalarının evrimi değerlendirilmektedir. Replikatör dinamikleri ile yapılan bu analiz, modellere zamanlar arası bir boyut kazandırmaktadır. Elde edilen bulgular, geçmişten günümüze korsanlığın nasıl dönüşüm geçirdiğini ortaya koyarak modern korsanlıkla mücadelede politika yapıcılara yol gösterecek önemli çıkarımlar sunmaktadır.

Anahtar Kelimeler: Evrimsel Oyun Teorisi, Korsan Ekonomisi, Stratejik Davranış
JEL Kodları: C70, N43, K40.

A Treatise on the Economic Ideas of Alfred Schutz

Mehmet Dinçaslan[65]
Karadeniz Technical University, Türkiye
mehmetdincaslan@ktu.edu.tr

Abstract
Alfred Schutz (1899-1959) is one of the prominent sociologists and phenomenologists with his methodological and theoretical contributions. Even so, this paper stresses that Schutzian economic ideas are less well-known by economists, particularly Turkish economists. He was a regular participant in the L. von Mises' seminars, one of the leading economists of the Austrian School of Economics, and was among those influenced by Mises. Thanks to these seminars, he built lifelong friendships with economists such as F. A. von Hayek and F. Machlup. Schutz also wrote some articles within the scope of economics. He here mainly deals with economic issues from a philosophical and sociological perspective. Nonetheless, confining the Schutzian economic ideas solely to the Austrian School of Economics is not a consistent argument. In this respect, the present paper aims to review Schutzian economic ideas in light of his intellectual interactions. In conclusion, there are two main arguable findings in this paper. First, Schutz made particular methodological and theoretical contributions to the Austrian School of Economics. Second, he attempted to construct a social theory by drawing on E. Husserl's phenomenology, Mises's praxeology, and M. Weber's ideal type analysis.

Keywords: Austrian School of Economics, Ludwig von Mises, Alfred Schutz.
JEL Codes: B13, B25, B31, B41

[65] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Karadeniz Technical University, 61080, Trabzon, Türkiye. Phone: +90 462 3772584, e-mail: mehmetdincaslan@ktu.edu.tr

Alfred Schutz'un İktisadi Fikirleri Hakkında Bir İnceleme

Özet

Alfred Schutz (1899-1959), metodolojik ve kuramsal katkılarıyla sosyoloji ve fenomenoloji sahalarında öne çıkan düşünürlerdendir. Bununla birlikte Schutz'un iktisadi konulara ilişkin görüşlerinin daha az bilinir olduğu, hatta Türkiye'deki iktisatçılarca hemen hemen hiç bilinmediği ileri sürülebilir. Hâlbuki Schutz, Avusturya İktisat Okulu'nun öne çıkan iktisatçılarından L. von Mises'in özel seminerlerinin düzenli katılımcılarından olup, Mises'in etkilediği kişiler arasında yer almaktadır. Seminerler vesilesiyle Mises Çevresi'nden özellikle F. A. von Hayek ve F. Machlup gibi iktisatçılarla ömür boyu sürecek dostluk ilişkileri kurmuştur. Schutz'un sayıca az olmakla beraber iktisadın kapsama alanına giren yazıları da vardır. Bu yazılarda Schutz'un daha çok felsefî ve sosyolojik perspektifle iktisadi konuları ele aldığı görülmektedir. Bununla birlikte Schutz'un düşüncelerini toptancı bir yaklaşımla sadece Avusturya İktisat Okulu'na dayandırmak isabetli bir argüman olmayacaktır. Bu itibarla çalışmanın amacı, Schutz'un iktisadi düşüncelerini etkileşimde bulunduğu çevreler ve insanlar ışığında değerlendirmektir. Çalışmada tashihe açık iki temel tespit paylaşılmaktadır. Bunlardan ilki, Schutz'un Avusturya İktisat Okulu'na metodolojik ve kuramsal düzeyde katkılarda bulunduğu düşüncesidir. Diğeri ise Schutz'un, E. Husserl'in fenomenoloji, Mises'in insan eylemi'nin incelenmesi ve M. Weber'in ideal tipler yönteminden beslenerek kendine özgü bir sosyal teori inşasına giriştiği görüşüdür.

Anahtar Kelimeler: Avusturya İktisat Okulu, Ludwig von Mises, Alfred Schutz.
JEL Kodları: B13, B25, B31, B41

Comparison of the Heterodox Economic Traditions of Türkiye and Greece

Adem Levent[66]
Bursa Uludag University, Turkey
ademlevent@uludag.edu.tr

Abstract
Especially after the 1970s, as the distinction between orthodox and heterodox economics began to emerge, economists within the discipline started to position the discipline and themselves within these categories. This inevitably paved the way for countries to understand their economic experiences through these categories. The economic thought and the history of economic thought of countries have been evaluated through the orthodox-heterodox distinction. While countries where capitalism was born and flourished encountered the orthodox-heterodox distinction earlier, countries on the periphery of capitalism came across this division much later. Naturally, Türkiye, not one of the advanced capitalist countries, faced formal economic education much later. In the context of the orthodox-heterodox distinction, its tradition of economic thought has remained somewhat limited. In a similar position, although not at the desired level in formal economic education, Greece has experienced a strong tradition that could be included in heterodox economics. This study aims to compare the heterodox traditions of Türkiye and Greece. Of course, comparing a large country with an imperial legacy to a relatively more minor country that separated from it may be seen as pointless. However, due to their shared borders and historical memories, the two countries have competed in almost every field, which has made a comparison between them in terms of economic thought almost a necessity. This comparison will not be limited to economic thoughts alone. Since economic ideas in both Türkiye and Greece are politically driven, an analysis will be made in the context of the political orientations of the countries.

Keywords: Türkiye, Greece, heterodox economics.
JEL Codes: B10, B50, N01

[66] Department of Economics, Faculty of Economics and Administrative Sciences, Bursa Uludag University, 16059, Bursa, Türkiye. e-mail: ademlevent@uludag.edu.tr

Türkiye ve Yunanistan Heterodoks İktisat Geleneklerinin Karşılaştırılması

Özet
Özellikle 1970'lerden sonra Ortodoks ve heterodoks iktisat ayrımının belirginleşmeye başlaması ve disiplin içinde iktisatçıların hem disiplini hem de kendilerini bu kategoriler içinde bir tarafa yerleştirme çabaları, ister istemez ülkelerin kendi iktisadi tecrübelerini de bu kategoriler üzerinden anlama yolunu açmıştır. Ülkelerin iktisadi düşünce ve iktisadi düşünce tarihleri, Ortodoks ve heterodoks ayrımı eşliğinde değerlendirilmiştir. Kapitalizmin doğup serpildiği ülkeler Ortodoks-heterodoks iktisat ayrımıyla daha erken tanışırken kapitalizmin çeperlerindeki ülkeler, bu ayrımla daha geç karşılaşmıştır. Haliyle ileri kapitalist ülkelerden biri olmayan Türkiye, geç kapitalizm nedeniyle formel iktisat öğretimiyle çok geç karşı karşıya kalmış ve Ortodoks-heterodoks ayrımı bağlamında iktisadi düşünce geleneği de sınırlı düzeyde seyretmiştir. Benzer bir konumda olan Yunanistan ise formel iktisat öğretiminde istenilen düzeyde olmasa bile heterodoks iktisat geleneğine dahil edilebilecek güçlü bir tecrübe yaşamıştır. Bu çalışma, Türkiye ve Yunanistan heterodoks geleneklerini karşılaştırmayı amaçlamaktadır. Elbette imparatorluk varisi büyük bir ülkenin, yine bu ülkeden ayrılmış görece daha küçük bir ülke ile karşılaştırılması abesle iştigal etmek olarak değerlendirilebilir. Ancak iki ülkenin hem komşulukları hem de tarihsel hafızaları itibariyle hemen hemen her alanda bir rekabet içine girmeleri, iktisadi düşünce açısından iki ülke arasındaki karşılaştırmayı bir nevi zorunluluk haline getirmiştir. Söz konusu karşılaştırma, sadece iktisadi düşünceler üzerinden olmayacaktır. Hem Türkiye'de hem de Yunanistan'da iktisadi düşünceler politika çekişli olduğundan ülkelerin politik yönelişleri bağlamında bir analiz yapılacaktır.

Anahtar Kelimeler: Türkiye, Yunanistan, heterodoks iktisat.
JEL Kodları: B10, B50, N01

The Challenges of Economics Education in Türkiye: An Assessment of the Gap between Theory and Practice[67]

Hasan Umutlu[68]
Düzce University, Türkiye
hasanumutlu@duzce.edu.tr

Oytun Meçik
Eskişehir Osmangazi University, Türkiye
oytunm@ogu.edu.tr

Abstract
Economics is inherently an interdisciplinary field that intersects both social and natural sciences. However, the increasing integration of economics with natural sciences has led to the rigidification of mainstream economic assumptions, prioritizing abstract theoretical frameworks over practical applications. This shift has resulted in a growing disconnect between economic theory and real-world practice, ultimately centralizing theoretical knowledge at the expense of applied learning in educational processes. Consequently, contemporary economics education struggles to effectively bridge theory and practice, rendering it inadequate in preparing students for the complexities of real-world economic challenges. These shortcomings have also been a fundamental concern for Post-Autistic Economics, which advocates for a more pluralistic and reality-oriented approach to economic thought. Within this context, this study aims to provide a framework for discussions on economics education in Türkiye by examining the perspectives of Turkish economics academics. Based on an extensive literature review, a research design was developed to investigate the pedagogical perspectives and approaches of economics scholars. A one-way analysis of variance (ANOVA) was conducted to identify significant differences in viewpoints, assessing the impact of demographic factors on these perspectives through statistical testing. The findings reveal substantial differences in academics' approaches to economics education. Additionally, in-depth interviews with representatives from the private sector and program accreditation authorities were conducted and analyzed using content analysis. These insights were then used to discuss potential strategies for balancing theory and practice in economics education. The study adopts an interdisciplinary perspective to address the key challenges faced by economics education today and offers policy recommendations aimed at making economics education more application-oriented and comprehensive.

Keywords: Economics Education, Mainstream Economics, Economics Academics.
JEL Codes: A20, A10, C93.

[67] Bu çalışma, Dr. Hasan UMUTLU'nun Eskişehir Osmangazi Üniversitesi SBE İktisat Anabilim dalında Prof. Dr. Oytun MEÇİK danışmanlığında yazdığı doktora tezinden türetilmiştir.

[68] **Correspondence:** Department of Economics, Faculty of Political Sciences, Düzce University, 81650, Düzce, Türkiye. Phone: +90380 611 20 90 ex: 7358, Fax: +90380 611 2096, e-mail: hasanumutlu@duzce.edu.tr

Türkiye'de İktisat Eğitiminin Açmazları: Teori ve Pratik Arasındaki Boşluk Üzerine Bir Değerlendirme

Özet
İktisat, doğası gereği hem sosyal hem de doğa bilimleriyle kesişen disiplinler arası bir alandır. İktisadın özellikle doğa bilimleriyle kurduğu ilişki, anaakım iktisadın varsayımlarının katılaşmasına ve soyut teorik çerçevelerin ön plana çıkmasına neden olmuştur. Bu durum, iktisat biliminin gerçek dünya pratiğinden kopmasına ve eğitim süreçlerinde uygulamadan çok teorik bilginin merkezileşmesine yol açmıştır. Günümüzde iktisat eğitimi, teori ile pratiği dengeli bir şekilde birleştirmekte zorlanmakta ve dolayısıyla öğrencileri gerçek yaşam dinamiğinde karşı karşıya kalınan sorunlara hazırlamakta yetersiz kalmaktadır. Nitekim bu ve benzeri eksiklikleri Post-Otistik iktisadın hareket noktasını oluşturmaktadır. Bu kapsamda çalışmada, Türkiye'de iktisat eğitimi tartışmalarına dair bir çerçeve ortaya koyabilmek amacıyla Türkiye'deki iktisat akademisyenlerinin iktisat eğitimi konusundaki görüşlerine başvurulmuştur. Literatürden hareketle oluşturulan araştırma tasarımı, iktisat akademisyenlerinin eğitim anlayışları ve yaklaşımlarını incelemek amacıyla kullanılmıştır. Öne çıkan görüş farklılıklarını belirlemek için tek yönlü varyans analizi (ANOVA) uygulanmış ve demografik faktörlerin söz konusu görüşler üzerindeki etkisi istatistiksel olarak test edilmiştir. Bulgular, akademisyenlerin iktisat eğitimine yönelik yaklaşımlarında anlamlı farklılıklar bulunduğunu göstermektedir. Ayrıca araştırma kapsamını tamamlayıcı olarak kabul edilen özel sektör temsilcileri ve program akreditasyon otoriteleriyle yapılan derinlemesine görüşmelerin içerik analizi gerçekleştirilmiş ve bu analizler doğrultusunda, iktisat eğitiminde teori-pratik dengesini sağlamak adına uygulanabilecek stratejiler tartışılmıştır. Çalışma, iktisat eğitiminin günümüzde karşı karşıya olduğu temel sorunları ve çözüm önerilerini disiplinler arası bir perspektifle ele alarak, eğitimin daha uygulamalı ve bütüncül hale gelmesine yönelik politika önerileri sunmaktadır.

Anahtar Kelimeler: İktisat Eğitimi, Anaakım İktisat, İktisat Akademisyenleri.
JEL Kodları: A20, A10, C93.

Effectiveness of Macroprudential Policies: A Dynamic Stochastic General Equilibrium Approach

Burhan Biçer[69]
Çukurova University, Turkey
bbicer@cu.edu.tr

Fikret Dülger
Çukurova University, Turkey
fdulger@cu.edu.tr

Uğur Akkoç
Pamukkale University
uakkoc@pau.edu.tr

Abstract
In this study, the aim is to provide insights into the general equilibrium effects of credit-to-value ratio and capital requirement instruments by calibrating a DSGE model, designed with a closed and partially open economy framework that includes the banking sector, using Turkey-specific parameters. The calibration findings for both closed and partially open economy settings indicate that, following contractionary shocks, the reduction in credit volumes leads to a decrease in risks on bank balance sheets, offering insights into the effectiveness of these instruments on the capital structures of the banking sector. Moreover, the expected effects of these instruments on investment, consumption, output, price movements, and exchange rates, which are related to real economic activities, suggest their potential role in ensuring macro-financial stability. However, the extent of the impact of contractionary credit-to-value and capital requirement shocks on the banking sector's balance sheet and demand dynamics varies under closed and open economy conditions. While open economy dynamics partially mitigate the effects of such shocks, the absence of these mechanisms in closed economies makes the direct and severe impacts of shocks more pronounced. Ultimately, the findings of this study indicate that credit-to-value ratio and capital requirement instruments can be utilized to address macroeconomic instabilities stemming from banking sector balance sheets, exchange rates, and credit channels.

Keywords: Macroprudential Policies, Financial Stability, Dynamic Stochastic General Equilibrium Model
JEL Codes: C61, E44, E58, G10

[69] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Çukurova University, 01250, Adana, Turkey. Phone: +90 222 3386084, e-mail: bbicer@cu.edu.tr

Makro İhtiyati Politikaların Etkinliği: Dinamik Stokastik Genel Denge Örneği

Özet

Bu çalışmada, bankacılık kesimini içeren, dışa kapalı ve (kısıtlı) dışa açık bir yapıda tasarlanan DSGD modelinin Türkiye ekonomisine özgü parametrelerle kalibre edilerek, kredi değer oranı ve sermaye gereksinimi araçlarının genel denge etkilerinin sınanması amaçlanmaktadır. Dışa kapalı ve kısıtlı dışa açık kalibrasyon bulguları, daraltıcı şoklar sonrasında, kredilerdeki düşüşle birlikte banka bilançosundaki risklerin azalmasına bağlı olarak söz konusu araçların bankacılık kesiminin sermaye yapıları üzerindeki etkinliğine ilişkin ipuçları sunmaktadır. Bununla birlikte, araçların reel ekonomik faaliyetlerle ilişkili yatırım, tüketim, çıktı, fiyat hareketleri ve kurlar üzerinde beklenen yöndeki etkileri, makro finansal istikrarı sağlama potansiyeline sahip olduğunu da göstermektedir. Buna karşın, daraltıcı kredi değer ve sermaye gereksinimi şokunun bankacılık sektörü bilançosu ve talep dinamikleri üzerindeki etkilerinin boyutu, dışa kapalı ve dışa açık ekonomi koşullarında farklılık sergilemektedir. Dışa açık ekonomi dinamikleri, şokların etkisini kısmi düzeyde de olsa yumuşatırken, kapalı ekonomilerde bu tür mekanizmaların eksikliği şokların doğrudan ve sert etkilerini daha belirgin hale getirmektedir. Sonuç olarak, çalışmadan elde edilen bulgular, kredi değer oranı ve sermaye gereksinimi araçlarının bankacılık kesimi bilançosu, kur ve kredi kanallarından kaynaklı makroekonomik istikrarsızlıklara yönelik kullanılabilirliğine işaret etmektedir.

Anahtar Kelimeler: Makro İhtiyati Politikalar, Finansal İstikrar, Dinamik Stokastik Genel Denge Modeli
JEL Kodları: C61, E44, E58, G10

The Effects of Investor Psychology and Uncertainty Indicators on Borsa Istanbul in Turkey

Aslı Güler[70]
Ordu University, Turkey
asliguler@odu.edu.tr

Abstract
In recent years, the number of studies focusing on investor behavior has increased rapidly in the finance literature. Developments in information and communication technologies, especially the proliferation of cryptocurrencies, have led to accelerated capital flows; this has enabled changes in investor psychology in the perception of fear, risk, and uncertainty to create sudden and strong effects on financial markets by being reflected in investment decisions. In this study, the impact of factors such as the Crypto Fear and Greed Index, VIX, CDS risk premium, inflation, and exchange rate volatility on investor behavior will be examined, and how fear drives market movements and investment decisions will be analyzed. Within the scope of the study, the impact of investor psychology and economic uncertainty indicators on the stock market will be analyzed with the fractional frequency bootstrap Fourier ARDL methodology for the period 2018m2-2025m3, and short- and long-term dynamics will be evaluated in detail. In this direction, it will be revealed whether cryptocurrency investors see the stock market as an alternative investment instrument depending on changes in fear and risk perception, whether market fear makes stock market investors more cautious, and how exchange rate volatility and inflation affect investor behavior during periods of economic uncertainty.

Keywords: Investor psychology, financial uncertainty, stock markets
JEL Codes: D81, G15, G41

[70] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Ordu University, 52300, Ordu, Türkiye. Phone: +90 452 323 86 96 ex:3037 , Fax: 04523238256, e-mail: asliguler@odu.edu.tr

Türkiye'de Yatırımcı Psikolojisi ve Belirsizlik Göstergelerinin Borsa İstanbul üzerindeki Etkileri

Özet

Son yıllarda finans literatüründe yatırımcı davranışına odaklanan çalışmaların sayısı hızla artmaktadır. Bilgi ve iletişim teknolojilerindeki gelişmeler, özellikle kripto paraların yaygınlaşması, sermaye akışlarının hızlanmasına yol açmış; bu durum, yatırımcı psikolojisindeki korku, risk ve belirsizlik algısındaki değişimlerin yatırım kararlarına yansıyarak finansal piyasalarda ani ve güçlü etkiler yaratmasına olanak sağlamıştır. Bu çalışmada, Kripto Korku ve Açgözlülük Endeksi, VIX, CDS risk primi, enflasyon ve döviz kuru oynaklığı gibi faktörlerin yatırımcı davranışı üzerindeki etkisi incelenecek ve korkunun piyasa hareketlerini ve yatırım kararlarını nasıl yönlendirdiği analiz edilecektir. Çalışma kapsamında yatırımcı psikolojisi ve ekonomik belirsizlik göstergelerinin borsa üzerindeki etkisi kesirli frekanslı bootstrap Fourier ARDL metodolojisi ile 2018m2-2025m3 dönemi için analiz edilecek, kısa ve uzun vadeli dinamikler ayrıntılı olarak değerlendirilecektir. Bu doğrultuda, kripto para yatırımcılarının korku ve risk algısındaki değişimlere bağlı olarak borsayı alternatif bir yatırım aracı olarak görüp görmedikleri, piyasa korkusunun borsa yatırımcılarını daha temkinli hale getirip getirmediği, ekonomik belirsizlik dönemlerinde döviz kuru oynaklığı ve enflasyonun yatırımcı davranışlarını nasıl etkilediği ortaya konulacaktır.

Anahtar Kelimeler: Yatırımcı psikolojisi, finansal belirsizlik, hisse senedi piyasaları
JEL Kodları: D81, G15, G41

Analyzing Service Price Rigidity from an Connectedness Perspective

Mubina İpek[71]
Presidency of Strategy and Budget, Türkiye
mubinaipek@gmail.com

Abstract
The services sector plays a key role in determining economic growth and inflation dynamics. Its higher rigidity compared to goods prices causes price movements in this sector to be more permanent and its impact on inflation to be felt for a long time. Global crises, supply-demand imbalances and the repercussions of monetary policies on this sector necessitate sector-based analyses to understand inflation dynamics. The main objective of this study is to analyze the rigidity in services prices from the perspective of sectoral connectedness. Focusing on the post-2008 Global Financial Crisis period, the study uses Consumer Price Index data to analyze price rigidity in the services sector. By applying the Connectedness Analysis based on a vector autoregressive model with time-varying parameters, sectoral interactions of services prices are examined and how pricing behavior is shaped is determined. The findings reveal in which sub-sectors the price rigidity in the services sector is more pronounced and its effects on inflation dynamics. Moreover, it is concluded that the services sector reflects inflationary pressures more strongly in the post-2021 period. As a result, it is emphasized that services inflation should be managed by taking into account inter-sectoral linkages and the price pass-through mechanism.

Keywords: Service inflation, rigidity, connectedness analysis.
JEL Codes: A10, C10, E31, E37

[71] **Correspondence:** Presidency Strategy and Budget, 06570, Ankara, Türkiye. Phone: +90 312 2945000 e-mail: mubinaipek@gmail.com

Hizmet Fiyatlarındaki Katılığın Bağlantılılık Perspektifinde İncelenmesi

Özet

Hizmetler sektörü, ekonomik büyümenin ve enflasyon dinamiklerinin belirlenmesinde kilit bir rol oynamaktadır. Mal fiyatlarına kıyasla daha yüksek katılık göstermesi, bu sektördeki fiyat hareketlerinin daha kalıcı olmasına ve enflasyon üzerindeki etkisinin uzun süre hissedilmesine yol açmaktadır. Küresel krizler, arz-talep dengesizlikleri ve para politikalarının bu sektör üzerindeki yansımaları, enflasyon dinamiklerinin anlaşılmasında sektör bazlı analizleri zorunlu kılmaktadır. Bu çalışmada temel amaç hizmet fiyatlarındaki katılığı sektörel boyutta bağlantılılık perspektifinde incelemektir. Çalışmada 2008 Küresel Finansal Kriz sonrası döneme odaklanılarak hizmetler sektöründeki fiyat katılığının analizinde Tüketici Fiyat Endeksi verisi kullanılmıştır. Zamanla değişen parametreli vektör otoregresif modeli temelli olan Bağlantılılık Analizi uygulanarak hizmet fiyatlarının sektörel etkileşimleri incelenmiş ve fiyatlama davranışlarının nasıl şekillendiği belirlenmiştir. Elde edilen bulgular, hizmetler sektöründe fiyat katılığının hangi alt sektörlerde daha belirgin olduğunu ve enflasyon dinamikleri üzerindeki etkilerini ortaya koymaktadır. Ayrıca, hizmetler sektörünün 2021 yılı sonrası dönemde enflasyonist baskıları daha güçlü bir şekilde yansıttığı sonucuna ulaşılmıştır. Sonuç olarak, hizmet enflasyonunun sektörler arası bağlantılar ve fiyat geçişkenliği mekanizması göz önünde bulundurularak yönetilmesi gerektiği vurgulanmaktadır.

Anahtar Kelimeler: Hizmet Enflasyonu, Katılık, Bağlantılılık Analizi.
JEL Kodları: A10, C10, E31, E37

Dynamics of Investment Decisions in the Turkish Cement Sector

Serkan Şengül[72]
Mudanya University, Turkey
serkan.sengul@mudanya.edu.tr

Hakan Yıldız
Medipol University, Turkey
hakan.yildiz1@medipol.edu.tr

Abstract
This study investigates the factors affecting the investment decisions of firms in the cement sector in Turkey. Both financial variables such as financial profit ratio, borrowing costs and financial asset ratio as well as non-financial variables such as investment ratio, capacity utilization ratio and profit ratio are used. A dynamic panel data analysis is conducted using the data of cement firms listed on the Turkish stock exchange between 2008 and 2016. To address potential endogeneity issues, the System GMM approach is used as the preferred methodology. The findings show that the investment decision taken in the previous period is both positive and significant and the capacity utilization rate plays an important role in investment decisions. However, the profit ratio produces negative results and both borrowing costs and debt ratio negatively affect investment decisions. On the other hand, the financial asset ratio has a positive effect. As a result, the impact of financialization on investment decisions in the cement sector, which is a capital-intensive production sector, is revealed.

Keywords: Cement sector, investment decisions, Turkiye
JEL Codes: E22, G30, L61

[72] **Correspondence:** Department of Economics and Finance, Faculty of Art and Social Sciences, Mudanya University, 16940, Bursa, Turkey. Phone: +90 535 2587618, e-mail: serkan.sengul@mudanya.edu.tr

Türkiye Çimento Sektöründe Yatırım Kararlarındaki Dinamikler

Özet

Bu çalışma, Türkiye'deki çimento sektöründeki firmaların yatırım kararlarındaki etkili olan faktörleri araştırmaktadır. Yatırım davranışlarında etkili rol oynayabilecek finansal kâr oranı, borçlanma maliyetleri ve finansal varlık oranı gibi finansal değişkenler hem de yatırım oranı, kapasite kullanım oranı ve kâr oranı gibi finansal olmayan değişkenler kullanılmıştır. Türkiye borsasında 2008-2016 yılları arasında işlem gören çimento firmalarının verileri kullanılarak dinamik bir panel veri analizi gerçekleştirilmiştir. Potansiyel içsellik sorunlarını ele almak için, çalışmada tercih edilen metodoloji olarak Sistem GMM yaklaşımı kullanılmıştır. Bulgular, bir önceki dönem alınan yatırım kararının hem pozitif hem de anlamlı olduğunu ve kapasite kullanım oranının yatırım kararlarında önemli bir rol oynadığını göstermektedir. Ancak, kar oranı negatif sonuçlar üretmekte ve hem borçlanma maliyetleri hem de borç oranı yatırım kararlarını olumsuz etkilemektedir. Buna karşılık, finansal varlık oranı pozitif bir etki yaratmaktadır. Sonuç olarak, sermaye yoğun üretim sektörü olan çimento sektöründe alınan yatırım kararlarında finansallaşmanın etkisi gözler önüne serilmektedir.

Anahtar Kelimeler: Çimento sektörü, yatırım kararları, Türkiye
JEL Kodları: E22, G30, L61

Profile of Foreign Owned Companies in Turkish Manufacturing Industry and Determinants of their Profitability

Ahmet Adnan Eken
The Central Bank of the Republic of Türkiye, Türkiye
adnan.eken@tcmb.gov.tr

Didem Yazıcı
The Central Bank of the Republic of Türkiye, Türkiye
didem.yazici@tcmb.gov.tr

Cihan Yalçın
The Central Bank of the Republic of Türkiye, Türkiye
cihan.yalcin@tcmb.gov.tr

Abstract
It is a widely accepted view in the literature that foreign direct investments contribute to overall economic performance by financing the current account deficit in a healthy channel and increasing total factor productivity in host countries through enabling technology transfer. In this study, the basic balance sheet ratios of foreign owned companies are compared with those of domestic ones operating in the Turkish manufacturing industry by using their financial statement for the period of 2009-2023. In addition, the determinants of profit margins (an indicator of firm performance) of foreign owned companies are tested using the dynamic panel method for this period. In addition to the control variables frequently used in the empirical models, the export share and its interactions with the companies' foreign owned shares (CFS), scale and age groups are also included as independent variables in the regressions. The empirical analysis conducted within this framework revealed that there is a positive relationship between the export shares and the profit margins. This positive relationship is are stronger for younger and CFS with over 49 percent companies. This finding may imply that foreign owned companies (especially younger and with high CFS) have competitive advantages in export markets. On the other hand, it was found that the relationship between export shares and profit margins does not differ across to the firm scale

Keywords: Foreign direct investments, firm characteristics, profitability, dynamic panel.
JEL Codes: F21, D22, L25, C23

Türkiye İmalat Sanayindeki Yabancı Sermayeli Şirketlerin Profili ve Karlılıklarının Belirleyicileri

Özet

Doğrudan yabancı sermaye yatırımlarının, cari işlemler açığının sağlıklı bir kanaldan finanse edilmesi ve teknoloji transferine olanak sağlayarak ev sahibi ülkelerde toplam faktör verimliliğinin artırılması yoluyla genel ekonomik performansa katkıda bulunduğu literatürde kabul gören bir görüştür. Bu çalışmada 2009-2023 dönemi için Türkiye imalat sanayinde faaliyet gösteren yabancı sermayeli firmalar ile yerli firmaların temel bilanço rasyoları karşılaştırılmakta ve yabancı sermayeli firmaların bir performans göstergesi olan kar marjlarının belirleyicileri dinamik panel yöntemi kullanılarak test edilmektedir. Literatürde sıklıkla kullanılan kontrol değişkenlerinin yanı sıra firmaların ihracat payı ve bu payın firmaların yabancı sermaye payları (YSP), ölçek ve yaş gruplarıyla etkileşimleri de regresyonlara bağımsız değişkenler olarak dahil edilmiştir. Bu çerçevede yapılan ekonometrik analiz, firmaların ihracat payları ile kar marjları arasında anlamlı pozitif bir ilişki olduğunu ortaya koymakta, söz konusu pozitif ilişkinin, yüzde 49'un üzerinde YSP olan ve genç firma grupları için istatistiksel olarak daha güçlü olduğu tahmin edilmiştir. İhracat payındaki artışa firma karlılığının eşlik ettiği bu bulgu firmaların dış rekabet gücüne sahip oldukları yönünde yorumlanabilir. Dolayısıyla, genel olarak yabancı sermayeli firmaların, özellikle de genç ve yüksek YSP'na sahip olanlarının, ihracat pazarlarında rekabet avantajına sahip oldukları ileri sürülebilir. Diğer yandan, aynı örneklemde ihracat payları ile kar marjları arasındaki ilişkinin firma ölçeğine göre istatistiksel olarak anlamlı bir farklılık göstermediği tahmin edilmiştir.

Anahtar Kelimler: Doğrudan yabancı sermaye yatırımları, firma karakteristikleri, karlılık, dinamik panel

JEL Kodları: F21, D22, L25, C23

The Role of Social Security Institution in Sustainable Development [73]

Sümeyye Doruk
Erciyes University, Türkiye

Sultan Akkuş
Erciyes University, Türkiye

Büşra Demirtaş
Erciyes University, Türkiye

H. Hilal Bağlıtaş[74]
Erciyes University, Türkiye

Abstract
Sustainable development (SD) consists of three dimensions: economic, social and environmental. These dimensions have 17 main goals and sub-goals. Different institutions contribute to these goals of sustainable with different levels. In terms of contributing institutions, the Social Security Institution (SSI) interacts more with its social and economic dimensions. SSI can improve the socio-economic welfare level of society by determining and sustaining a more livable income level and eliminating imbalances in income distribution. In this context, when we examine SSI in the context of the main goals, it directly contributes to the goals of 3. Health and Quality Life, 5. Gender Equality and 10. Reduction of Inequalities. The method called mapping is effective in investigating the activities and actions of SSI on the sub-goals. The mapping method matches and shows how much the activities of the Social Security Institution contribute to the sub-goals of the determined main goals. When we use the mapping method, we drive the data from the Strategic Plans and Activity Reports published annually by SSI. Thus, the impact on sustainable development at the institution level becomes more clearly identifiable.

Keywords: Sustainable Development, Social Security Institution, Mapping
JEL Codes: O12, O15, I30

[73] This paper was accepted as the 2209-A Tubitak (the Scientific and Technological Research Council of Turkey) student project in 2023, and we derived this paper from the project final report. Sümeyye Doruk is project manager, Sultan Akkuş and Büşra Demirtaş are researchers and H. Hilal Bağlıtaş is academic advisor.
[74] Corresponding author, The Department of Economics, Erciyes University, Kayseri

Sosyal Güvenlik Kurumunun Sürdürülebilir Kalkınmadaki Rolü[75]

Özet

Sürdürülebilir kalkınma (SK), ekonomik, sosyal ve çevresel olmak üzere üç boyuttan oluşmaktadır. Her bir boyuta, 17 ana hedef ve onlara bağlı alt hedeflerle katkı sunulmaktadır. Bu hedeflerle kazanılan sürdürülebilir kalkınma, çok sayıda kurumun farklı düzeylerde sunduğu katkılarla gerçekleşebilmektedir. Katkı sunan kurumlar açısından Sosyal Güvenlik Kurumu (SGK)'nın, sosyal ve ekonomik boyutlarıyla daha fazla etkileşimde olduğu görülmektedir. SGK, toplumun sosyo-ekonomik refah düzeyini temelde daha yaşanabilir bir gelir seviyesi belirleyip gelir dağılımında dengesizlikleri gidererek iyileştirebilmektedir. Bu minvalde SGK'nın, ana hedefler bağlamında incelendiğinde 3. Sağlık ve Kaliteli Yaşam, 5. Toplumsal Cinsiyet Eşitliği ve 10. Eşitsizliklerin Azaltılması hedeflerine doğrudan katkı sunduğu ifade edilebilir. Söz konusu ana hedeflerin alt hedeflerine yönelik etkilerin araştırılmasında, haritalandırma adı verilen yöntem etkindir. Haritalandırma yöntemi, Sosyal Güvenlik Kurumu faaliyetlerinin belirlenen ana hedeflerin alt hedeflerine ne kadar katkı sunduğu eşleştirmekte ve göstermektedir. Haritalandırma yöntemi kullanılırken SGK'nin yıllık olarak yayımladığı Stratejik Planlar ve Faaliyet Raporlarından veri çekilmektedir. Böylece kurum düzeyinde sürdürülebilir kalkınmaya yapılan etki daha net tespit edilebilir hale gelmektedir.

Anahtar Kelimeler: Sürdürülebilir Kalkınma, Sosyal Güvenlik Kurumu, Haritalandırma
JEL Kodları: O12, O15, I30

[75] Bu bildiri, 2209-A Tubitak öğrencisi projesi olarak 2023 yılında kabul edilmiş olup, bu bildiri proje sonuç raporundan türetilmiştir. Sümeyye Doruk, proje yürütücüsü, Sultan Akkuş ve Büşra Demirtaş, Araştırmacı ve H. Hilal Bağlıtaş, Akademik danışman.

Energy Consumption and Environmental Impact: Testing the Environmental Kuznets Curve (EKC) Hypothesis

Ebru Tomris Aydoğan [76]
Yeditepe University, Turkey
taydogan@yeditepe.edu.tr

Aykut Tikicieri[77]
Yeditepe University, Turkey
tikicieriaykut@gmail.com

Abstract
Energy is essential to the economic growth of countries. The countries have to use energy to produce. However, it is a fact that energy consumption has negative environmental impacts such as pollution, climate change and global warming. The sources from which energy is produced determine the level of environmental impact. Economic growth can be achieved with a growth model based on fossil energy resources. However, it is not sustainable. In fact, in recent years, as environmental degradation has increased, the importance of sustainable economic development has come to the forefront, and international action and commitments to reduce the environmental impacts of economic growth have been put back on the agenda. In this context, countries have tended to increase the share of renewable energy in total energy consumption. The purpose of this study is to analyze the environmental impact of economic growth of the 25 largest countries in terms of Gross Domestic Product (GDP) in the context of sustainable development and to test the validity of the Environmental Kuznets Curve (EKC) hypothesis. In parallel with the literature, GDP is used to measure economic growth and the carbon dioxide (CO_2) variable is used to measure environmental impact. For the period between 1990 and 2021, a panel data analysis was conducted with annual data. The empirical results of the study show that environmental pollution continues to increase with economic growth in the analyzed countries, the EKC Hypothesis is not valid and stronger environmental policies are needed for sustainable development.

Keywords: Sustainable Development, Carbon Emissions, EKC Hypothesis.
JEL Codes: Q56, Q53, Q42.

[76] **Correspondence:** D Assoc. Prof., Yeditepe University, Faculty of Economics and Administrative Sciences, Department of Economics, taydogan@yeditepe.edu.tr, ORCID: 0000-0002-1529-5484.
[77] Ph.D. Candidate, Yeditepe University, Social Sciences Institute, Economics Graduate Program, tikicieriaykut@gmail.com, ORCID: 0000-0002-1649-0791.

Enerji Tüketimi ve Çevresel Etkileri: Çevresel Kuznets Eğrisi (ÇKE) Hipotezinin Testi

Özet

Enerji, ülkelerin ekonomik büyümeleri için gereklidir. Her ülke üretmek için enerji tüketir. Ancak, enerji tüketiminin kirlilik, iklim değişikliği, küresel ısınma gibi olumsuz çevresel etkilerinin bulunduğu bir gerçektir. Enerjinin hangi kaynaklardan üretildiği çevresel etkinin boyutunu belirlemektedir. Fosil enerji kaynaklarına dayalı bir büyüme modeli ile ekonomik büyüme sağlanabilir. Ancak, sürdürülebilirlikten bahsedilemez. Nitekim, son yıllarda sürdürülebilir ekonomik kalkınmanın önemi artan çevresel bozulmalarla birlikte yeniden ön plana çıkmış, ekonomik büyümenin çevre üzerindeki etkilerinin azaltılması için uluslararası önlemler ve daha ağır yükümlülükler konulması yeniden gündeme gelmiştir. Bu süreçte ülkelerin toplam enerji tüketiminde yenilenebilir enerji payının arttırılması eğilimi içerisine girmiştir. Bu çalışmada, Gayri Safi Yurtiçi Hasıla (GSYH) sırasına göre en büyük 25 ülkenin ekonomik büyümenin çevresel etkileri sürdürülebilir kalkınma çerçevesinde analiz edilmesi ve Çevresel Kuznets Eğrisi (ÇKE) Hipotezi'nin geçerliliğinin test edilmesi amaçlanmaktadır. Literatüre paralel ekonomik büyümenin ölçümlenmesinde GSYH, çevresel etkilerin ölçümlenmesinde Karbondioksit (CO_2) değişkeni kullanılmıştır. 1990 – 2021 arasındaki dönemler için yıllık verilerle panel veri analizi yapılmıştır. Çalışmanın ampirik sonuçları, analiz edilen ülkelerde ekonomik büyüme arttıkça çevresel kirliliğin de artmaya devam ettiğini, ÇKE Hipotezinin geçerli olmadığını ve sürdürülebilir kalkınma için daha güçlü çevre politikalarına ihtiyaç olduğunu ortaya koymaktadır.

Anahtar Kelimeler: Sürdürülebilir Kalkınma, Karbon Emisyonları, ÇKE Hipotezi.
JEL Kodları: Q56, Q53, Q42.

Evaluating the Economic and Environmental Impacts of Fossil Fuel Subsidy Removal: A Path Toward a Green Transition in Türkiye

Simay Kızılkaya[78, 79]
Yıldız Technical University, Turkey
simaykizilkaya@gmail.com

Sevil Acar
Boğaziçi University, Turkey
sevil.acar@bogazici.edu.tr

Abstract
This study establishes an analytical framework to evaluate the macroeconomic and sectoral effects of Türkiye's existing fossil fuel subsidization policies. The analysis updates the 2012 Input-Output table of the Turkish economy to reflect the year 2022 and assesses the economic and environmental implications of phasing out coal subsidies, with an emphasis on greenhouse gas emissions. The subsidies considered include investment incentives for coal mining and capacity payments granted to thermal power plants under the electricity market capacity mechanism. Initially, the study investigates the impacts of subsidy removal. Subsequently, it explores an alternative allocation of these subsidies toward greener initiatives, examining sectoral outcomes such as value-added, employment, trade balance, potential shifts in energy composition, and the implications for a just transition in the context of Türkiye's green transformation.

Keywords: Coal Subsidies, Fossil Fuel Subsidies, Input-Output Analysis, Just Transition, Türkiye
JEL Codes: E01, C67, O13

[78] **Correspondence:** Phone: +90 537 432 80 92, e-mail: simaykizilkaya@gmail.com
[79] This study was supported by TUBITAK (the Scientific and Technological Research Council of Turkey). TUBITAK-ARDEB-SOBAG 1001 Research Project No:123K509.

Collective Action as Informal Environmental Regulation: A Game-Theoretic Approach

Ceren Soylu[80]
Fenerbahçe University, Turkey
ceren.soylu@fbu.edu.tr

Abstract
Research on the use of natural resources has emphasized the role that institutions and successful coordination among individuals play in preventing the overexploitation of common-pool resources, hence averting what is famously known as the tragedy of the commons. Although models focusing on the implied collective action problem—devising and implementing rules to govern resource use—adequately capture many environmental degradation problems, in many cases, external actors exacerbate the tragedy by reducing the capacity for sustainable use. This leads to a second coordination problem for resource users: how they may cooperate against external causes of degradation. This latter aspect of collective action acts as an informal regulation mechanism that compensates for inefficiencies in formal environmental regulations. The model developed in this paper formalizes this dual collective action problem faced by resource users, and the relationship between formal and informal environmental regulations, by way of a dynamic tripartite game theoretical model of conflict between resource users, an external actor causing negative environmental externalities and the state. The model combines acquisitive (income) and constitutive (identity) motives and shows that heterogeneity and informational asymmetries can increase the effectiveness of threat of collective action by resource users as an informal regulation mechanism.

Keywords: game theory, collective Action, heterogenous agents, informal regulation.
JEL Codes: C72, D62, D74, D82, Q52

[80] **Correspondence:** Department of Economics and Finance, Faculty of Economics, Administrative and Social Sciences, Fenerbahçe University, 34758, Istanbul, Turkey. Phone: +90 216 9101907, e-mail: ceren.soylu@fbu.edu.tr

Carbon Pricing and Industrial Decarbonization: Evidence from the EU ETS

Funda Altun[81]
Ankara University, Turkey
faltun@ankara.edu.tr

Cumhur Çiçekçi[82]
Ankara University, Turkey
ccicekci@gmail.com

Abstract
In this study, we investigate the effects of carbon pricing on the carbon intensity of industrial sectors within the European Union Emissions Trading System (EU ETS). We examine five energy-intensive sectors—cement, iron and steel, chemicals, paper, and glass—in Germany, France, Italy, Poland, and Spain, analyzing data from 2015 to 2023. By using a fixed effects panel regression model with sectoral interactions, we explore how EU Allowance (EUA) price fluctuations influence carbon intensity, an indicator of decarbonization. Within this framework, we also apply a difference-in-differences approach to investigate the impact of the 2019 market stability reserve (MSR) policy shock, which aimed to stabilize carbon prices and enhance decarbonization incentives. We assess sector-specific responses and the effectiveness of this policy intervention to determine how carbon pricing influences emission reductions in various industries. With new data from the period after the MSR's introduction, when carbon prices have risen, this research aims to contribute to the current discussion on using market instruments for industrial emission reductions.

Keywords: Carbon Pricing, EU ETS, Industrial Decarbonization, Market Stability Reserve, Panel Data, Difference-in-Differences
JEL Codes: H23, Q54, Q58

[81] **Correspondence:** Department of Economics, Faculty of Political Sciences, Ankara University, 06590, Ankara, Turkey. Phone: +90 506 2051617, e-mail: faltun@ankara.edu.tr
[82] Department of Economics, Faculty of Political Sciences, Ankara University, 06590, Ankara, Turkey. Phone: +90 506 3699006 e-mail: ccicekci@gmail.com

The Mental Health Outcomes of Youth Unemployment In Turkey

İlkin İlke Yegek[83]
Marmara University, Turkey
ilke.yegek@marmara.edu.tr

Abstract
Unemployment serves as one of the key indicators of a country's economic and social status and is often associated with financial difficulties and psychological challenges for individuals worldwide. According to the Turkish Statistical Institute's August 2024 labor force statistics report, the unemployment rate among the youth population reached 16.5%. This study investigates the association between youth unemployment and mental health, with a particular focus on the mental health status of younger individuals in the Turkish labor market. Using the data from the Turkish Health Surveys (THS) of 2019 and 2022, this study constructs an index using the PHQ-8 module to assess the mental health status of young individuals, classifying them as exhibiting symptoms of depression or not. The propensity score matching (PSM) approach is used to address selection bias and analyze the effects of unemployment on mental well-being among young people in Turkey. The findings provide robust evidence that unemployment increases the likelihood of mental health issues among young individuals in Turkey. Understanding this relationship is essential for informing targeted interventions and support programs aimed at reducing negative outcomes such as economic inactivity and improving the overall well-being of young unemployed individuals, particularly in a developing economy like Turkey.

Keywords: Mental health, youth unemployment, propensity score matching, developing country, Turkey.
JEL Codes: I12, J13, J21

[83] **Correspondence:** Department of Economics, Faculty of Economics, Marmara University, 34854, İstanbul, Turkey. Phone: +90 535 5949110, e-mail: ilke.yegek@marmara.edu.tr

Parents' Occupation And Young Adults' Career Aspirations: Analysing Change from Youth to Young Adulthood

Fatimah Shah
University of Essex, UK

Abstract
In this research, we explore the association of parental occupation with the career aspirations of young adults between the ages of 16 and 21. To do so, we exploit household-level data from the UKHLS. We isolate the marginal impact of parental occupation during young adulthood on certainty and level of career aspirations. We added youth (age 10 to 15) career aspirations as a baseline indicator of early career aspirations. The results suggest that before completing secondary education, there is a strong association between having parents in low- skill occupations and low career aspirations. Maternal employment status plays a significant role in explaining the level of career aspirations in all young adults (regardless of gender) and the certainty of career aspirations in young males. Beyond secondary education, the impact of fathers' employment status is crucial to the aspirations of males.

Keywords: Parental occupation; Career aspirations; Young adults; Gender.
JEL Codes: D10, D91, J24

Adapting to Digitalization: Labor Market Dynamics in Türkiye's Ageing Workforce

Nazlı Şahanoğulları[84]
Istanbul Kültür University
n.sahanogullari@iku.edu.tr

Abstract
The rapid advancement of digital technologies is reshaping labor markets globally, bringing both opportunities and challenges, particularly for ageing societies. Automation, AI, digital platforms, and remote work are transforming employment structures, redefining necessary skills, and influencing workforce dynamics. Türkiye presents a unique case with its increasing median age and evolving labor force composition. While digitalization fosters job creation through e-commerce and platform-based employment, it also risks job displacement, especially for those lacking digital literacy. This study empirically examines the relationship between digital skills and labor market participation using micro-level data. It assesses how digital proficiency affects labor force engagement, controlling for education, age, gender, income, and sectoral factors. Sectoral variations in digital adoption are also explored, identifying industries benefiting from digital transformation versus those facing labor market polarization. The study concludes with policy recommendations aimed at fostering an inclusive labor market, emphasizing the need for reskilling initiatives, digital inclusion strategies, and targeted employment policies to ensure that digitalization contributes to labor market resilience in an ageing society.

Keywords: Digitalization, Labor Force Participation, Ageing Workforce, Digital Skills
Jel Codes: J01, J1

[84] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Istanbul Kültür University, 34158, Istanbul, Turkey. Phone: +90 212 4984141 ex: 4023, e-mail: n.sahanogullari@iku.edu.tr

Track, Share, Play: Using PanPals App To Motivate Home Cooking

Esin Cansu Yilmaz
London School of Economics and Political Science, UK
ecansuyilmaz@gmail.com

Abstract
Objective. This study examines the effectiveness of PanPals, a social cooking app, in increasing cooking frequency and motivation while shifting perceptions of cooking from a household chore to an enjoyable activity. The app integrates a social feed, self-tracking, gamification, goal-setting, and reminders, applying behavioral science-backed features proven successful in other domains.
Methods. A mixed-methods approach was used with 38 participants, who engaged with PanPals for three weeks. Quantitative data were collected through pre- and post-intervention surveys measuring cooking motivation, frequency, and attitude shifts. Additional behavioral data was gathered from in-app interactions. Qualitative insights were drawn from open-ended survey responses, analyzed using thematic analysis. The app design was guided by a literature review on cooking attitudes and social self-tracking apps, ensuring a research-driven approach.
Results. Self-reported cooking frequency increased significantly, from an average of 11.76 to 13.97 meals per week ($t(37) = 2.44$, $p= 0.0098$). The intervention also led to significant increases in cooking motivation, enjoyment, diet quality, and cooking skills. Notably, the perceived dreadfulness of cooking decreased ($z= -2.333$, $p=0.0197$), while perceptions of other household chores remained unchanged, highlighting the intervention's specific impact on cooking attitudes.
Conclusions. By applying Self-Determination Theory (SDT) principles, PanPals effectively increased cooking motivation and frequency, much like how self-tracking and community-driven apps have transformed other habits and hobbies. This study reinforces the potential of habit-building digital interventions and provides a strong behavioral science foundation for integrating intrinsic motivation, social reinforcement, and gamification into consumer tech. Future research should explore feature-level engagement and expand on qualitative insights to deepen understanding of long-term behavior change.

Keywords: Behavioral Science, Health Economics, Habit Formation, Social Influence, Gamification, Self-Tracking, Cooking Motivation, Digital Interventions, Consumer Behavior, Human-Computer Interaction (HCI), Entrepreneurship
JEL Codes: D03, D91, I12, L86, M31, O35, M13, L86

Analyzing Behavioral Factors Affecting Cooperative Vertical Integration

Filiz Malkoc Kinikli[85]
Swedish University of Agricultural Sciences, Sweden
filiz.kinikli@slu.se

Kostas Karantininis
Swedish University of Agricultural Sciences, Sweden
karantininis.konstantinos@slu.se

Abstract
Vertical integration refers to the expansion of a cooperative's activities into later stages of the value chain, such as processing, retailing, or direct marketing to consumers. While this strategy promises enhanced market control and value capture, it also introduces significant challenges.
This study explores the behavioral factors influencing cooperative vertical integration, applying Prospect Theory as a conceptual framework. Prospect Theory explains decision-making under risk and uncertainty, highlighting how individuals evaluate trade-offs. We specifically examine the effect of cognitive biases and social behavioral barriers on cooperative integration. In this study, we focused on farmers' cooperatives in Sweden. A binary logistic regression model was applied to determine the behavioral factors influencing cooperative integration. Using expert evaluations, we classified cooperatives' vertical integration as either "success" or "failure" and used this as the dependent variable. Independent variables included key cognitive biases such as loss aversion, scarcity bias, overconfidence, optimism, and the hedonic treadmill effect. The study's dataset was obtained through an online survey of cooperative members in Sweden. The findings showed that cognitive biases significantly affect cooperative success or failure: In order to cooperative success, it is important to encourage democratic decision-making processes to counterbalance individual biases.

Keywords: Behavioral factors, cooperatives, prospect theory, Sweden.
JEL Codes: D23, Q13, J24

[85] **Correspondence:** Department of People and Society, Swedish University of Agricultural Sciences, 23422, Alnarp, Sweden. Phone: +46761337425, e-mail: filiz.kinikli@slu.se

A Computational Approach to Test Spatial Competition

Ayça Düldül[86]
Recep Tayyip Erdogan University, Turkey
duldul.ayca@gmail.com

Burak Ünveren
Yıldız Technical University, Turkey
bunveren@yildiz.edu.tr

Abstract
Location games typically lack a pure strategy Nash equilibrium. *Such cases are commonly addressed by turning to mixed strategies as a potential solution.* In this study, we develop a novel method to empirically test the fit of mixed strategy Nash equilibria in the context of location games. The core idea involves interpreting decision-makers' theoretical mixed strategies as cumulative distribution functions (CDFs). We then use the Kolmogorov-Smirnov statistic to test whether empirically observed real-world location choices can be interpreted as random draws from these CDFs. To operationalize our approach, we develop a general-purpose computational toolbox applicable to any location game. Finally, to demonstrate the practicality of our method, we apply this toolbox to analyze location choice patterns among pharmacies in selected regions of Türkiye. We hope this study will inspire future research on strategic settings where pure strategy Nash equilibria are not guaranteed, including Bertrand price competition and political elections.

Keywords: Locations games, spatial competition, computational methods.
JEL Codes: C72, R30, C63, L13

[86] **Correspondence:** Department of Economics, Faculty of Economics, Recep Tayyip Erdogan University, 53100, Rize, Turkey. Phone: +90 **464 2236126** ex: 5180, Fax**: +90 464 2235376,** e-mail: duldul.ayca@gmail.com

An Economic Theory of Complexity Fatigue

Cavit Görkem Destan[87]
TED University, Turkey
gorkem.destan@tedu.edu.tr

Abstract
Recent research highlights that individuals are more prone to errors when facing complex decision problems, and that simplifying these problems or providing assistance can significantly improve choice quality (Enke & Graeber, 2023; Oprea, 2024). However, little is known about the potential spillover effects of complexity—specifically, how tackling one complex decision may impair performance in subsequent decisions. This paper addresses this gap by proposing a dynamic model of decision-making under complexity. Drawing on insights from the literature on self-control and ego depletion (Thaler & Shefrin, 1981), in the model, individuals possess a finite cognitive resource, conceptualized as a stock or battery, which is depleted as they engage with complex tasks. The depletion of this resource reduces the individual's ability to handle future complexity, leading to lower-quality decisions over time. The model sheds light on behavioral patterns across different settings, including tasks involving skill accumulation, and helps explain how decision-making capacity evolves under repeated exposure to complex problems.

Keywords: Complexity, decision fatigue, sequential choice.
JEL Codes: D01, D83, D91

[87] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, TED University, 06420, Ankara, Turkey. Phone: +90 312 5850326, e-mail: gorkem.destan@tedu.edu.tr

Central Bank Digital Currencies (CBDCs): a countermeasure to Anti-Money Laundering (AML) challenges posed by cryptocurrencies?

Albina Gaisina[88]
Istanbul Technical University, Turkey
gaisina21@itu.edu.tr

Matthias Finger
Istanbul Technical University, Turkey
finger@itu.edu.tr

Abstract
This study examines whether Central Bank Digital Currencies (CBDCs) are developed to address money laundering risks associated with cryptocurrencies. It focuses on piloted/launched CBDCs to assess this relationship empirically. A cross-sectional regression model (as of December 2024) is used to examine the relationship between CBDC adoption, cryptocurrency activities in centralised finance (CeFi)/decentralised finance (DeFi), and Anti-Money Laundering (AML) effectiveness, proxied by the Financial Action Task Force (FATF) Score, Basel AML Index, and Organised Crime AML Index. The findings reveal that jurisdictions allowing legal cryptocurrency use are weakly positively associated with higher AML outcomes. Higher cryptocurrency ownership and higher levels of CeFi trade are negatively associated with AML performance. The FATF Score is lower in countries with local CBDC providers. Higher GDP per capita is associated with higher AML effectiveness. This study bridges a research gap by analysing the relationship between cryptocurrencies and CBDCs, focusing on the AML aspect. It also offers insights into which CBDC design features can address the regulatory issues inherent in cryptocurrencies through the introduction of a novel CBDC-AML design layered framework. The policy implication is that CBDCs, if carefully designed, can improve AML effectiveness, and the focus should be on robust AML frameworks rather than cryptocurrency bans. However, the study is limited by CBDC data availability due to recent adoption and the lack of early country-specific data on cryptocurrencies.

Keywords: Central Bank Digital Currency (CBDC), Cryptocurrency, Anti-Money Laundering (AML), Financial Regulation, Centralised Finance (CeFi), Decentralised Finance (DeFi).
JEL Codes: E42 K42 G28 O33

[88] **Correspondence:** Department of Economics, Graduate school, Istanbul Technical University, 34496, Istanbul, Turkey. Phone: +90 5340440692, e-mail: gaisina21@itu.edu.tr

CBDC Effects on Monetary Economics: Descriptive Analysis

Muhammed Taha Salman
Marmara University, Türkiye
muhammedsalman@marun.edu.tr

Abstract
CBDC is directly related to existing monetary economics and policy, as it is a form of money. The study investigates existing economic theories and concepts such as interest theory (Fisher,1930), quantity theory of money (Fisher, 1911; Friedman, 1968), monetary base with respect to CBDC. Furthermore, the study examines financial stability, money supply and demand, design choices, and relevant topics to signify potential effects of CBDC on monetary economics. The paper methodology, conducting comprehensive literature reviews, includes theoretical and quantitative works, also include quantitative analysis to describe this new area. The data primarily comes from countries that have launched or are piloting CBDC, which is analyzed quantitatively in this study. The general aim of the study is to eliminate grey areas about CBDC in monetary economics as much as possible. Moreover, this study aims to provide policymakers with a deeper understanding of CBDC and its implications for monetary economics within the existing system.

Keywords: CBDC, monetary economics, digital currency, central bank
JEL Codes: E42, E58

Monetary Policy and Household Consumption: Evidence from Household Groups in Turkey

Anıl Tuğral[89]
Yıldız Technical University, Turkey
atugral@yildiz.edu.tr

Hüseyin Taştan
Yıldız Technical University, Turkey
tastan@yildiz.edu.tr

Abstract
This study analyzes the association between monetary policy changes and household consumption expenditures across different household types in Turkey. Households' responses to economic shocks can vary substantially depending on their asset ownership and income composition. Those without sufficient liquid assets may be unable to adjust their consumption in response to policy changes, which has important implications for the effectiveness of monetary policy. We focus on three conceptual household types widely discussed in the literature: non-hand-to-mouth (non-HtM), wealthy hand-to-mouth (wealthy-HtM), and poor hand-to-mouth (poor-HtM). Using data from the Turkish Household Budget Survey spanning the last two decades, we aim to construct a classification that captures the essence of the groups defined in the literature by relying on observable indicators such as homeownership, land and vehicle ownership, and income sources. This approach enables the classification of households in each year and forms the basis for examining the relationship between monetary policy and consumption across household types. Moreover, it serves as a framework for exploring the potential distributional effects of policy changes. Overall, the study aims to contribute to the literature on the heterogeneous transmission of monetary policy by highlighting how consumption responses differ across groups over time.

Keywords: Household consumption, monetary policy, household wealth.
JEL Codes: C81, E21, E52

[89]**Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Yıldız Technical University, 34220, İstanbul, Turkey. Phone: +90 212 3836867, e-mail: atugral@yildiz.edu.tr

Monetary Policy and Credit Gap: What about Central Bank Independence?

Bilge Karataş
Utrecht University School of Economics, Netherlands
B.Karatas@uu.nl

Abstract
This study analyzes the influence of monetary policy on financial sector imbalances focusing on the role of Central Bank Independence in transmitting monetary policy to the credit markets. Based on the analysis on 41 developed and developing countries having quarterly data between 1980 and 2022, the study establishes that the expansionary monetary policy leads to an increase in the Credit- to-GDP gap. However, this relationship is reversed for countries that have high Central Bank Independence which is robust to the use of unconventional monetary policy as the monetary policy tool. The results in general indicate that the Central Bank Independence decreases and even reverses the effectiveness of monetary policy in influencing credit markets.

Keywords: Monetary Policy; Money Supply; Interest Rates; Central Bank Independence; Credit.
JEL Codes: E52; E51; E43; E58; G21

Buyer-Supplier Interactions, R&D Spillovers and Firm Poductivity

Çiğdem Ekiz
Maastricht University, Holand
ekiz@merit.unu.edu

Abstract
This study investigates the role of buyer-supplier relationships in facilitating R&D spillovers and their impact on firm productivity in an emerging economy. Using a comprehensive firm-level dataset from Türkiye covering 2006-2021, we measure transaction-mediated knowledge spillovers by examining the R&D stocks of buyers and suppliers. Unlike previous research that primarily focuses on geographic and technological proximity, we assess the direct role of trade relationships in knowledge diffusion. Our results indicate that both buyer and supplier R&D stocks positively influence firm productivity, with stronger effects observed in stable relationships lasting at least three years. Local R&D spillovers have a larger impact than buyer-supplier spillovers, but firms with higher internal R&D stocks benefit more from transactional R&D spillovers. We also implement robustness checks using total factor productivity (TFP). To address potential endogeneity concerns, we employ instrumental variable (IV) methods using exogenous policy shocks to R&D investments. Our findings provide novel insights into the mechanisms through which firms acquire and utilize external knowledge, emphasizing the importance of sustained buyer-supplier linkages in fostering innovation and productivity growth.

Keywords: R&D spillovers, buyer-supplier relationships, firm productivity, knowledge diffusion, absorptive capacity.
JEL Codes: O33, D22, L14

The Impact of R&D Support on Firm Innovation

Emrah Er
Ankara University
eer@politics.ankara.edu.tr

Nilay Unsal Karaman[90]
Ankara University
unsaln@ankara.edu.tr

Abstract
Improvement in firms' innovation outcomes is the ultimate goal of the programs that supports research and development (R&D). The motivation behind the public support for R&D in private sector is mainly to deal with market failure and increase the competitiveness which can be performed through increased innovations. This study is an economic evaluation of research and development (R&D) support on firms' innovation outcomes in Turkiye. The aim is to understand whether 1) firms receiving government R&D support exhibit higher patent application rates compared to similar non-recipient firms and 2) R&D support leads to increased initiation of new R&D projects, with effects appearing more rapidly than for patent outcomes. The study focuses on firms located in the technology development zones. A difference-in-differences with matching method is employed to measure the effects. The analysis is conducted using data from Entrepreneur Information System of Ministry of Industry and Technology. The analysis sample includes an unbalanced 67.730 observations for years 2006-2022. The results will contribute valuable evidence to inform the design and implementation of effective innovation support policies.

Keywords: Innovation, patent application, project initiation, technology development zone, R&D support
JEL Codes: L00, L25, O31, O38

[90] **Correspondence:** Department of Economics, Faculty of Political Sciences, Ankara University, 06590, Ankara, Turkey. e-mail: unsaln@ankara.edu.tr

Reconsidering The Nexus Between Knowledge and Economic Growth in an Unstable Economy: The Case of Turkish Economy

Fatma M. Utku-İsmihan
MoAF, METU
fmutku@yahoo.com

Mustafa İsmihan[91]
Eastern Mediterranean University
mustafa.ismihan@emu.edu.tr

Abstract
This paper, inspired by the Turkish experience, investigates the role of macroeconomic instability and knowledge on total factor productivity over the 1960-2022 period, by using a production function approach. Within our simple model of total factor productivity we link short-run policy outcomes, with a proper measure of the quality of macroeconomic performance, to long-run productivity measures by considering political economy factors such as socio-political and institutional issues. In doing so, we attempt to measure the quality of macroeconomic performance with a composite macroeconomic stability indicator which acted as a moderating variable in our framework. This framework helps us to understand the dynamics behind the substantial volatility in productivity and hence output in Türkiye during the last six decades. The empirical results indicate that while knowledge accumulation in Türkiye is a critical driver of productivity and growth, the economy is also persistently and unfavorably affected by chronic macroeconomic instability fueled by the recurring unsound policies and weak institutions.

Keywords: Knowledge, Total factor Productivity, Instability, Economic growth, Political economy, Institutions.

JEL Codes: E60, O40, O47, O50

[91] **Correspondence:** Department of Economics, Faculty of Business & Economics, Eastern Mediterranean University
mustafa.ismihan@emu.edu.tr

Inflation Expectations and Firms' Decisions in High Inflation: Evidence From a Randomized Control Trial

Okan Akarsu[92]
Central Bank of the Republic of Türkiye, Türkiye
okan.akarsu@tcmb.gov.tr

Emrehan Aktuğ
Sabancı University, Türkiye
emrehan.aktug@sabanciuniv.edu

Huzeyfe Torun
Central Bank of the Republic of Türkiye, Türkiye
huzeyfe.torun@tcmb.gov.tr

Abstract
We conducted a survey of Turkish firms, using randomized treatments to provide varied information about inflation in a high-inflation environment. By matching the survey data with administrative firm level data on exports, employment, credit, and foreign exchange transactions, we explore the impact of exogenous variations in inflation expectations on firms' behavior, borrowing decisions, and expectations. Our findings reveal three key insights. First, inflation expectations significantly impact firms' expected prices, wages, and unit costs, with pass-through rates reaching as high as 60% in a high-inflation environment—demonstrating a much stronger connection compared to low-inflation settings. Second, firms with heightened inflation expectations substantially increase their credit demand, shifting from short-term to long-term loans through the refinancing channel, with a significantly reduced cost. Specifically, a 10-percentage point increase in inflation expectations leads to a 3-percentage point rise in credit usage, accompanied by a 3-percentage point decline in borrowing costs. Additionally, firms with elevated inflation expectations are more likely to raise their foreign currency purchases while decreasing the share of FX denominated credit on their liability side. Third, firms facing higher inflation expectations tend to reduce employment and sales, reflecting a stagflationary outlook. Despite the negative impact on sales and employment, total credit usage increases, driven by long-term borrowing as firms seek to lock in lower long-term rates in anticipation of further inflation, highlighting the importance of the refinancing channel.

Keywords: Expectations, Firms, RCT, High Inflation, Macroeconomics
JEL Codes: E12; E24; E31; E52

[92] **Correspondence:** Central Bank of the Republic of Türkiye, Sabancı University. E-mail: okan.akarsu@tcmb.gov.tr
Website: https://sites.google.com/view/okanakarsu/home

Do Central Banks Shape Expectations? Evidence from Households, Firms and Market Participants

Okan Akarsu[93]
CBRT, Turkey
okan.akarsu@tcmb.gov.tr

Emrehan Aktuğ[94]
Sabancı University, Turkey
emrehan.aktug@sabanciuniv.edu.tr

Cihan Yalçın[95]
CBRT, Turkey
cihan.yalcin@tcmb.gov.tr

Abstract
Expectations of households, firms, and market participants differ significantly, with particularly wide dispersion during volatile periods. We examine how macroeconomic news impacts the inflation expectations of these groups. Our findings reveal that households' and firms' inflation expectations increase in response to a positive monetary policy (tightening) shock, whereas professionals' expectations decline. This divergence arises from fundamentally different interpretations of economic dynamics: households and firms view monetary tightening as a signal of worsening economic conditions—such as rising costs, weaker supply capacity, and potential production disruptions—leading them to expect higher inflation. As a result, they associate tightening with higher inflation. In contrast, professionals adhere to a demand-driven perspective, interpreting monetary tightening as a mechanism to reduce aggregate demand and thus lower inflation, consistent with standard economic theory. This pattern is further confirmed by how the three groups respond to unexpected inflation news (inflation surprises). These findings help explain the persistent disagreement in inflation expectations across households, firms, and professional forecasters, particularly during periods of economic uncertainty.

Keywords: Expectations, Inflation, Central Bank, Firms, Households
JEL Codes: E12; E24; E31; E52

[93]**Correspondence:** Central Bank of the Republic of Türkiye, Istanbul, Turkey. E-mail: okan.akarsu@tcmb.gov.tr
[94]**Correspondence:** Faculty of Arts & Social Sciences, Sabancı University, 34956, Istanbul, Turkey. Phone: +90 534 6675930, e-mail: emrehan.aktug@sabanciuniv.edu.tr
[95]**Correspondence:** Central Bank of the Republic of Türkiye, Istanbul, Turkey. E-mail: cihan.yalcin@tcmb.gov.tr

On Behavioral Foundation of Pessimism and a Credit Design for Pessimist Entrepreneurs

Umut Keskin[96]
İstanbul Bilgi University, Turkey
umut.keskin@bilgi.edu.tr

Büşra Eroğlu
University of Mannheim, Germany
beroglu@mail.uni-mannheim.de

Abstract
Although expected utility is the most prominent tool to model choice under uncertainty in economics, it has been challenged both empirically and theoretically in many studies. As a response to these challenges, different choice models that capture the violations of expected utility were proposed. Among such models are prospect theory and rank dependent utility models. In particular, these models incorporate pessimism into decision making under uncertainty which expected utility cannot. In a nutshell, pessimism can be defined as the overestimation of the likelihood of worst outcomes. It has been established in experimental studies that such an attitude in decision making exists abundantly; making it an important component of decision under uncertainty. Despite its importance and persistence in decision making, there is no model-free characterization of pessimism. We will discuss the attempts for such a characterization and provide alternative solutions for this problem. As an application of pessimism, we will provide a credit mechanism that will encourage new entrepreneurs who are pessimists. New projects that otherwise would not exist due to entrepreneurs' pessimist attitudes, will come to realization through our mechanism. This will also help economies recover faster from recessions and stagflations.

Keywords: Pessimism, prospect theory, rank dependent utility, fiscal policy, mechanism design.
JEL Codes: D81, D82, D91, E62

[96] **Correspondence:** Department of Economics, Faculty of Business, İstanbul Bilgi University, 34060, İstanbul, Turkey. Phone: +90 212 3117374, e-mail: umut.keskin@bilgi.edu.tr

How Do Firms React to Energy Cost Shocks? Oil Supply, Carbon Prices, and Expectations

Okan Akarsu
Central Bank of the Republic of Türkiye
okan.akarsu@tcmb.gov.tr

Emrehan Aktuğ
Sabancı University
emrehan.aktug@sabanciuniv.edu

Huzeyfe Torun
Central Bank of the Republic of Türkiye
huzeyfe.torun@tcmb.gov.tr

Cihan Yalçın
Central Bank of the Republic of Türkiye
cihan.yalcin@tcmb.gov.tr

Abstract
Energy prices play a significant role in shaping inflation expectations, as households and firms interact with energy costs regularly. While household responses have been widely studied, there is limited evidence on how firms' expectations respond to energy price shocks, despite their direct impact on production costs. This paper analyzes how unexpected oil supply shocks influence firms' inflation expectations using a detailed monthly dataset of Turkish manufacturing firms from 2009 to 2024. We first show that oil supply shocks substantially raise both actual inflation and firms' average inflation expectations at the aggregate level, with effects lasting up to 15 months. Firm-level analysis reveals substantial heterogeneity: smaller and highly leveraged firms respond more strongly to oil shocks, significantly increasing their expectations about inflation, own prices, and unit costs compared to larger and financially stronger firms. Furthermore, these shocks deteriorate firms' business outlook and lead to tangible reductions in capacity utilization and sales. Conversely, carbon price shocks and global temperature changes do not produce significant impacts, consistent with the absence of a binding carbon pricing mechanism in Turkey during the period studied. Our findings highlight oil supply shocks as a crucial determinant of firm-level expectations, emphasizing the importance of energy-cost considerations in inflation-targeting policies, particularly in emerging, energy-intensive economies.

Keywords: Expectations, Firms, High Inflation, Macroeconomics
JEL Codes: E12; E24; E31; E52

Testing the Environmental Kuznets Curve (EKC) Hypothesis for Fisheries Grounds: The Case of Türkiye

Pınar Karahan-Dursun[97]
Mudanya University, Türkiye
pinarkarahan.dursun@mudanya.edu.tr

Şerif Canbay
Mudanya University, Türkiye
serif.canbay@mudanya.edu.tr

Serkan Sengül
Mudanya University, Türkiye
serkan.sengul@mudanya.edu.tr

Abstract
The Environmental Kuznets Curve (EKC) hypothesis suggests that there is an inverted U-shaped relationship between environmental degradation and economic growth, i.e. environmental degradation increases in the early stages of the economy and, after income reaches a turning point, economic growth begins to improve environmental quality. Studies testing the validity of the EKC hypothesis mostly focus on air pollution among environmental indicators. This study tests the validity of the EKC hypothesis by using the fishing grounds footprint as an indicator of environmental degradation for Türkiye, which has a significant fishing potential. For this purpose, in the empirical analysis covering the period 1974-2022, ARDL model and causality test based on VECM model are used and total fishery production and total merchandise trade variables are included in the model as control variables. The results of the ARDL model show that the EKC hypothesis is valid in fisheries in both the short and long run. Furthermore, the results show that fisheries production has a positive effect on the fisheries footprint in the short run, while merchandise trade has a negative effect on the fisheries footprint in both the short and long run. The results of the causality tests show that there is a causality from economic growth, fisheries production, and merchandise trade to the fisheries footprint in the short run and that all explanatory variables together are Granger causes of the fisheries footprint in the long run. The study provides important policy implications for the impact of economic growth on the marine ecosystem.

Keywords: EKC hypothesis, Fisheries footprint, Economic growth
JEL Codes: O44, Q50, Q53.

[97] **Correspondence:** Department of Economics and Finance, Faculty of Art and Social Sciences, Mudanya University, 16940, Bursa, Turkey. Phone: e-mail: pinarkarahan.dursun@mudanya.edu.tr

Çevresel Kuznets Eğrisi (EKC) Hipotezinin Balıkçılık Alanları için Test Edilmesi: Türkiye Örneği

Özet

Çevresel Kuznets eğrisi (EKC) hipotezi çevre kirliliği ve ekonomik büyüme arasında ters U biçiminde bir ilişki olduğunu öne sürmektedir, yani çevresel bozulma ekonominin ilk aşamalarında artmakta, gelir bir dönüm noktasına ulaştıktan sonra ise ekonomik büyüme çevresel kaliteyi iyileştirmeye başlamaktadır. EKC hipotezinin geçerliliğini test eden çalışmalar çoğunlukla çevresel göstergelerden hava kirliliğine odaklanmaktadır. Bu çalışma, EKC hipotezinin geçerliliğini, önemli bir balıkçılık potansiyeline sahip Türkiye için çevresel bozulma göstergesi olarak balıkçılık alanları ayak izini kullanarak test etmektedir. Bu amaçla, 1974-2022 dönemini kapsayan ampirik analizde, ARDL modeli ve VECM modeline dayalı nedensellik testi kullanılmış ve kontrol değişkeni olarak toplam balıkçılık üretimi ve toplam mal ticareti değişkenleri modele dahil edilmiştir. ARDL modeli sonuçları, EKC hipotezinin balıkçılık alanlarında hem kısa hem de uzun dönemde geçerli olduğunu göstermiştir. Ayrıca, elde edilen bulgular, balıkçılık üretiminin balıkçılık ayak izi üzerinde kısa dönemde pozitif, mal ticaretinin balıkçılık ayak izi üzerinde hem kısa hem de uzun dönemde negatif etkisi olduğunu göstermiştir. Nedensellik testi sonuçları ise kısa dönemde ekonomik büyümeden, balıkçılık üretiminden ve mal ticaretinden balıkçılık alanları ayak izine doğru bir nedensellik ilişkisinin olduğunu ve kullanılan tüm açıklayıcı değişkenlerin birlikte uzun dönemde balıkçılık ayak izinin Granger nedeni olduğunu ortaya koymuştur. Çalışma, ekonomik büyümenin deniz ekosistemi üzerindeki etkilerine yönelik önemli politika önerileri sunmaktadır.

Anahtar Kelimeler: EKC hipotezi, Balıkçılık ayak izi, Ekonomik büyüme
JEL Kodları: O44, Q50, Q53.

Can Climate Change Increase Inflation? A Study for Turkey Economy

Hilal Şeker[98]
Amasya University, Turkey
hilal.seker@amasya.edu.tr

Abstract
Climate change agriculture, energy, food, trade, productivity, etc., and this is felt in many areas such as macroeconomic can affect stability. Climatic changes may lead to short-term supply shocks and thus constitutes a risk factor for the general price level. A review of the literature reveals that the general level of prices and climate change between climate change and climate change for the Turkish economy is limited. From this point of view, this study analyses the impact of climate change on the Turkish economy. The aim of this study is to reveal the effects on inflation. For this purpose Annual mean temperature and annual average temperature representing climate change for the years 1980-2023 carbon dioxide emission and gross domestic product per capita as control variable. The effects of output variables on the inflation rate have been investigated. The method used is NARDL, which allows us to see asymmetric relationships more clearly method. Thanks to this method, both short and long run variables symmetric and asymmetric relationships between the two groups can be revealed. The resulting The findings show that the most prominent representatives of climate change temperature fluctuations and carbon dioxide emission increases and inflation between the two countries are positively correlated. In other words, in the country temperature increases create an upward pressure on inflation and the CBRT's price stability target. We can say that it poses a threat to the price stability target.

Keywords: Inflation, Climate change, NARDL.
JEL Codes: Q54, E52,O52

[98] **Correspondence:** Department of Economics, Faculty of Economics, Anadolu University, 26470, Eskisehir, Turkey. Phone: +90 222 3350580 ex: 2648, Fax: +90 222 3201304, e-mail: ykilicaslan@anadolu.edu.tr

İklim Değişikliği Enflasyonu Artırabilir Mi? Türkiye Ekonomisi İçin Bir Çalışma

Özet

İklim değişikliği tarım, enerji, gıda, ticaret, verimlilik vb. pek çok alanda hissedilmekte ve bu da makro ekonomik istikrarı etkileyebilmektedir. İklimsel değişiklikler kısa vadeli arz şokları yaratarak genel fiyat seviyesi açısından da bir risk unsuru oluşturmaktadır. Literatür incelendiğinde fiyatlar genel seviyesi ve iklim değişikliği arasındaki ilişkileri inceleyen çalışma sayısının sınırlı olduğu görülmüştür. Bu noktadan hareketle çalışmada, Türkiye ekonomisi için iklim değişikliğinin enflasyon üzerindeki etkilerini ortaya koymak amaçlanmıştır. Bu amaçla 1980-2023 yılları için iklim değişikliğini temsilen yıllık ortalama sıcaklık ve karbondioksit emisyonu, kontrol değişkeni olarak da kişibaşı gayrisafi yurt içi hasıla değişkenlerinin enflasyon oranı üzerindeki etkileri araştırılmıştır. Kullanılan yöntem asimetrik ilişkileri daha açık görmemizi sağlayan NARDL yöntemidir. Bu yöntem sayesinde hem kısa hem de uzun dönemde değişkenler arasındaki simetrik ve asimetrik ilişkiler ortaya konabilmektedir. Elde edilen bulgular iklim değişikliğinin en belirgin temsilcilerinden kabul edilen sıcaklık dalgalanmaları ve karbondioksit emisyon artışları ile enflasyon arasında pozitif ilişkilerin olduğu yönündedir. Diğer bir değişle ülkedeki sıcaklık artışları, enflasyonda yukarı yönlü bir baskı oluşturmakta ve TCMB'nin fiyat istikrarı hedefi üzerinde bir tehdit unsuru oluşturmaktadır diyebiliriz.

Anahtar Kelimeler: Enflasyon, İklim değişikliği, NARDL.
JEL Kodları: Q54, E52,O52

The Analysis of Greenhouse Gas Emissions Caused By Individuals in Türkiye From a Time-Use Perspective

Betül Öztürk Gündoğdu[99][100]
Hacettepe University, Türkiye
bozturkgundogdu@hacettepe.edu.tr

Eren Gürer
Middle East Technical University, Türkiye
egurer@metu.edu.tr

Abstract
In Türkiye, households account for 59% of the total emissions caused by end-consumers. Moreover, the time-use habits of individuals are important determinants of consumption preferences. This study analyses the environmental impact of individuals' daily time-use preferences in a developing economy, Türkiye. For this purpose, we harmonise the environmentally extended input-output table EXIOBASE and the TURKSTAT Time-Use Survey with the assistance of the TURKSTAT Household Budget Surveys. Subsequently, we calculate the hourly greenhouse gas emissions of individuals' time-use activities. In the following step, we describe the time-use habits of individuals and the associated carbon footprints by demographic groups. The study, first, identifies the activities with high GHG emission intensity, highlighting the need to reduce the GHG content of the products used in such activities. Second, the results point out several possibilities for reducing GHG emissions by changing the time-use compositions of different demographic groups. By localising policy recommendations and identifying the needs of various demographic groups, this study offers a roadmap for policymakers to enable individuals to adopt environmentally friendly habits and reduce their carbon footprints.

Keywords: Greenhouse Gas Emissions, Time-use Analysis, Climate Change, Household Behaviour, Eco-friendly Lifestyle.
JEL Codes: Q54, Q56, Q58, J16

[99] **Correspondence:** Department of Economics, Hacettepe University, 06800, Ankara, Türkiye. Phone: +90 312 2976363 ex: 141, e-mail: bozturkgundogdu@hacettepe.edu.tr
[100] This study is supported by TUBITAK (the Scientific and Technological Research Council of Turkey). TUBITAK-ARDEB-SOBAG 3501 Research Project No: 224K475.

Türkiye'deki Bireylerin Neden Olduğu Sera Gazı Emisyonlarının Zaman Kullanımı Perspektifinden Analizi

Özet

Türkiye'de hanehalkları, nihai tüketiciler kaynaklı toplam sera gazı emisyonlarının %59'unu oluşturmaktadır. Ayrıca, bireylerin zaman kullanımı alışkanlıkları, tüketim tercihlerinin önemli belirleyicileri arasındadır. Bu çalışma, gelişmekte olan bir ekonomi olan Türkiye'de bireylerin günlük zaman kullanımı tercihlerinin çevresel etkisini analiz etmektedir. Bu amaçla, çevresel olarak genişletilmiş girdi-çıktı tablosu EXIOBASE ve TÜİK Zaman Kullanım Anketi, TÜİK Hanehalkı Bütçe Anketleri yardımıyla uyumlu hale getirilmiştir. Ardından, bireylerin zaman kullanımı faaliyetlerine ilişkin saatlik sera gazı emisyonları hesaplanmıştır. Bir sonraki aşamada, bireylerin zaman kullanımı alışkanlıkları ve buna bağlı karbon ayak izleri demografik gruplar düzeyinde tanımlanmıştır. Çalışma, ilk olarak, yüksek sera gazı emisyon yoğunluğuna sahip faaliyetleri belirleyerek, bu tür faaliyetlerde kullanılan ürünlerin sera gazı içeriğinin azaltılması gereğine dikkat çekmektedir. İkinci olarak, elde edilen bulgular, farklı demografik grupların zaman kullanımı bileşimlerinde yapılacak değişikliklerle sera gazı emisyonlarının azaltılabileceğine işaret etmektedir. Bu çalışma, politika önerilerini yerelleştirerek ve çeşitli demografik grupların ihtiyaçlarını belirleyerek, bireylerin çevre dostu alışkanlıklar edinmelerini ve karbon ayak izlerini azaltmalarını sağlamak için politika yapıcılara bir yol haritası sunmaktadır.

Anahtar Kelimeler: Sera Gazı Emisyonu, Zaman Kullanım Analizi, İklim Değişikliği, Hanehalkı Davranışları, Çevre Dostu Yaşam Biçimi.
JEL Kodları: Q54, Q56, Q58, J16

Consumer Payment Behavior in Türkiye: What Drives Cash Preference?

Saygın Çevik[101]
Central Bank of the Republic of Türkiye
saygın.cevik@tcmb.gov.tr

Emre Kaya[102]
Central Bank of the Republic of Türkiye
emre.kaya@tcmb.gov.tr

Abstract
The role of cash in today's rapidly digitalizing financial landscape has been a popular topic for researchers. The advancement in digital technologies has brought forward innovations in mobile payments that facilitate cashless transactions in a world of increasing credit and debit card usage in retail payments, as many central banks are working hard on digital currencies. This trend has put the future of cash under the spotlight as to whether it will become extinct or will survive as an alternative means of payment alongside other instruments in a digitalized world. Central banks continue to gauge the usage of their cash through surveys and an increasing number of them are developing strategies to secure its availability as a public good under financial inclusion and freedom to choose concerns. In this study, we aim to examine the payment method choices among Turkish households, using TURKSTAT's 2023 Household Budget Survey data. We also aim to understand the role of demographic factors, transaction characteristics and financial accessibility in shaping consumer payment behavior. Our findings suggest that cash continues to be an important means of payment method for Turkish households. In line with the related literature, we demonstrate that cash usage increases with age and decreases with higher levels of education and income in Türkiye. Moreover, our estimations suggest that online shopping habits, automobile ownership, house ownership and physical access to banking services have statistically significant effects on cash usage.

Keywords: Cash, Choice of Payment Method, Cash Usage Rate, Financial Inclusion.
JEL Codes: E41, C21, D12

[101] Banknote Analysis Division, Issue Department, Central Bank of the Republic of Türkiye, Ankara, Türkiye, e-mail: saygın.cevik@tcmb.gov.tr
[102] Banknote Analysis Division, Issue Department, Central Bank of the Republic of Türkiye, Ankara, Türkiye, e-mail: emre.kaya@tcmb.gov.tr

Türkiye'de Tüketicilerin Ödeme Yöntemi Tercihleri: Nakit Kullanımında Etkili Olan Faktörler

Özet

Nakdin hızla dijitalleşen günümüz finans dünyasındaki konumu popüler bir araştırma konusu olmaya devam etmektedir. Merkez bankaları dijital para çalışmalarına devam ederken, perakende ödemelerde kart kullanımının giderek arttığı bir dünyada dijital teknolojilerdeki gelişmeler, nakitsiz ödemeleri kolaylaştıran mobil ödemelerin hızla gelişmesini sağlamaktadır. Bu ortamda nakdin ortadan kalkıp kalkmayacağı veya diğer ödeme araçları ile birlikte varlığını sürdürüp sürdüremeyeceği konuları öne çıkmaktadır. Bu çerçevede, merkez bankaları anketler aracılığı ile nakit kullanım oranlarını takip etmeye çalışırken, birçok merkez bankası finansal kapsayıcılık ve seçme özgürlüğü gibi önceliklerle nakdin bir kamu malı olarak varlığını garanti altına alacak stratejiler geliştirmektedir. Bu çalışmada, TÜİK'in 2023 yılı Hanehalkı Bütçe Anketi verileri kullanılarak Türk hanehalkının ödeme yöntemi tercihleri incelenmekte; ödeme yöntemi tercihlerinde demografik faktörlerin, harcama türlerinin ve finansal erişilebilirliğin rolü araştırılmaktadır. Elde edilen sonuçlar, Türkiye'de nakdin hanehalkı için önemli bir ödeme aracı olmaya devam ettiğini ve literatürle uyumlu olarak, nakit kullanım oranının yaşla birlikte arttığını, eğitim seviyesi ve gelirle birlikte ise azaldığını göstermektedir. Tahmin sonuçları ayrıca, internetten alışveriş alışkanlıkları, otomobil sahipliği, ev sahipliği ve bankacılık hizmetlerine fiziki erişim gibi değişkenlerin nakit tercihi üzerinde istatistiksel olarak anlamlı olduğunu ortaya koymaktadır.

Anahtar Kelimeler: Nakit, Ödeme Yöntemi Tercihleri, Nakit Kullanım Oranı, Finansal kapsayıcılık
JEL Kodları: E41, C21, D12

The Comparative Analysis of Financial Inclusion in Turkey and Its Relationship with Economic Growth

Hüseyin Günsüz[103]
Muğla Sıtkı Koçman University, Turkey
huseyingunsuz@.edu.tr

Tansu Kartal
Ankara Hacı Bayram Veli University, Turkey
tansukartal1@gmail.com

Abstract
Access to and use of financial services can show significant differences not only between countries but also among regions within the same country. However, financial inclusion is considered a supportive factor in eliminating these differences. In its broadest definition, financial inclusion is a phenomenon that aims to ensure all segments of society have access to financial products and services, the capacity to benefit from these services, and the ability to participate in financial decision-making processes. In this context, removing barriers to access to finance is seen as an important factor in reducing poverty in countries, triggering individuals' entrepreneurial spirit, and enabling households and small and medium-sized enterprises (SMEs) to access the financial system, thereby contributing to the development of countries.
According to studies on financial development, financial development is considered the driving force of economic growth. Based on this, financial inclusion is highly important as it helps economic growth and development while also having a poverty-reducing effect. Considering the positive relationship between financial inclusion and economic growth, ensuring access to financial services for all segments of society is essential to improve living standards and reduce poverty. However, there are some inequalities in access to finance. Inequalities in financial inclusion are not only observed between countries but also within different geographical regions of the same country. In this context, in today's economies, while designing regional development policies, it has become inevitable to formulate policies that will minimize these differences. Based on this, considering the contribution of financial inclusion to economic growth, financial inclusion is important in reducing regional inequalities. The aim of this paper is to evaluate the relationship between financial inclusion and economic growth within the framework of Turkey's NUTS-2 regions. The first objective of our study is to construct a financial inclusion index at the NUTS-2 regional level and then compare the financial inclusion indices of these regions. Another objective is to focus on the relationship between financial inclusion and economic growth at the NUTS-2 regional level and, through interregional comparisons, examine the differences and propose policy recommendations.

Keywords: Language of instruction, job satisfaction, graduate education.
JEL Codes: G29, R23

[103] **Correspondence:** Department of Economics, Faculty of Economics and Administrative, Muğla Sıtkı Koçman University, 48000, Mugla, Turkey. Phone: +90 252 211 1362, e-mail: huseyingunsuz@mu.edu.tr

Türkiye'de Finansal Kapsayıcılığın Karşılaştırılması ve Büyüme İle İlişkisinin Analizi

Özet

Finansal hizmetlere olan erişim ve kullanım, ülkeler arası farklılaştığı gibi aynı ülkenin bölgeleri arasında da belirgin farklılıklar gösterebilmektedir. Ancak finansal kapsama bu farklılıkların giderilmesi için destekleyici bir faktör olarak kabul edilmektedir. En geniş tanımı ile finansal kapsayıcılık toplumun tüm kesimlerinin finansal ürün ve hizmetlere erişimini bu hizmetlerden yararlanma kapasitesini ve finansal karar alma süreçlerini sağlamayı hedefleyen bir olgudur. Bu bağlamda finansmana erişimin önündeki engellerin kaldırılması özellikle ülkelerdeki yoksulluğun azaltılmasında önemli bir etken olarak görülmekte ve bireylerin girişimci ruhlarını tetikleyerek hane halklarının ve küçük-orta ölçekli işletmelerin (KOBİ'lerin) finansal sisteme erişmesini sağlayarak ülkelerin kalkınmasına katkıda bulunur.

Finansal gelişme üzerine yapılan çalışmalara göre finansal gelişme ekonomik büyümenin itici gücü olarak görülmektedir. Buradan hareketle finansal kapsayıcılık ülke ekonomileri üzerinde büyüme ve kalkınmaya yardımcı olmakla birlikte yoksulluğu azaltıcı yönde bir etkiye sahip olması sebebiyle oldukça önemlidir. Finansal kapsayıcılık ile ekonomik büyüme arasındaki pozitif ilişki düşünüldüğünde toplumda yaşam standartlarında bir iyileşme yaratmak ve yoksulluğu azaltmak amacıyla toplumun tüm kesimlerinin finansal hizmetlere erişimini sağlamak elzemdir. Ancak finansa erişim konusunda bazı eşitsizlikler bulunmaktadır. Finansal kapsayıcılık konusunda yaşanan eşitsizlikler sadece ülkeler arasında değil ülkelerin kendi coğrafi bölgelerinde bile farklılık gösterebilmektedir. Bu bağlamda günümüz ekonomilerinde bölgesel kalkınma politikaları oluşturulurken bu farklılıkları minimize edecek politikaların oluşturulması kaçınılmaz hale gelmiştir. Buradan hareketle finansal kapsayıcılığın ekonomik büyümeye sağladığı katkı düşünüldüğünde bölgeler açısından bölgesel eşitsizliklerin azaltılmasında finansal kapsayıcılık önemlidir. Bu makalenin amacı, finansal kapsama ve ekonomik büyüme ilişkisini Türkiye'nin Düzey 2 bölgeleri çerçevesinde değerlendirmektir. Çalışmamızın amaçlarından ilki Düzey-2 Bölgeleri bazında finansal kapsayıcılık endeksi oluşturmak, ardından Düzey-2 bölgelerinin finansal kapsayıcılık endeksini karşılaştırmaktır. Diğer amacımız ise Düzey-2 bölgeleri bazında finansal kapsayıcılık ile ekonomik büyüme ilişkisi üzerinde durmak ve bölgelerarası karşılaştırma yapılarak farkların incelenmesi ve politika önerisi sunulmasıdır.

Anahtar Kelimeler: Finansal Kapsayıcılık, Ekonomik Büyüme, Düzey-2 Bölgeleri.
JEL Kodları: G29, R23

Determinants of Inflation Dynamics in Turkey: The Role of Uncertainty, Inertia and Asymmetric Shocks

Fatih Yeter[104]
Tokat Gaziosmanpaşa University, Turkey
fatih.yeter@gop.edu.tr

İlhan Eroğlu
Tokat Gaziosmanpaşa University, Turkey
ilhan.eroglu@gop.edu.tr

Abstract
Covering the 2013:01 - 2024:12 period, this study analyzes inflation dynamics in Turkey by focusing on inflation uncertainty and inflation inertia. The structural transformations, exchange rate shocks, and high volatility in this period have led to the inadequacy of traditional models based on fixed parameter assumptions. In this framework, the study empirically reveals the asymmetric, level-dependent, and time-varying nature of the effects on inflation by using TGARCH-M, quantile regression, and rolling window OLS. The findings show that negative uncertainty shocks have a stronger inflation-increasing effect than positive shocks. Moreover, as the level of inflation increases, the impact of inflation inertia and exchange rate shocks also increases significantly. These results suggest that it is critical for policymakers to increase predictability through strong communication mechanisms and consistent policy implementations, especially in periods of high uncertainty.

Keywords: Uncertainty, inertia, asymmetric shocks, quantile regression, time-varying parameter.
JEL Codes: C22, C32, E31, E52

[104] **Correspondence:** Turhal Faculty of Applied Sciences, Department of Banking and Insurance, Tokat Gaziosmanpaşa University, Turhal-Tokat/Turkiye, +90 (356) 275 77 56 ex: 4157, Fax: +90 (356) 275 98 97, e-mail: fatih.yeter@gop.edu.tr

Türkiye'de Enflasyon Dinamiklerinin Belirleyicileri: Belirsizlik, Atalet ve Asimetrik Şokların Rolü

Özet

2013:01 - 2024:12 dönemini kapsayan bu çalışma, Türkiye'de enflasyon dinamiklerini enflasyon belirsizliği ve enflasyon ataletine odaklanarak incelemektedir. Bu dönemde yaşanan yapısal dönüşümler, kur şokları ve yüksek oynaklık ortamı, sabit parametre varsayımına dayanan geleneksel modellerin yetersiz kalmasına yol açmıştır. Bu çerçevede çalışma; TGARCH-M, kantil regresyon ve hareketli pencereli OLS (rolling window OLS) yöntemlerini kullanarak, enflasyon üzerindeki etkilerin asimetrik, düzeye bağlı ve zamana göre değişen yapısını ampirik olarak ortaya koymaktadır. Bulgular, negatif yönlü belirsizlik şoklarının pozitif şoklara kıyasla enflasyonu artırıcı etkisinin daha güçlü olduğunu göstermektedir. Ayrıca enflasyon düzeyi yükseldikçe, enflasyon ataletinin ve döviz kuru şoklarının etkisinin de belirgin şekilde arttığı gözlemlenmektedir. Bu sonuçlar, özellikle belirsizliğin yüksek olduğu dönemlerde politika yapıcıların güçlü iletişim mekanizmaları ve tutarlı politika uygulamaları yoluyla öngörülebilirliği artırmalarının kritik bir öneme sahip olduğunu ortaya koymaktadır.

Anahtar Kelimeler: Belirsizlik, atalet, asimetrik şoklar, kantil regresyon, zamanla değişen parametre
JEL Kodları: C22, C32, E31, E52

Food Sector's Price Dynamics

Aslıhan Atabek Demirhan
Türkiye Cumhuriyet Merkez Bankası, Türkiye
aslihan.atabek@tcmb.gov.tr

Yavuz Selim Koltuk[105]
Türkiye Cumhuriyet Merkez Bankası, Türkiye
yavuz.koltuk@tcmb.gov.tr

Abstract

Food inflation is a critical economic phenomenon with significant impacts on household welfare, policy and global food security. In countries like Turkey, where agricultural production plays a vital role in the national economy, fluctuations in food prices have a direct impact on consumer welfare in addition to their determinant effect on inflation. Food prices are formed at different stages starting from agricultural production, manufacturing industry and finally final consumer. This study analyses the dynamics of food inflation at different stages of the supply chain through a statistical lens. For this purpose, food inflation dynamics are analyzed in terms of volatility, asymmetry and persistence using the Producer Price Index for Agricultural Products (PPI-Agriculture), Domestic Producer Price Index for Food Products (D-PPI-Food) and Consumer Food Price Index (CPI-Food). A comparison of price dynamics at different stages of the supply chain will contribute to understanding how inflationary pressures spread from production to final consumption. The findings of the analysis are expected to contribute to the understanding of food inflation dynamics and provide input to the development of policies to support price stability.

Keywords: Food inflation, price transmission, inflation dynamics.
JEL Codes: E31, Q11, P22

[105] **Correspondence:** Directorate General of Foreign Economic Relations, Central Bank of the Republic of Türkiye Hacı Bayram Mah. İstiklal Cad. No:10 06050 Ulus Altındağ Ankara. Phone: +90 216 773 6325 ex: 6325, e-mail: yavuz.koltuk@tcmb.gov.tr

Gıda Sektörü Fiyat Dinamikleri

Özet

Gıda enflasyonu, hane halkı refahı, politika ve küresel gıda güvenliği üzerinde önemli etkilere sahip kritik bir ekonomik olgudur. Tarımsal üretimin ülke ekonomisinde hayati bir rol oynadığı Türkiye gibi ülkelerde, gıda fiyatlarındaki dalgalanmalar enflasyon üzerindeki belirleyici etkisine ek olarak tüketici refahını da doğrudan etkilidir. Gıda fiyatları, tarımsal üretimden başlayarak, imalat sanayi ve son olarak nihai tüketici olmak üzere farklı aşamalarda oluşmaktadır. Bu çalışmada tedarik zincirinin farklı aşamalarına ait gıda enflasyonu dinamikleri istatistiksel bir mercekten incelenmektedir. Bu amaçla Tarım Ürünleri Üretici Fiyat Endeksi (Tarım-ÜFE), Gıda Ürünleri Yurt İçi Üretici Fiyat Endeksi (Yİ-ÜFE-Gıda) ve Tüketici Gıda Fiyat Endeksi (TÜFE-Gıda) kullanılarak gıda enflasyon dinamikleri oynaklık, asimetri ve kalıcılık kapsamında incelenmiştir. Tedarik zincirinin farklı aşamalarındaki fiyat dinamiklerinin karşılaştırması, enflasyonist baskıların üretimden nihai tüketime nasıl yayıldığını anlamaya katkı sağlayacaktır. Analiz bulgularının, gıda enflasyonu dinamiklerini anlamaya katkı sağlayarak fiyat istikrarını destekleyecek politikaların geliştirilmesine girdi sunacağı öngörülmektedir.

Anahtar Kelimeler: Gıda enflasyonu, fiyat aktarımı, enflasyon dinamikleri.
JEL Kodları: E31, Q11, P22

Lifelong Learning and Labor Success: The Impact of Adult Education on Worker Performance in Turkey

Hande Kul Gelal[106]
Piri Reis University, Turkey
hkul@pirireis.edu.tr

Abstract
The impact of human capital, productivity, and labor performance on economic growth has been widely explored by scholars (Romer, 1986; Topel, 1999; Hanushek & Woessmann, 2008). While labor performance—defined as how effectively workers execute their duties—differs from productivity, it plays a crucial role in enhancing both productivity and a firm's profitability. Several factors influence worker performance in the labor market, including employee satisfaction, management standards, work environment, performance appraisal systems, rewards, and training. Krueger and Rouse (1998) demonstrate that workplace education significantly improves worker performance, job upgrading, and attendance. Similarly, Dahkoul (2018) finds that employee satisfaction, management standards, and training are key determinants of employee performance, ultimately fostering greater engagement.
Building on this literature, this study examines the effect of adult education on worker performance in the Turkish labor market. Using Adult Education Survey (2022), released by TURKSTAT, the analysis employs logistic regression with key covariates, including gender, age, sector of employment, firm size, higher education attainment, school-leaving status, and the type of adult education (formal or mass). Heckman's (1979) procedure addresses possible bias in the sample. Descriptive results indicate that participation in both formal and mass adult education programs significantly increases the likelihood of improved labor performance.

Keywords: Adult Education, Labor Performance, human capital.
JEL Codes: I25, J01, J24.

[106] **Correspondence:** Department of Maritime Management and Transportation, Maritime Faculty, Piri Reis University, Tuzla 34940, İstanbul, Turkey. Phone: +90 216 581 0050 ex: 1336, e-mail: hkul@pirireis.edu.tr

Mobility Differences in University Preferences Among Male and Female Students

Ayşe Berfin Farisoğlu
Kadir Has University, Turkey
20151803025@stu.khas.edu.tr or berfin.farisoglu@khas.edu.tr

Abstract
Higher education choices significantly impact individuals' future careers and social mobility. However, these choices are influenced by various factors, including geographic distance, academic success, cultural and political differences, and gender-related social norms. This study examines gender-based differences in student mobility by analyzing university placement data from 2021 to 2023. Using a multiple linear regression model, it explores the extent to which gender influences mobility distances, the role of academic success in mobility decisions, and the impact of cultural and political distance on university preferences. Findings indicate that male students tend to move longer distances for education, while female students prioritize proximity, often due to safety, family influence, and financial constraints. The study also highlights evolving gender-based mobility trends and how external factors, such as economic conditions, affect these choices.
Furthermore, the research investigates the role of university type (public, private, or international) in shaping mobility preferences. It reveals that students are more likely to relocate for prestigious institutions, yet female students show a stronger tendency to stay within familiar socio-cultural environments. Additionally, geographical factors play a crucial role, with students from metropolitan areas exhibiting different mobility patterns than those from rural regions. These findings provide valuable insights for policymakers and universities aiming to foster inclusive higher education policies and bridge gender-based disparities in access to academic opportunities.

Keywords: Student mobility, university preferences, gender differences, higher education
JEL Codes: I23, J24, R23

Compulsory Schooling and Child Labor: The Role of Structural Factors

M. Utku Özmen[107]
World Bank, Türkiye
utkuozmen@gmail.com

Belgi Turan
TOBB University of Economics and Technology, Türkiye
belgituran@etu.edu.tr

Abstract
Compulsory schooling policy helps keeping children in formal education longer and potentially away from work. The effectiveness of such policies is especially crucial for low- and middle-income countries (LIMCs) where the prevalence of child labor is very high, reaching more than 50% in some countries. The recent theoretical contributions hint at the potential role of structural factors as mediating factors for compulsory schooling and child labor interplay. However, the empirical literature linking compulsory schooling and child labor does not offer a clear-cut answer in less developed countries, and there is a lack of causal investigations at the cross-country level. This study provides a causal investigation at the cross-country level and incorporating the role of structural factors, by using micro level Multi Indicator Cluster Surveys (MICS) data, with surveys covering the 2000-2019 period and 14 LIMCs. The results first point to a significant policy effect: the higher years of compulsory schooling reduces the probability of 11-17-year-old children working by 7-to-13%, on average. Second, the results suggest that the success of compulsory schooling policy in reducing child labor depends on structural factors. Among the structural factors considered, this policy effect is weaker, for instance, if the old dependency ratio increases, the level of income inequality is higher, the size of the informal sector is larger, or the share of services in employment is more elevated. Meanwhile, the policy effect is stronger, for instance, if the share of government education spending in GDP is higher; when the status and participation of the women in decision making in the household or the macro-level improves; in more dynamic economies with higher investment, merchandise trade and exports as a percentage of GDP; in countries with higher human capital quality; and with greater political stability.

Keywords: Child labor, compulsory schooling, structural factors, LIMCs
JEL Codes: I21, J21, J22

[107] **Correspondence:** World Bank Türkiye Office, Ankara, Türkiye. e-mail: utkuozmen@gmail.com

Intergenerational Returns to Migration: Evidence from Italian Migrants Worldwide

Chiara Malavasi
University of Mannheim, Germany
hiara.malavasi@zew.de

Guido Neidhöfer
Türk-Alman University, Germany
guido.neidhoefer@zew.de

Abstract
The main rational motivation behind migration decisions is to improve future life prospects, not only for the migrants themselves but also for their children. This paper estimates the causal ef- fect of migration on education, employment and income opportunities of migrants' descendants. Using unique administrative data on the universe of Italians living abroad and cross-country sur- vey data, we compare the educational and labor market outcomes of second-generation Italian immigrants worldwide to those of Italians living in Italy with similar demographics and parental background. To address self-selection, we estimate a multinomial selection bias correction model, and adopt an instrumental variable approach. Returns to migration vary across the destination countries in our final sample: migrants' children do not always study longer, but benefit from higher income opportunities. Gender and parental socioeconomic background play an important role as well. Finally, applying the framework of a random utility model, we test whether the expectation of better future opportunities for children influenced their parents' initial migration choice. We find that parents who migrated after having their first child tend to prioritize their children's future opportunities over their own income gains when choosing a destination country.

Keywords: migration; children of migrants; intergenerational ef- fects; returns to migration; self-selection; intertemporal utility maximization; administrative data
JEL Codes: F22, J61, J62, O15

Testing Ravenstein's Migration Theories: Insight from Domestic Migration in Turkey

Mehmet Ali Tekkanat[108]
Ondokuz Mayıs University, Turkey
mehmetali.tekkanat@omu.edu.tr

Abstract
Ravenstein's pioneerig treatise, The Laws of Migration (1889), marked a profound shift in the understanding of human migration patterns, laying the cornerstone for subsequent migration studies. His six laws, derived from observed migration behaviors in Eureope and North America, offer invaluable insights into the underlying forces propelling human mobility. Ravenstein posited that migration predominantly occurs over short distances, driven by local aspirations, with urban centers acting as magnets due to the economic opportunities and amenities they offer. Furthermore, each migration stream is counterbalanced by a compensatory flow, ensuring equilibrium in regional demographic shifts. His work also highlighted the gendered nature of migration, with women predominantly undertaking short-distance moves, thereby enriching local labor markets and social structures. This paper critically examines the applicability of Ravenstein's laws within the context of provincial domestic migration in Turkey during the period 2014-2022, utilizing a dataset comprising 58.000 observations from diverse regions. Employing a Pseudo-Poisson Maximum Likelihood (PPML) panel gravity model, this study finds that short-distance migration, urban assimilation, and compensatory counter-flows remain dominant, thus reaffirming the relevance of Ravenstein's framework in the Turkish context.

Keywords: Migration, Ravenstein's Laws, Domestic Migration, Turkey, Urbanization
JEL Codes: R23, J61, O18

[108] **Correspondence:** Department of Economics, Faculty of Economics, Ondokuz Mayıs University, Samsun, Turkey. Phone: +90 362 3121919 ex: 6061 e-mail: mehmetali.tekkanat@omu.edu.tr

The Impact of Weather-Driven Internal Migration on the Labor Market in Turkey

Zühal Özbay Daş[109],
Fenerbahçe University, Turkey
zuhal.ozbay@fbu.edu.tr

Abstract
Weather conditions, particularly those resulting from changes in the Earth's climate, impact economies in various ways, including, unsurprisingly, labor markets. In this context, the aim of this study is to investigate whether the weather driven internal migration affects the labor market, particularly wages and employment level in Turkey. The Household Labor Force Surveys are utilized to calculate the mean wage and total employment levels across 26 regions for the period from 2008 to 2015. The Standardized Precipitation Evapotranspiration Index (SPEI) is employed to represent weather variations in Turkey, and this index serves as an instrument to estimate the impact of weather-driven internal migration on the labor market. The 2SLS technique is used in the analysis, and the preliminary results reveal that there is no evidence of any association between weather-driven internal migration and wage growth, on the other hand, weather driven internal migration slightly increases the employment in the country.

Keywords: Regional migration, labor market, weather changes
JEL Codes: J61, R23

[109] **Correspondence:** Department of Economics and Finance, Faculty of Economics, Administrative and Social Sciences, Fenerbahçe University, İstanbul, Turkey. Phone: +90 216 910 19 07, e-mail: zuhal.ozbay@fbu.edu.tr

How do Relative Concerns about Well-Being Vary by Patience? Evidence From Panel and Experimental Data

Nur Banu Kartal[110]
Turkish-German University, Turkey
nurbanu.kartal@tau.edu.tr
Yildiz Technical University, Turkey
banu.kartal@std.yildiz.edu.tr

Tolga Aksoy
Yildiz Technical University, Turkey
toaksoy@yildiz.edu.tr

Abstract
Individuals' time preferences might be related to their marginal utility or disutility stemming from an increase in the income of comparable others, i.e., relative concerns. We argue that while an increase in others' income might lead to a higher level of marginal disutility for those seeking immediate gratification, the disutility among patient individuals might be lower if they prioritise the future development of their income and consider catching up with others' income over the long run. We use subjective and experimental measures of time preferences and subjective well-being datasets to investigate the utility pertaining to relative income, which involves a representative sample and panel data (Socio-Economic Panel - SOEP). Using panel data fixed effects interaction models, we find highly consistent evidence that the well-documented disutility from relative income, i.e., "status-effect" in the literature, is predominantly experienced by impatient individuals with higher discount rates. In contrast, patient individuals with lower discount rates experience lower disutility or even gain utility due to their relative income, i.e., "tunnel or information-effect", which is significantly different from those impatient individuals. The results are robust across a variety of checks. We discuss the implications of these results for behavioural and welfare economics.

Keywords: Time-Preferences, Life Satisfaction, Relative Income
JEL Codes: D63, C23

[110] **Correspondence:** Department of Economics, Faculty of Economic and Administrative Sciences, Turkish-German University, B-Blok 1. Kat Şahinkaya Cad. 106 - 34820 Beykoz / İstanbul. Phone: +90 216 3333233, e-mail: nurbanu.kartal@tau.edu.tr

An Asymmetric Revisit to the Crime and Inequality Nexus

Fadime İrem Doğan[111]
Bahçeşehir University, Turkey
fadimeirem.dogan@bau.edu.tr

Pınar Deniz[112]
Marmara, Turkey
pinar.deniz@marmara.edu.tr

Abstract
There is a strand of literature devoted to the relationship between crime and inequality which lies at the center of major theoretical approaches, such as the cost-benefit analysis by Becker (1968), the theory of social disorganization by Shaw and McKay (1942), and the strain theory by Merton (1938). While Becker (1968) uses the cost-benefit analysis of engaging in crime, Shaw and McKay (1942) attribute the rise in crime rates to the weakening of social control within a society; and Merton (1938) utilizes the impact of the relative success of individuals on the frustration, which may lead to the rise in crime rates. These foundational theories demonstrate the connection between individual decision-making, societal structures, and crime. As reported in the literature, economic inequality has shown varying effects on crime rates. This study aims to empirically investigate the asymmetric relationship between crime rates and income inequality in EU states for the period of 1993-2022. Hence, our approach disregards the standardization of a linear link and proposes a novel methodological approach to investigate the issue accounting for nonlinearities. Methodologically, we utilize Kourtellos et al. (2016) structural threshold regression (STR) model to account for nonlinearities. Preliminary analysis reflects the existence of nonlinearity regarding the income inequality and crime rates nexus.

Keywords: crime, regional economics, asymmetric analysis, income inequality, the EU
JEL Codes: K13, R1, Z13

[111] **Correspondence:** Department of Economics and Finance, Faculty of Economics, Administrative and Social Sciences, Bahçeşehir University, 34353, Istanbul, Turkey. Phone: +90 212 381 00 00, ex: 4196, e-mail: fadimeirem.dogan@bau.edu.tr
[112] Department of Economics, Faculty of Economics, Marmara University, 34722, Istanbul, Turkey. Phone: +90 216 777 07 77, e-mail: pinar.deniz@marmara.edu.tr

Deep Poverty in Turkey

Ayşenur Acar
Worldbank
acar_aysenur@yahoo.com

Bülent Anıl
University of Bedfordshire
bulent.anil@beds.ac.uk

Seyfettin Gürsel[113]
Bahçeşehir Üniversitesi
seyfettin.gursel@bau.edu.tr

Abstract
Although there is a consensus on the concept of poverty, whether the households or individuals meet their needs, there are various approaches to identify the "needs", leading to various measures to detect poverty. When the poverty rate is used as an economic indicator, the choice of poverty measure has relatively less impact, however, it becomes crucial when determining who is classified as "poor". Different measures highlight different individuals as poor, making policymakers' task of creating and implementing effective anti-poverty policies challenging. The existence of regional inequalities within countries makes this task even more complicated. While it might create difficulties in cross-country comparison, the introduction of country-specific poverty measures might mitigate the above-mentioned challenges. In this paper, we introduce a country-specific poverty measure, which we name as "deep poverty", by using a modified version of the EU's material and social deprivation index. By utilizing both cross sectional and panel components of Survey of Income and Living Conditions for the years 2018-2021, we aim to analyze the characteristics of the poor based on existing poverty measures as well as our proposed measure. Additionally, we investigate whether these characteristics vary across regions.

Keywords: Poverty, Poverty measures, Inequality, Material Deprivation
Jel Codes: I32, I38, D63

[113] Corresponing Author

Environmental Satisfaction as a Dimension of Well-Being: A Panel Data Analysis of Türkiye (2013–2023)

N. Merve Hamzaoğlu
İstanbul Kültür Üniversitesi, Turkey
n.hamzaoglu@iku.edu.tr

Abstract
Indicators of well-being, such as life satisfaction, have been attracting attention in the field of economics. Well-being represents a comprehensive and multidimensional phenomenon, encompassing a range of elements across economic, social, and psychological dimensions. In the context of Climate Crisis, environmental well-being has emerged as a significant factor influencing overall well-being. In this regard, alongside macro-level indicators such as CO_2 and greenhouse gas emissions, pollution levels, more questions related to environmental satisfaction in micro-level datasets are included in research, particularly in life satisfaction surveys. Environmental satisfaction refers to individuals' or communities' perceived quality of their surrounding natural and built environment, and their level of contentment with environmental conditions. This study aims to reveal the factors affecting environmental satisfaction in Turkey between 2013-2023. In this study, a panel data analysis was conducted using a dataset constructed from TURKSTAT's Life Satisfaction Surveys. Results show that environmental satisfaction varies across different socio-economic groups and micro-based policies must be implemented to increase the environmental satisfaction.

Keywords: environmental satisfaction, well-being, climate change.
JEL Codes: D91, Q56, Q58

Religious Freedom, State Control, And Income Inequality: A Cross-National Analysis

Muhammet Aydoğan[114]
İstanbul University, Turkey
muhammet.aydogan@tesam.org.tr

Abstract
This study examines the impact of state control over religion on income inequality through a cross-national comparative framework. While existing literature provides various theoretical explanations for the reciprocal relationship between economic inequality and religiosity, the institutional role of religion policy in shaping inequality remains underexplored. Drawing on the Religion and State (RAS) dataset for state–religion indicators and the Luxembourg Income Study (LIS) for inequality measures, this research aims to provide a comprehensive empirical assessment of the relationship. The core hypothesis posits that restrictions on religious freedom and increased state regulation of religion are associated with higher levels of income inequality. When states support an official religion or impose legal obligations or prohibitions on specific religious practices, public demand for redistribution may weaken, and prevailing market inequalities may become legitimized. The analysis incorporates control variables such as regime type, GDP per capita, and social expenditure levels to isolate the structural effect of religion–state arrangements. This study aims to contribute to the growing literature on the political economy of religion by offering a novel institutional perspective on the determinants of inequality.

Keywords: State religion, income inequality, political economy of religion
JEL Codes: D31, Z12, H53

[114] **Correspondence:** Social Science Institute, İstanbul University-TESAM Research Center, İstanbul
e-mail: muhammet.aydogan@tesam.org.tr

Dini Özgürlük, Devlet Kontrolü Ve Gelir Eşitsizliği: Uluslararası Bir Analiz

Özet

Bu çalışma, devletin din üzerindeki kontrolünün gelir eşitsizliği üzerindeki etkisini ülkeler arası karşılaştırmalı bir çerçevede incelemektedir. Mevcut literatür ekonomik eşitsizlik ve dindarlık arasındaki karşılıklı ilişki için çeşitli teorik açıklamalar sunarken, din politikasının eşitsizliği şekillendirmedeki kurumsal rolü yeterince araştırılmamıştır. Devlet-din göstergeleri için Din ve Devlet (RAS) veri setinden ve eşitsizlik ölçümleri için Lüksemburg Gelir Çalışması'ndan (LIS) yararlanan bu araştırma, ilişkinin kapsamlı bir ampirik değerlendirmesini sunmayı amaçlamaktadır. Temel hipotez, dini özgürlükler üzerindeki kısıtlamaların ve dine yönelik devlet düzenlemelerinin artmasının daha yüksek gelir eşitsizliği seviyeleri ile ilişkili olduğunu öne sürmektedir. Devletler resmi bir dini desteklediğinde veya belirli dini uygulamalara yasal yükümlülükler veya yasaklar getirdiğinde, yeniden dağıtım için kamu talebi zayıflayabilir ve hakim piyasa eşitsizlikleri meşrulaşabilir. Analiz, din-devlet düzenlemelerinin yapısal etkisini izole etmek için rejim tipi, kişi başına düşen GSYİH ve sosyal harcama seviyeleri gibi kontrol değişkenlerini içermektedir. Bu çalışma, eşitsizliğin belirleyicileri üzerine yeni bir kurumsal bakış açısı sunarak dinin politik ekonomisi üzerine büyüyen literatüre katkıda bulunmayı amaçlamaktadır.

Anahtar Kelimeler: Devlet dini, gelir eşitsizliği, dinin ekonomi politiği
JEL Kodları: D31, Z12, H53

Balance Sheet Performance Measure for Manufacturing Firms in Türkiye

Mehmet Selman Çolak
The Central Bank of the Republic of Türkiye , Türkiye
selman.colak@tcmb.gov.tr

Oğuzhan Ergin
The Central Bank of the Republic of Türkiye , Türkiye
oguzhan.ergin@tcmb.gov.tr

Pinar Deniz
Marmara University - Department of Economics, Türkiye
pinar.deniz@marmara.edu.tr

Abstract
This study develops a composite index to measure the probability of default (PD) for manufacturing firms in Türkiye. The index is highly correlated with the non-performing loan (NPL) ratio and effectively predicts future NPL levels. It combines key financial indicators—firm size, liquidity, profitability, financial expenses, leverage, and turnover—derived from balance sheet data. A univariate logit regression is used to select the most relevant variables, and the PD is calculated using multivariate logit regression. After 2020, the PD ratio, which dropped significantly below its historical average, highlights the positive impact of strong liquidity, high profitability, and low debt on firm performance. The findings show that both large firms and SMEs have experienced a decline in PD ratios, reflecting improved financial health. Additionally, the study reveals that manufacturing firms have built strong liquidity buffers during favorable financial conditions, which helped them withstand rising financing costs during periods of monetary tightening. Lastly, the paper suggests that the inflationary period following COVID-19 has strengthened the financial position of firms, as they benefitted from higher profitability and liquidity in an environment with flexible pricing.

Keywords: Probability of Default, Logit Model, Firm Performance Indicator, Manufacturing
JEL Codes: G32, G33, L25

Effects of Prepayment Regulations on Commercial Loan Interest Rates

Kübra Bölükbaş
Central Bank of the Republic of Turkiye
kubra.bolukbas@tcmb.gov.tr

Hüseyin Öztürk[115]
Central Bank of the Republic of Turkiye
huseyin.ozturk@tcmb.gov.tr

Abstract
In this study, the causal impact of amending prepayment commission rates in commercial loans on interest rates is examined. Our findings from difference in differences analysis show that the regulation caused a 2-8 percentage point decrease in longer-term loan rates compared to the shortest term. The results emphasize the positive role of changing non-interest cost components such as commissions in line with needs on general borrowing conditions and expectations. In this sense, the regulation not only improved the functioning of commercial credit markets by eliminating price rigidities, but also contributed to monetary transmission. These findings demonstrate how a regulation in the financial system assists expectations management.

Keywords: Prepayment Penalties, Interest Rates, Causal Inference, Expectations Management.
JEL Codes: G21, E51, C33

[115] **Correspondence:** Central Bank of the Republic of Türkiye, Macro Financial Analysis Division, e-mail: huseyin.ozturk@tcmb.gov.tr

Corporate Disclosure Timing Strategy in the Supply Chain

Yujie Song
Wenzhou Kean University, China
ysong@wku.edu.cn

Abstract
In this paper, I examine the timing decision of corporate disclosures within supply chains. Using a comprehensive dataset on supply chain network connections, I find that firms are more likely to issue earnings guidance after, but not before, the earnings announcements of partners with greater bargaining power. The tendency to withhold guidance beforehand is stronger when partnerships are more interconnected and when partners have more proprietary information. However, this effect diminishes when partners perform poorly or face intense market competition. Also, market reactions to back-to-back supply chain firms' disclosures significantly attenuate, which is consistent with the competition theory of market attention. Overall, the findings suggest that firms are subject to the bargaining power of their supply chain partners and strategically time disclosures to mitigate potential information spillovers.

Keywords: Supply Chain, Disclosure, Earnings Announcement, Earnings Guidance, Product Market
JEL Codes: A23, I21, J24, J28

Determinants of Public Trust in the CBRT and the Role of Affect-Based Evaluation[116]

Özlem Arslan[117]
Bursa Uludag University, Turkey
ozlemarslan@uludag.edu.tr

Metin Özdemir[118]
Bursa Uludag University, Turkey
mozdemir@uludag.edu.tr

Abstract
Trust is critical to the success of monetary policy for today's central banks. The effect of individuals' attitudes to the central bank on their decisions of trust has been increasingly studied. To systematically address the determinants of trust in the institution, theoretical frameworks that explore the complex nature of trust is essential. Therefore, one can understand how the attitudes and beliefs that determine the trust decision are formed. While studies in the literature mostly focus on central banks of advanced economies, trust in the Central Bank of the Republic of Turkey (CBRT) as a developing country central bank has not been analyzed much. Our study investigates the determinants of Turkish citizens' trust in the CBRT within the framework of trust theory. We conducted Structural Equation Modeling (SEM) on the data collected from the survey based on a sample of 813 units applied in May 2024. Our findings suggest that Turkish citizens' level of trust in the CBRT is low. Individuals formed their trust attitudes based on their reason-based evaluations. The willingness belief, which corresponds to the CBRT's persistence in achieving its objective, is the main determinant of the decision to trust. Moreover, individuals' affect-based attitudes lead to their reason-based evaluations.

Keywords: Trust, Central Banking, Central Bank of the Republic of Turkey, Structural Equation Analysis
JEL Codes: D90, E52, E58

[116] This study was supported by Bursa Uludag University Research Projects Coordination Office under the Grant Number 1693. The author(s) thank to BUU BAP Unit for their supports.
[117] **Correspondence:** Department of Economics, Faculty of Economics, Bursa Uludag University, 16285, Bursa, Turkey. e-mail: ozlemarslan@uludag.edu.tr
[118] **Correspondence:** Department of Economics, Faculty of Economics, Bursa Uludag University, 16285, Bursa, Turkey. e-mail: mozdemir@uludag.edu.tr

TCMB'ye Yönelik Kamuoyu Güveninin Belirleyicileri ve Duygu Temelli Değerlendirmenin Rolü

Özet

Günümüz merkez bankaları için güven para politikasının başarısında kritik bir öneme sahiptir. İlgili literatürde bireylerin merkez bankasına yönelik tutumlarının güven kararlarına etkisi giderek daha çok araştırmaya konu olmaktadır. Kuruma duyulan güvenin belirleyicilerinin sistematik şekilde ele alınabilmesi için güvenin karmaşık doğasını inceleyen teorik çerçevelere ihtiyaç vardır. Böylece güven kararını belirleyen tutumların ve inançların nasıl oluştuğu anlaşılabilecektir. Literatürdeki çalışmalar genellikle gelişmiş ülke merkez bankalarına odaklanırken bir gelişmekte olan ülke merkez bankası olarak Türkiye Cumhuriyet Merkez Bankası'na (TCMB) yönelik güven yeterince incelenmemiştir. Çalışmamız, Türk vatandaşlarının TCMB'ye duydukları güvenin belirleyicilerini güven teorisi çerçevesinde araştırmaktadır. Çalışmamızda 813 birimlik örnekleme dayalı olarak Mayıs 2024'de uygulanan anketten elde edilen veriler üzerinden Yapısal Eşitlik Modellemesi (YEM) gerçekleştirilmiştir. Bulgularımız, Türk vatandaşlarının TCMB'ye duydukları güven düzeyinin düşük olduğunu göstermektedir. Bireyler güven tutumlarını akıl temelli değerlendirmelere dayalı olarak rasyonel bir biçimde oluşturmaktadır. TCMB'nin amacını gerçekleştirmedeki ısrarına karşılık gelen isteklilik inancı ise güven kararının oluşmasında temel belirleyicidir. Ayrıca, bireylerin duygu temelli tutumları neden temelli değerlendirmelerine öncülük etmektedir.

Anahtar Kelimeler: Güven, Merkez Bankacılığı, Türkiye Cumhuriyet Merkez Bankası, Yapısal Eşitlik Analizi
JEL Kodları: D90, E52, E58

Constructing Flexibility Index for Undergraduate Economics Programs in Turkey[119]

Erdoğan Mert Oruntak[120]
Boğaziçi University, Turkey
erdogan.oruntak@std.bogazici.edu.tr

Abstract
Economics is one of the most available undergraduate programs in Turkish universities, and the curriculum for it depends on the university. While there are many similarities between these curriculums, there are also some important differences. A key difference is how these curriculums offer flexibility to students, by how many restricted and unrestricted elective options they provide. Existing studies in this field are very limited, and they only capture a specific course option or a holistic approach to how curriculums should be designed. Therefore, this study offers a new and different perspective on the subject. This paper addresses this gap by constructing a flexibility index to evaluate undergraduate economics programs across 143 Turkish universities, focusing on "İktisat" and "Ekonomi" programs. Furthermore, it makes an analysis to understand which factors are contributing to this divide. Results indicate that higher scores enhance flexibility, while other variables, such as the type of the university and the cities in which these universities are located, show negligible impact.

Keywords: Undergraduate economics, economics teaching, flexibility.
JEL Codes: A11, A22

[119] This paper is written as part of the course requirements of EC 48K.01: Advanced Research Methods in Applied Economics.

[120] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences , Boğaziçi University, 34342, Istanbul, Turkey. Phone: +90 535 0869249, e-mail: erdogan.oruntak@std.bogazici.edu.tr

Impact of Fertility on Female Labor Force Participation: The Case of Turkey[121]

Ece Hasgül[122]
Boğaziçi University, Turkey
ece.hasgul@std.bogazici.edu.tr

Dilan Çelik
Boğaziçi University, Turkey
dilan.celik@std.bogazici.edu.tr

Abstract
In this paper, we study the impact of fertility on female labor force participation in Turkey, using the 2018 edition of the Turkey Demographic and Health Survey (TDHS). We address the gap in the existing literature through a new edition of data and an approach that is not common in the Turkish context. Adopting a similar approach to Angrist and Evans (1998), we utilize a Two Stage Least Squares estimation model to understand the causal relationship between fertility and female labor force participation. We use twin at-first birth Rosenzweig and Wolpin (1980a) and sex composition Angrist and Evans (1998) instruments as exogenous variation in family size. We detect the inclination to have a third child when the families have two daughters and identify our instrument as female avoidance, in line with Sevinç (2011). According to our initial 2SLS results, we are unable to find enough evidence to establish the causal link between fertility and female labor supply. We proceed with heterogeneity analysis for different subsamples to see how the effect of fertility on labor varies with educational level, urban status, and wealth. Through this analysis, we capture the heterogeneous effect of fertility on FLFP varying through different education levels. This effect is identified through the twin instrument, and the female avoidance instrument produces imprecise results in subsamples.

Keywords: Female Labor Force Participation, Fertility, Twin at First Birth, Sex Composition, Instrumental Variables, Two-Stage Least Squares, Turkey, Heterogeneity Analysis.
JEL Codes: J13, J16, J22, C26

[121] This paper is written as part of the course requirements of EC 48K.01: Advanced Research Methods in Applied Economics at Boğaziçi University

[122] **Corresponding Author:** e-mail: ece.hasgul@std.bogazici.edu.tr

Factors Associated with the Percentage of Female Students in Economics Programs: Evidence from Turkey[123]

Esen Duman
Boğaziçi University, Turkey
esen.duman@std.bogazici.edu.tr

Beyza Ovalıoğlu
Boğaziçi University, Turkey
beyza.ovalioglu@std.bogazici.edu.tr

Abstract
This paper examines the gender distribution in undergraduate economics programs in Turkey, with a particular focus on the role of mathematics aptitude. While male dominance in economics has been a global phenomenon, Turkey presents a unique case with significant variation across undergraduate programs, with some male-dominated and others having a higher proportion of female students. Utilizing panel data from 2019 to 2023, we analyse the relationship between the percentage of female students in economics programs and the average AYT mathematics test scores of their students. Our findings reveal a significant negative correlation, suggesting that higher mathematics scores are associated with fewer female students in these programs. Furthermore, cross-sectional differences, such as tuition fees, night school programs, and local socio-economic factors concerning gender equality, are also influential. Programs with higher tuition fees and night schools tend to have fewer female students, while those in cities with a higher percentage of women in managerial positions attract more female students. These findings contribute to the broader understanding of gender disparities in economics education and offer insights into how different higher education settings, such as Turkey's, shape these outcomes.

Keywords: Gender gap, Undergraduate economics, Mathematics aptitude, Feminist economics

JEL Codes: B54, I24, J16

[123] This paper is written as part of the course requirements of EC 48K.01: Advanced Research Methods in Applied Economics

A Cross-Sectional Analysis of 155 Electoral Regimes: Constructing an Electoral Inclusivity Index

Kaan Akkaş
Boğaziçi University, Turkey
kaanakkas013@gmail.com

Kaan Cengiz
Boğaziçi University, Turkey
kaancengiz07@yahoo.com

Onur Alp Dilek[124, 125]
Boğaziçi University, Turkey
onur.dilek@std.bogazici.edu.tr

Abstract
In this paper we conduct a cross-sectional analysis of 155 electoral regimes in order to develop a comprehensive Electoral Inclusivity Index. Our dataset combines 14 common indicators from the Varieties of Democracy database alongside 8 new variables which are not utilized in the literature, such variables include: compulsory voting status, electoral thresholds, and wasted votes. By using Principal Components Analysis in place of the more common fixed weights approach utilized by Coppedge(2024) we introduce a more dynamic process to the determination of index weights hence improving the reliability of our results. The analysis highlights barriers in front of political parties and number of banned parties as most significant determinants of electoral inclusivity, on the opposite side of the spectrum our model establishes that election financing measures and suffrage levels explain little variation between the countries. Our findings highlight the performance of Western European and certain Latin American countries with a large divide appearing between countries with mixed member proportional systems and those with first past the post systems, where the former countries perform substantially better in the index. To conclude our analysis we utilize leave one out cross validation to test the robustness of our index and we obtain very satisfactory results with a high degree of correlation between the predicted and the real index values, affirming that our results are stable and reproducible to a large extent.

Keywords: Electoral inclusivity, election system, principal components analysis
JEL Codes: C43,D72, O57

[124] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Boğaziçi University, 34342, İstanbul, Turkey. Phone: +90 5301130599 , e-mail: onur.dilek@std.bogazici.edu.tr
[125] This paper is written for EC 48K Advanced Research Methods for Applied Economics course at Boğaziçi University

Algorithmic Evolution: How Machine Learning Enhances Evolutionary Game Models

Aras Yolusever[126]
Istanbul Kültür University, Türkiye
a.yolusever@iku.edu.tr

Abstract

Evolutionary Game Theory (EGT) serves as a crucial framework for analyzing strategic interactions and adaptive dynamics in complex, variable environments. Its mathematical rigor and modeling capabilities enable the exploration of evolutionary stability, strategy evolution, and the impact of population dynamics on behavioral strategies across various contexts. Recent advances in machine learning (ML) and artificial intelligence (AI) have significantly enhanced the analytical power of EGT by enabling more complex simulations, adaptive learning mechanisms, and real-time strategy optimization. This paper explores how algorithmic evolution—the integration of ML techniques such as reinforcement learning, deep neural networks, and evolutionary algorithms—improves EGT models by allowing agents to evolve more sophisticated and context-sensitive strategies. This paper analyzes applications of ML-enhanced EGT in economics, finance, and social sciences, demonstrating how these hybrid models provide deeper insights into decision-making dynamics, cooperation mechanisms, and emergent behaviors in competitive environments. Furthermore, it discusses the implications of algorithmic evolution for policymaking, market regulation, and artificial intelligence governance.

Keywords: Evolutionary Game Theory, Machine Learning, Algorithmic Evolution
JEL Codes: C70, C79, O20.

[126] **Correspondence:** Dr., Department of Economics, Faculty of Economics and Administrative Sciences, Istanbul Kültür University, 34156, Istanbul, Türkiye. Phone: +90 212 498 4793, e-mail: a.yolusever@iku.edu.tr

Algoritmik Evrim: Makine Öğrenmesi Evrimsel Oyun Teorik Modelleri Nasıl Geliştiriyor?

Özet

Evrimsel Oyun Teorisi (EOT), karmaşık ve değişken ortamlardaki stratejik etkileşimleri ve adaptif dinamikleri analiz etmek için önemli bir araçtır. Klasik teoriden farklı olarak özellikle replikatör dinamikleri ve matematiksel metotları kullanarak başarılı modeller geliştirmekte ve modelleme yetenekleri ile, evrimsel istikrarın, strateji evriminin ve nüfus dinamiklerinin çeşitli bağlamlarda davranışsal stratejiler üzerindeki etkisinin araştırılmasını sağlamaktadır. Makine öğrenmesi ve yapay zekâ alanındaki son gelişmeler, evrimsem teorinin analitik gücünü önemli ölçüde artırarak daha karmaşık simülasyonların modellenebilmesine, uyarlanabilir öğrenme mekanizmalarının kullanılabilmesine ve ve gerçek zamanlı strateji optimizasyonuna olanak sağlamaktadır. Bu çalışma, algoritmik evrim olarak adlandırılan makine öğrenmesi tekniklerinin (pekiştirmeli öğrenme, derin sinir ağları ve evrimsel algoritmalar) evrimsel oyun teorik modelleri nasıl geliştirdiğini incelemektedir. Gelişen bu yeni teknikler sayesinde, ajanların daha karmaşık, bağlama duyarlı ve stratejik davranışları modellenebilmektedir. Çalışmada aynı zamanda makine öğrenmesi destekli modellerin ekonomi, finans ve diğer sosyal bilimlerdeki uygulamaları analiz edilecek, karar alma dinamikleri, iş birliği mekanizmaları ve rekabetçi ortama bağlı olarak ortaya çıkan davranışlar tartışılacak ve algoritmik evrimin politika oluşturma, piyasa düzenlemesi ve yapay zekâ yönetişimi üzerindeki etkilerini araştırılacaktır.

Anahtar Kelimeler: Evrimsel Oyun Teorisi, Makine Öğrenmesi, Algoritmik Evrim,
JEL Kodları: C70, C79, O20.

Variance Reduction in Türkiye's Monthly Employment Estimates: A Multivariate Structural Time Series Model

Özlem Yiğit[127, 128]
Turkstat, Türkiye
ozlem.yigit@tuik.gov.tr

Abstract
Monthly employment estimates play a crucial role in economic policy and labor market analysis. The Household Labour Force Survey (LFS) in Türkiye follows a rotating design, allowing for 50% quarterly and 50% annual sample overlap. Respondents remain in the survey for one and a half years and are interviewed four times during this period. The absence of monthly sample overlap in the LFS design increases the volatility of monthly estimates. This study aims to enhance the stability and reliability of Türkiye's monthly employment estimates by reducing variance. In this study, monthly employment data from four waves and their corresponding sampling errors for the 2018:01–2023:12 period are analyzed. The time-varying nature of sampling errors and autocorrelation structures between waves are addressed using a Multivariate Structural Time Series model. Additionally, the effects of rotation group bias and sample size changes are evaluated. Various modeling scenarios are tested, with a focus on benchmarking (ensuring consistency between quarterly and monthly estimates) and integrating external variables (e.g., payroll employment statistics) into the model. The results indicate that the multivariate approach reduces error variance and improves the consistency of employment estimates.

Keywords: Employment, rotating group bias, Kalman filter, survey redesign, time-varying parameters.
JEL Codes: C32, C51, C83, J21

[127] **Correspondence:** Özlem Yiğit, Turkstat, 114 Necatibey Street, Cankaya, Ankara 06420, Türkiye.Email: ozlem.yigit@tuik.gov.tr
[128] The views and opinions expressed in this paper are those of the author and do not necessarily represent the official views of the Turkish Statistical Institute.

Türkiye'nin Aylık İstihdam Tahminlerindeki Varyansın Azaltılması: Çok Değişkenli Yapısal Zaman Serisi Modeli

Özet

Aylık istihdam tahminleri, ekonomik politika ve işgücü piyasası analizleri için kritik bir role sahiptir. Türkiye'de Hanehalkı İşgücü Anketi, çeyreklik %50 ve yıllık %50 örneklem çakışmasına izin veren rotasyonlu bir tasarıma sahiptir. Cevaplayıcılar araştırmada bir buçuk yıl kalmakta ve bu süre zarfında onlarla 4 kez görüşülmektedir. LFS tasarımında aylık örneklem çakışmanın olmaması, aylık tahminlerde oynaklığı artırmaktadır. Bu çalışma, Türkiye'nin aylık istihdam tahminlerindeki varyansı azaltarak daha istikrarlı ve güvenilir tahminler elde etmeyi amaçlamaktadır.Bu çalışmada 2018:01-2023:12 dönemine ait 4 dalga bazında aylık istihdam verileri ve bunlara ait örneklem hataları kullanılarak analizler gerçekleştirilmiştir. Örneklem hatalarının zamanla değişen yapısı ve dalgalar arası otokorelasyon yapıları Çok Değişkenli Yapısal Zaman Serisi modeli kullanılarak ele alınmıştır. Ayrıca, rotasyon grup yanlılığı ve örnek çapı değişimlerinin etkisi de değerlendirilmiştir. Farklı modelleme senaryoları test edilmiş benchmarking (çeyreklik ve aylık tahminlerin tutarlılığını sağlama) ile dışsal değişkenlerin (örneğin, ücretli çalışan istatistikleri) modele entegrasyonu incelenmiştir. Sonuçlar, çok değişkenli modellemenin hata varyansını azalttığını ve istihdam tahminlerinde daha tutarlı sonuçlar sağladığını göstermektedir.

Anahtar Kelimeler: İstihdam, rotasyon grup yanlılığı, Kalman filtresi, anket yeniden tasarımı, zamanla değişen parametre

JEL Kodları: C32, C51, C83, J21

Conceptual and Theoretical Uncertainties in the Fertility Preferences Literature: A Synthesis Approach

Nihal Gabaçlı[129],[130]
Istanbul Medeniyet University, Turkey
nhlgabacli@gmail.com

Abstract
Fertility preferences stand out as an important umbrella term in understanding individuals' tendencies towards having children. However, there are significant conceptual and theoretical ambiguities regarding this term in the literature. Sub-concepts such as fertility ideal, intention/plan, desire, expectation and aspiration are sometimes used interchangeably, which weakens conceptual clarity and leads to ambiguity in comparative analyses and empirical studies. Most of these concepts reflect individuals' declared hypothetical fertility levels rather than actual fertility behaviors, which creates additional difficulties in measurement and interpretation processes. On the other hand, the lack of a unique and holistic theoretical framework to explain fertility preferences leads to fragmented research with approaches drawn from different disciplines. This study aims to address the conceptual and theoretical fragmentation in the literature with an interdisciplinary synthesis approach; it aims to present a more holistic conceptual structure on fertility preferences by evaluating economic models, sociological and psychological approaches at a limited level. In this way, both theoretical clarity is provided and a more solid theoretical foundation is established for future empirical analyses.

Keywords: Fertility Preferences, Fertility Theories, Synthesis Approach
JEL Codes: J13, D10, Z13

[129] **Correspondence:** Istanbul Medeniyet/University Southern Campus. Dumlupınar District D-100 Highway No:98 Kadıköy/İSTANBUL Phone: +902162803333

[130] Istanbul Medeniyet University, PhD Student in Economics.

Doğurganlık Tercihleri Literatüründe Kavramsal ve Kuramsal Belirsizlikler: Bir Sentez Yaklaşımı

Özet

Doğurganlık tercihleri, bireylerin çocuk sahibi olma yönündeki eğilimlerini anlamada önemli bir şemsiye terim olarak öne çıkmaktadır. Ancak literatürde, bu terime dair hem kavramsal hem de kuramsal düzeyde önemli belirsizlikler bulunmaktadır. Doğurganlık ideali, niyeti/planı, arzusu, beklentisi ve isteği gibi alt kavramların zaman zaman birbiri yerine kullanılması, kavramsal netliğin zayıflamasına neden olmakta; bu da karşılaştırmalı analizlerde ve ampirik çalışmalarda anlam kargaşasına yol açmaktadır. Söz konusu kavramların çoğu, gerçekleşmiş doğurganlık davranışlarından ziyade bireylerin beyan ettikleri varsayımsal (hipotetik) doğurganlık düzeyini yansıtmakta, bu da ölçüm ve yorumlama süreçlerinde ek zorluklar doğurmaktadır. Öte yandan, doğurganlık tercihlerini açıklamaya yönelik özgün ve bütüncül bir teorik çerçevenin bulunmaması, araştırmaların farklı disiplinlerden alınan yaklaşımlarla parçalı biçimde yürütülmesine yol açmaktadır. Bu çalışma, literatürdeki kavramsal ve kuramsal dağınıklığı disiplinler arası bir sentez yaklaşımıyla ele almayı amaçlamakta; başta iktisadi modeller olmak üzere, sosyolojik ve psikolojik yaklaşımları sınırlı düzeyde değerlendirerek doğurganlık tercihlerine ilişkin daha bütüncül bir kavramsal yapı sunmayı amaçlamaktadır. Böylece hem kuramsal açıklık sağlanmakta hem de ileride yapılacak ampirik analizler için daha sağlam bir teorik temel oluşturulmaktadır.

Anahtar Kelimeler: Doğurganlık tercihleri, Doğurganlık Teorileri, Sentez Yaklaşımı
JEL Kodları: J13, D10, Z13

Economic Voting Theory: Literature Review For Turkey

Ahmet Salih İkiz
Muğla Sıtkı Koçman University, Turkey
ahmet@mu.edu.tr

Abstract
In countries where democratic government prevails and there are no restrictions on individuals' rights to vote and be elected, understanding the factors that affect the voting decisions of the electorate is one of the main research topics of political scientists. Elections that determine the ruling government and executive power lead to the continuation of the current administration or vice versa. For this reason, many academic studies are conducted on the factors affecting voting decisions and the severity of their effects.
One of the basic approaches used to analyze and measure the factors affecting citizens' voting preferences for political parties is the economic voting theory. Accordingly, voters will vote in a way that maximizes their personal benefit by evaluating the past changes and future effects of basic macroeconomic variables, both the geography they live in and their own welfare level. Voter behavior generally tends to be explained by ideological and cultural codes. This acknowledges that voter behavior is not inherently rational. Contrary to popular belief, voter behavior is essentially rational. That is, voters measure the impact of key macroeconomic variables such as inflation, unemployment and growth on the daily quality of life.
Many surveys and public opinion studies have been conducted on voters' voting preferences in Turkey. However, the issue still needs to be examined in terms of economic variables. In this study, a literature review will be made for studies conducted in Turkey within the scope of economic voting theory. In general term Turkey has still experiencing certain ideological ruptures in this theory. It is a known fact that, unlike Western countries, the ideological bases of parties have a very transitional structure. In this context, academic studies on economic voting theory will be evaluated.

Keywords: Turkey, voting preferences, economic voting theory.
JEL Codes: E6,E7

Ekonomik Oy Verme Teorisi: Türkiye için Bir Literatür Taraması

Özet

Demokratik yönetimin hüküm sürdüğü ve bireylerin seçme ve seçilme hakları konusunda kısıtlama olmadığı ülkelerde, siyaset bilimcilerin temel araştırma konularından başında seçmen kitlesinin oy verme kararlarını etkileyen faktörleri anlamak gelmektedir. İktidar kudretini, yürütme erkini belirleyen seçimler, mevcut yönetimin devamını veya bu görevin el değiştirmesini, belirli bir sürenin sonunda mevcut yönetimin devamını ya da görevin el değiştirmesine yol açar. Bu nedenle, oy verme kararlarına etki eden faktörler ve bunların etkilerinin şiddeti üzerine pek çok akademik çalışma yapılmaktadır.

Siyasi partilere yönelik vatandaşların oy tercihlerini etkileyen faktörlerin analiz edilip ölçümlenmesinde yararlanılan temel yaklaşımlardan biri de ekonomik oy verme teorisidir. Buna göre seçmenler, temel makroekonomik değişkenlerin, gerek yaşadığı coğrafya ve gerekse kendi refah seviyesinin geçmişteki değişimini ve bunun gelecekteki etkilerini değerlendirerek, kişisel faydasını maksimize edecek şekilde oy vereceklerdir. Seçmen davranışları genellikle ideolojik ve kültürel kodlar ile açıklanma eğilimindir. Bu da seçmen davranışlarının özü itibari ile çok da rasyonel olmadığını kabul eder. Sanılanın aksine seçmen davranışları özünde rasyonel bir yapıdadır. Yani seçmen enflasyon, işsizlik ve büyüme gibi temel makroekonomik değişkenlerin günlük yaşam kalitesi üzerinde etkisini ölçer.

Türkiye'de seçmenlerin oy verme tercihleri üzerine pek çok anket ve kamuoyu çalışması yapılmıştır. Bununla birlikte konu ekonomik değişkenler açısından hala incelenmeye muhtaçtır. Bu çalışmada ekonomik oy teorisi kapsamında Türkiye'de yapılan çalışmalar için bir literatür taraması yapılacaktır. Genel hatları ile bu teorinin Türkiye hala belirli ideolojik kırılmalar yaşamaktadır. Batı ülkeleri aksine partilerin ideolojik tabanlarının oldukça geçişken bir yapısı olduğu da bilinen bir gerçektir. Bu çerçevede ekonomik oy verme teorisi üzerine yapılan akademik çalışmalar değerlendirilecektir.

Anahtar kelimeler: Türkiye, seçmen oy verme tercihi, ekonomik oy teorisi
JEL Kodları: E6,E7

Plastic Waste Imports and Taxes: A General Equilibrium Perspective on Environmental Policies

Halil İbrahim Koçak[131, 132]
Baskent University, Turkey
hibrahimkocak@baskent.edu.tr

Abstract
Plastic is one of the most widely used materials worldwide due to its low cost and versatile applications. However, its long decomposition time and limited recyclability have caused significant environmental issues. Following China's 2018 ban on plastic waste imports, Turkey has emerged as a major player in plastic waste imports despite its limited recycling capacity. This study examines the impact of plastic waste taxes on reducing imports through a general equilibrium model. The analysis focuses on key variables such as plastic waste taxes, the share of domestic waste used in recycling, global plastic waste prices, and consumer environmental awareness. The findings indicate that higher tax rates reduce plastic waste imports; however, this effect diminishes as the share of domestic waste in recycling increases. While higher global plastic waste prices restrict imports, the impact of consumer environmental awareness on imports remains ambiguous. The study highlights the importance of environmental policies and awareness-raising measures in promoting sustainable resource management..

Keywords: Plastic waste, Environmental sustainability, General equilibrium model.
JEL Codes: D58, F18, H29

[131] **Correspondence:** Department of Economics, Faculty of Economics, Baskent University, 06790, Ankara, Turkey. e-mail: hibrahimkocak@baskent.edu.tr

Plastik Atık İthalatı ve Vergiler: Çevresel Politikalar için Genel Denge Perspektifi

Özet

Plastik, düşük maliyeti ve çok yönlü kullanımı nedeniyle dünya genelinde yaygın kullanılan bir malzemedir. Ancak, plastik atıkların parçalanmasının uzun sürmesi ve geri dönüştürülebilirliğinin sınırlı olması ciddi çevresel sorunlara yol açmaktadır. Çin'in 2018'de plastik atık ithalatını yasaklamasının ardından Türkiye, sınırlı geri dönüşüm kapasitesine rağmen plastik atık ithalatında önemli bir rol üstlenmiştir. Bu çalışmada, plastik atık vergisinin ithalatı azaltmadaki etkileri genel denge modeli üzerinden incelenmiştir. Plastik atık vergisi, yurt içi atıkların geri dönüşümdeki payı, dünya fiyatları ve tüketici çevre bilinci değişkenleri analiz edilmiştir. Sonuçlar, vergi oranlarının ithalatı azalttığını, ancak yurt içi atık kullanım oranının artmasıyla bu etkinin zayıfladığını göstermektedir. Plastik atık fiyatlarındaki artış ithalatı sınırlarken, tüketici çevre bilincinin ithalata etkisi belirsizdir. Çalışma, sürdürülebilir kaynak yönetimi için çevre politikalarının ve farkındalık artırıcı önlemlerin önemini vurgulamaktadır.

Anahtar Kelimeler: Plastik atık, Çevresel sürdürülebilirlik, Genel denge modeli.
JEL Kodları: D58, F18, H29

Structural Transformations in the Energy Markets of the EU and Turkey Induced by the Climate Crisis and the European Green Deal

Melisa Cebeci
Gebze Technical University
mlscbc54@gmail.com

Abreg S. Çelem[133]
Ondokuz Mayis University
ascelem@omu.edu.tr

Abstract
Increased carbon emissions after the Industrial Revolution have triggered global warming and led to the climate crisis. This crisis is intrinsically linked to the energy market, particularly in relation to electricity generation resources, pricing mechanisms, import-export balance, and carbon emissions. The European Union, in its pursuit of combating climate change, has established carbon neutrality targets under the European Green Deal, thereby introducing comprehensive regulations within the energy sector.This study first examines the dynamics of the energy sector in the European Union and Turkey, focusing on generation resources, pricing, trade structures, and carbon emissions, to comparatively analyse the early outcomes of the transformation process before and after the implementation of the Green Deal. The analysis employs time series methods in conjunction with structural break tests to determine the impact of policy shifts on time series data.The study aims to contribute to the existing literature by elucidating the impacts of the European Green Deal regulations on energy market dynamics and to comparatively assess the effects of the sustainable energy policies in the European Union and Turkey.

Keywords: European Green Deal, Climate Crisis, Energy Sector, Structural Breaks, Time Series Analysis
JEL Codes: Q41, Q48, C32

[133] **Correspondence:** Ondokuz Mayıs Üniversitesi, İİBF, İktisat Bölümü, Ofis 405, Atakum, Samsun. E-mail: ascelem@omu.edu.tr

İklim Krizi ve Avrupa Yeşil Mutabakatı'nın AB ve Türkiye Enerji Piyasalarında Yarattığı Yapısal Değişimler

Özet

Sanayi devrimi sonrası artan karbon salımı, küresel ısınmayı tetikleyerek iklim krizine yol açmıştır. Bu kriz, enerji piyasasıyla doğrudan ilişkilidir ve özellikle elektrik üretiminde kullanılan kaynaklar, fiyatlandırma mekanizmaları, ithalat-ihracat dengesi ve karbon emisyonları üzerinden değerlendirilmektedir. Avrupa Birliği, iklim değişikliğiyle mücadelede Avrupa Yeşil Mutabakatı kapsamında karbon nötr hedefler belirleyerek enerji sektöründe kapsamlı düzenlemeler getirmiştir.Bu çalışma, öncelikle Avrupa Birliği ve Türkiye'de enerji sektörünün dinamiklerini, üretimde kullanılan kaynaklar, fiyatlar, ticaret yapısı ve karbon emisyonları ışığında inceleyerek, Yeşil Mutabakat öncesi ve sonrası yaşanan dönüşüm sürecinin erken dönem sonuçlarını karşılaştırmalı olarak analiz etmektedir. Analizde, politika değişikliklerinin zaman serileri üzerindeki etkisini belirlemek amacıyla yapısal kırılmalar ışığında zaman serisi analizleri kullanılacaktır.Çalışma, Avrupa Yeşil Mutabakat düzenlemelerinin enerji piyasası dinamikleri üzerinde yarattığı etkileri ortaya koyarak literatüre katkı sağlamayı ve sürdürülebilir enerji politikalarının Avrupa Birliği ve Türkiye'de ortaya çıkan etkilerini karşılaştırmalı olarak değerlendirmeyi amaçlamaktadır.

Anahtar Kelimeler: Avrupa Yeşil Mutabakatı, İklim Krizi, Enerji Sektörü, Yapısal Kırılmalar, Zaman Serisi Analizi.

JEL Kodları: Q41, Q48, C32

The Impact of Environmental Diplomacy on Sustainable Development: The Case of Türkiye

Başak Özarslan Doğan[134]
Istanbul Gelisim University, Türkiye
bozarslan@gelisim.edu.tr

Hilal Kuruoğlu
Istanbul Gelisim University, Türkiye
hkuruoglu@gelisim.edu.tr

Abstract
As one of the leading areas of humanity's struggle, environmental problems pose more and more threats on the planet every day. At this point, environmental diplomacy has become an important tool of struggle on a global scale. The need to reduce the pressure of human activities on the environment and to solve the emerging problems has brought about a paradigm shift and the concept of sustainable development has been developed. In this context, environmental diplomacy affects how countries position themselves on the environment and thus their sustainable development performance. This impact has been generally ignored in the development literature. In this study, whether environmental diplomacy is successful on sustainable development in Türkiye between 1990-2020 is analysed with the help of ARDL bounds test. In this framework, sustainable development is represented by the sustainable development index, and geopolitical risk, inflation, industrialisation and openness to foreign trade variables are also examined in addition to environmental diplomacy, which are considered to affect sustainable development. The findings of the study show that there is a positive and statistically significant relationship between environmental diplomacy and sustainable development in the period 1990-2020 in Türkiye. On the other hand, geopolitical risk and inflation have a positive and statistically significant effect on sustainable development in Türkiye, while the effect of openness to foreign trade and industrialisation is negative and significant. Since the international agreements to which Türkiye is a party have the force of law, taking steps to improve environmental diplomacy will contribute to the realisation of sustainable development. However, since these agreements determine the general framework, there is a need to deepen them. For this purpose, it is suggested that the institutional structure should be made operational as a supportive element, investments in this field should be facilitated through research and development activities and studies on access to finance, and monitoring and supervision mechanisms should be improved.

Keywords: Environmental diplomacy, sustainable development, geopolitical risk, ARDL bounds test.
JEL Codes: Q50, S56, S58, O11

[134] **Correspondence:** Department of International Trade and Business, Faculty of Economics, Administrative and Social Sciences Istanbul Gelisim University, Istanbul, Turkey., e-mail: bozarslan@gelisim.edu.tr

Çevre Diplomasisinin Sürdürülebilir Kalkınma Üzerindeki Etkisi: Türkiye Örneği

Özet

İnsanlığın önde gelen mücadele alanlarından biri olarak çevre sorunları, gezegen üzerinde her geçen gün daha fazla tehdit oluşturmaktadır. Bu noktada çevre diplomasisi, küresel ölçekte önemli bir mücadele aracı olmuştur. İnsan faaliyetlerinin çevre üzerinde oluşturduğu baskının azaltılması ve ortaya çıkan sorunların çözülmesi ihtiyacı bir paradigma değişimini de beraberinde getirmiş ve sürdürülebilir kalkınma anlayışı geliştirilmiştir. Bu bağlamda çevre diplomasisi, ülkelerin çevre konusunda nasıl konumlanacağını ve dolayısıyla sürdürülebilir kalkınma performansını etkilemektedir. Kalkınma literatüründe bu etki genellikle göz ardı edilmiştir. Çalışmada 1990-2020 yılları arasında Türkiye'de çevre diplomasisinin sürdürülebilir kalkınma üzerinde başarılı olup olmadığı ARDL sınır testi yardımıyla incelenmiştir. Bu çerçevede, sürdürülebilir kalkınma, sürdürülebilir kalkınma indeksi ile temsil edilmiş olup, sürdürülebilir kalkınmayı etkilediği düşünülen çevre diplomasisinin yanı sıra jeopolitik risk, enflasyon, sanayileşme ve dışa açıklık değişkenleri de incelenmiştir. Çalışma bulguları Türkiye'de 1990-2020 döneminde çevre diplomasisi ile sürdürülebilir kalkınma arasında pozitif ve istatistiki olarak anlamlı bir ilişkinin varlığını göstermektedir. Diğer taraftan, Türkiye'de sürdürülebilir kalkınma üzerinde jeopolitik risk ve enflasyon pozitif ve istatistiki olarak anlamlı etkiye sahipken, dışa açıklık ve sanayileşmenin etkisinin ise negatif ve anlamlı olduğu görülmektedir. Türkiye için taraf olunan uluslararası anlaşmalar kanun hükmünde sayıldığından çevre diplomasisini geliştirmeye yönelik adımlar atılması sürdürülebilir kalkınmanın gerçekleştirilmesine katkı sunacaktır. Ancak söz konusu anlaşmalar genel çerçeveyi belirlediğinden bunların derinleştirilmesine ihtiyaç duyulmaktadır. Bunun için kurumsal yapıya destekleyici bir unsur olacak şekilde işlerlik kazandırılması, araştırma-geliştirme faaliyetleri ve finansmana erişime yönelik çalışmalarla bu alandaki yatırımların kolaylaştırılması, izleme ve denetim mekanizmalarının geliştirilmesi önerilmektedir.

Anahtar Kelimeler: Çevre diplomasisi, sürdürülebilir kalkınma, jeopolitik risk, ARDL sınır testi.
JEL Kodları: Q50, S56, S58, O11

Exploring Energy Substitution for Emission Reduction in Türkiye under the Paris Agreement and CBAM

Erhan Pişkin[135, 136]
Giresun University, Türkiye
erhan.piskin@giresun.edu.tr

Şebnem Arık
Alanya University, Türkiye
sebnem.arik@alanyauniversity.edu.tr

Ümit K. Seyfettinoğlu
Akdeniz University, Türkiye
umitk@akdeniz.edu.tr

Mehmet Zanbak
Akdeniz University, Türkiye
mehmetzanbak@akdeniz.edu.tr

Selim Çağatay
Akdeniz University, Türkiye
selimcagatay@akdeniz.edu.tr

Abstract
In line with the European Union's (EU) goal of becoming the first climate-neutral continent by 2053, the Carbon Border Adjustment Mechanism (CBAM), which will be implemented by 2026, is expected to reduce the competitiveness of countries engaged in carbon-intensive production. Türkiye, whose leading trading partner is the EU, is also at risk. This study evaluates the energy substitution perspective of carbon reduction in line with Türkiye's 2030 targets within the framework of the CBAM, which is an extension of the European Green Deal and the nationally determined contributions (NDCs) under the Paris Agreement. Accordingly, it aims to reveal the sectoral energy substitution potential within the framework of carbon mitigation in line with the goals of the Paris Agreement while ensuring the sustainability of exports by fulfilling the CBAM requirements. The study investigates the impact of the substitution of fossil fuels used in the production of main exporting sectors with renewable energy sources on carbon emissions with the help of a 75-sector circular economy compatible input-output (CE-I/O) matrix prepared for Türkiye using data for 2022 obtained from the EXIOBASE database, and the results are evaluated within the framework of the NDCs under the Paris Agreement and CBAM.

Keywords: Input-Output model, carbon emissions, energy substitution, exports.
JEL Codes: D57, Q4, Q5, F18

[135] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Science, Giresun University, Giresun, Türkiye.
[136] This study was supported by TUBITAK (the Scientific and Technological Research Council of Turkey). TUBITAK-ARDEB-SOBAG 1001 Research Project No: 223K233.

Paris Anlaşması ve SKDM Kapsamında Türkiye'de Emisyon Azaltımında Enerji İkamesinin İncelenmesi

Özet

Avrupa Birliği'nin 2053 yılına kadar iklim-nötr ilk kıta olma hedefi doğrultusunda 2026 itibarıyla uygulamaya koyacağı Sınırda Karbon Düzenleme Mekanizmasının (SKDM) karbon yoğun üretim yapan ülkeler açısından rekabet gücünü azaltacağı öngörülmektedir. Ana ticaret partneri AB olan Türkiye de bu bağlamda risk altındadır. Bu çalışmada, Avrupa Yeşil Mutabakatı'nın uzantısı olan SKDM ve Paris Anlaşması'ndaki niyet beyanları çerçevesinde Türkiye'nin 2030 yılı hedefleri doğrultusunda karbon azaltımının enerji ikamesi perspektifinden değerlendirmeler yapılmaktadır. Buna göre, bir yandan SKDM gereklilikleri yerine getirilerek ihracatın sürdürülebilirliği sağlanırken diğer yandan Paris Anlaşması'ndaki niyet beyanına uyumlu karbon azaltımı çerçevesinde sektörel enerji ikamesi potansiyelinin ortaya konulması amaçlanmaktadır. Çalışmada, Türkiye için EXIOBASE veri tabanından elde edilen 2022 yılı verileri kullanılarak hazırlanan 75 sektörlü döngüsel ekonomi uyumlu girdi-çıktı (DE-I/O) matrisi yardımıyla ana ihracatçı sektörlerin üretiminde kullanılan fosil yakıtların yenilenebilir enerji kaynakları ile ikamesinin karbon salımları üzerinde yaratacağı etki araştırılmakta, sonuçlar SKDM ve Paris Anlaşması'ndaki niyet beyanları çerçevesinde değerlendirilmektedir.

Anahtar Kelimeler: Girdi-Çıktı modeli, karbon emisyonu, enerji ikamesi, ihracat.
JEL Kodları: D57, Q4, Q5, F18

Geographical Decomposition of Crop Yield using Shift Share Approach

Mustafa Özsarı[137]
Konya Food and Agriculture University, Türkiye
mustafa.ozsari@gidatarim.edu.tr

Yılmaz Kılıçaslan
Anadolu University, Türkiye
ykilicaslan@anadolu.edu.tr

Abstract
This study aims to examine the effects of changes in the share of the cultivated areas of the provinces on crop yields by using the provincial level crop production data in Turkey between 2004 and 2022. The Shift Share Analysis method was adapted to the agricultural sector for the first time, and the effects of the shift of production to productive and inefficient provinces were revealed. For the analysis, cultivated area, production amount and yield data obtained from TURKSTAT were used. Results revealed that the production of products such as tobacco, cotton, oats, green lentils and rye has shifted to less productive provinces. In contrast, the production of products such as corn, sunflower, sugar beet, soybeans, potatoes and wheat has shifted to more productive provinces. The shift of production towards regions that provide high productivity stands out as an important factor in increasing agricultural productivity. This situation highlights the critical role of geographical factors in the policy-making process and points to the need for detailed analyses at the district level.

Keywords: Plant production, agricultural productivity, agricultural policy, Shift Share Analysis.
JEL Codes: O47, Q18, D24.

[137] **Correspondence:** Faculty of Social Sciences and Humanities, Konya Food and Agriculture University, 42080, Konya, Türkiye. Phone: +90 332 2235463, e-mail: mustafa.ozsari@gidatarim.edu.tr

Unpacking Agglomeration: Urban Density, Productivity, and Sectoral Dynamics in Türkiye

Enver Sait Kurtaran[138]
Central Bank of the Republic of Türkiye, Türkiye
Yıldız Technical University, Türkiye
enver.kurtaran@tcmb.gov.tr

Abstract
This study offers insights into the relationship between urban density and firm productivity in Türkiye, analyzing firm-level panel data from both the manufacturing and services sectors for the period from 2010 to 2023. The results underscore the significance of agglomeration economies, evidenced by a positive and statistically significant density elasticity of productivity, which is consistent across multiple productivity metrics, including total factor productivity, labor productivity, and average salary payments per firm. The disparity in density elasticity across sectors is noteworthy; at the firm level, the service sector demonstrates a more significant reaction to urban density, whereas at the city-sector level, the manufacturing sector reveals a stronger response. The study further classifies agglomeration into localization and urbanization economies, so deepening our comprehension of how proximity to companies, whether within the same or distinct industries, influences productivity. The application of both OLS and system GMM with instrumental variable estimation validates the robustness of the findings, highlighting the intricate interplay between urbanization and localization effects on production. This research enhances the literature on economic geography and company performance, providing significant insights for policymakers aiming to increase productivity via better urban planning and development initiatives.

Keywords: Agglomeration, Localization, Urbanization, TFP.
JEL Codes : R30, R12, D24, L25

[138] **Correspondence:** Structural Economic Research Department, Central Bank of the Republic of Türkiye, Türkiye. Phone: +90 216 7737861, e-mail: enver.kurtaran@tcmb.gov.tr

Oil Price Volatility Classification and Prediction with Sentiment Analysis: Machine Learning Approach

Kerem Çiftçi[139]
Bogazici University, Turkey
keremciftci0702@gmail.com

Mazhar Mert Ulukaya[140]
Bogazici University, Turkey
mertulukaya12@gmail.com

Eren Ergüzel[141]
Bogazici University, Turkey
erguzeleren05@gmail.com

Abdullah Rüzgar[142]
Bogazici University, Turkey
abdullahruzgar222@gmail.com

Abstract
Accurately predicting oil price volatility is crucial for stakeholders in the energy sector—not only for financial stakeholders such as investors, policymakers, and traders but also for sectoral stakeholders, including energy companies and individuals whose businesses are affected by oil prices. This study integrates 15 years of financial news headlines over 22,000 headlines from the Oilprice.com website, sentiment analysis tools such as FinBERT, VADER, and Google Trends data, along with energy metrics from the U.S. Energy Information Administration and market metrics such as VIX and DXY, to predict average monthly oil price volatility and classify it into high and low volatility categories. It employs and compares various machine learning methods, including logistic regression, artificial neural networks (ANN), gradient boosting, elastic net regression, random forests, and LSTM. We observed that the random forest models produced robust results with strong generalization capabilities. However, more linear models, such as logistic regression and elastic net regression, exceeded our expectations. Ultimately, our analysis demonstrated that incorporating sentiment analysis significantly enhanced the predictive power of the models.

Keywords: Oil price volatility, Sentiment analysis, Machine learning
JEL Codes: C45, G17, Q41

[139] **Correspondence:** Department of Economics, Faculty of Economics, Bogazici University, Undergraduate, Istanbul, Turkey. Phone: +90 530 234 6848 e-mail: keremciftci0702@gmail.com
[140] **Correspondence:** Department of Economics, Faculty of Economics, Bogazici University, Undergraduate, Istanbul, Turkey. Phone: +90 542 735 7193 e-mail: mertulukaya12@gmail.com
[141] **Correspondence:** Department of Economics, Faculty of Economics, Bogazici University, Undergraduate, Istanbul, Turkey. Phone: +90 553 135 5090 e-mail: erguzeleren05@gmail.com
[142] **Correspondence:** Department of Economics, Faculty of Economics, Bogazici University, Undergraduate, Istanbul, Turkey. Phone: +90 553 741 9294 e-mail: abdullahruzgar222@gmail.com

Could Clustering the Turkish Manufacturing Industry Based on the Education Intensity Index Offer a New Perspective on Innovation, S&T, R&D, and Industrial Policies?

Atakan Akıncı[143]
Piri Reis University, Türkiye
aakinci@pirireis.edu.tr

Abstract
In the 21st century, knowledge and technology have been evolving extremely day by day. Given this rapid development, policies on innovation, industry, science and technology (S&T), and research and development (R&D) play a key role in orienting production technology toward the next Kondratieff wave. The formulation of these policies is critical for a country's future. This study provides a new perspective on the determination of policies in the Turkish manufacturing industry. The perspective is based on clustering the Turkish manufacturing industry with respect to the education intensity index (EII) and then designing policies specific to each cluster. To conduct this process, Türkiye's labor force statistics micro data sets are employed to calculate EII which is used to cluster the Turkish manufacturing industry by NACE Rev. 2. This cluster analysis focuses on the Marmara (Istanbul, West, and East) and Aegean regions, covering the period between 2003 and 2023 by dividing it into two subperiods: 2003-2013, and 2013-2023. As a result, designing policies by taking clusters associated with EII into account can contribute to economic growth and development.

Keywords: Manufacturing Industry, Regional Analysis, Industrial Policy.
JEL Codes: O14, O18, O25

[143] **Correspondence:** Department of Transportation Services, Maritime Higher Vocational School (MHVS), Piri Reis University, 34940, Tuzla, İstanbul, Türkiye. Phone: +90 216 581 0050 ex: 1639, e-mail: aakinci@pirireis.edu.tr & atakanakinci@outlook.com

Place-Based Industrial Policies in Türkiye: Implications on Technological Advancement of Non-Financial Corporates

Ralph De Haas
European Bank for Reconstruction and Development, UK
deHaasR@ebrd.com

Cevat Aksoy
European Bank for Reconstruction and Development, UK
AksoyC@ebrd.com

Francesco Loiacono
European Bank for Reconstruction and Development, UK
LOIACONF@ebrd.com

Yusuf Emre Akgündüz
Central Bank of the Republic of Türkiye, Türkiye
yusufemre.akgunduz@tcmb.gov.tr

Muhammed Hasan Yılmaz[144]
Central Bank of the Republic of Türkiye, Türkiye
muhammed.yilmaz@tcmb.gov.tr

Abstract
We examine the impact of technology development zones (technoparks) in Türkiye on firm performance by leveraging their staggered rollout. Using a matched difference-in-differences design and administrative firm-level data from 2009 to 2023, we find that firms located in technopark districts are more likely to engage in technology-intensive trade, both domestically and internationally. We also document positive effects on total factor productivity in the medium term. These results highlight knowledge spillovers and productivity-enhancing externalities from place-based industrial policies implemented through technology development zones.

Keywords: Place-based industrial policies, technological advancement, difference-in-differences
JEL Codes: L52, O30, R58

[144] **Correspondence:** Central Bank of the Republic of Türkiye, Saray Mh. Küçüksu Cad. No: 64/B Ümraniye/İstanbul. Phone: +90 216 7735616, e-mail: muhammed.yilmaz@tcmb.gov.tr

From a human-centric perspective, how does the automation-driven job displacement in Industry 5.0 compare to that of Industry 4.0?

Naida Jahović
Middle East Technical University, Türkiye
naida.jahovic@metu.edu.tr

Abstract
Automation has reshaped industries, with Industry 4.0 emphasizing efficiency and technological advancement, leading to concerns about job displacement. This study explores the differences in automation-driven job displacement between Industry 4.0 and Industry 5.0, highlighting the shift towards a human-centric industrial paradigm. Most of the studies in this field are concerned with productivity gains, but very few are concerned with the labor impact of these production paradigms. Through a synthesis of peer-reviewed literature from 2000 to 2024, this study aims to investigate the differential effect of Industry 4.0 and Industry 5.0 on automation-related job displacement. Findings indicate that Industry 4.0's automation-centric framework has contributed to technological unemployment, particularly in routine-intensive sectors. In contrast, Industry 5.0 integrates human-centric policies, reducing job losses and enhancing worker satisfaction by fostering collaboration between humans and machines. Finally, this study underscores the necessity for policymakers to align technological progress with social needs to ensure a sustainable and inclusive labor market.

Keywords: Industry 4.0, Industry 5.0, automation, job displacement, labor.
JEL Codes: O33, J23, J24.

What is next for Türkiye? Trade, specialization, and growth considering the trilemmas of globalization

Emine Tahsin[145],
İstanbul University, Türkiye
tahsin@istanbul.edu.tr

Abstract
Globalization has brought along conditions that differentiate the foreign trade dynamics of countries and, in particular, has determined the characteristics of countries participating in global value chains through their specialization dynamics. Trilemmas of globalization approaches aim to define the constraints faced with globalization in this context. Moreover, the trade wars between the US and China raise the question of how countries will differentiate export and employment conditions with the transition to protectionist trade policies. Based on this, the paper aims to analyze the linkages between trade, structural change, and growth in Türkiye. A decomposition method for the calculation of the aggregate productivity level in Türkiye for the period of 1990-2018 will be implemented. The global value chain participation index, real effective exchange rate, openness data, and task specialization index derived from the occupation database for the period of 2000-2018 are used in setting up the relevant linkages. In addition, changes in the employment level of the manufacturing sector and the level of imports from the USA, China, and the EU are considered. As a result of the findings, Türkiye's trade and specialization orientations within the framework of globalization trilemmas will be discussed.

Keywords: Structural change and trade, global value chains, tasks and specialization
JEL Codes: F14, O14, O4, F6

[145] **Correspondence:** Department of Economics, Faculty of Economics, İstanbul University, İstanbul, Fatih, Beyazıt Türkiye. 34452, Phone: +90 212 440 00 00 ex: 11743 , e-mail: tahsin@istanbul.edu.tr

Fertility Preferences, Contraceptive Choices and Ideal Number of Children

Didem Pekkurnaz[146]
Başkent University, Türkiye
dpekkurnaz@baskent.edu.tr

Abstract
This study investigates the impact of the difference between the actual and ideal number of children on fertility preferences and contraceptive choices of women of reproductive age by using the 2018 Turkey Demographic and Health Survey. Findings show that if the number of sons (daughters) is below the ideal number of sons (daughters), the probability of preferring another child increases compared to women who have already reached their ideal number. The probability of modern contraceptive use decreases if a woman has fewer children than her ideal number and increases if she has more children than her ideal number compared to women who have reached their ideal number. However, the decline in the probability of modern method use is stronger when women fall short of their ideal number of daughters. Conversely, the increase in the probability of modern contraceptive use is more pronounced when women have more sons than their ideal number. Additionally, if a woman has more sons than her ideal number, the probability of choosing a modern method over a traditional one increases, whereas it decreases if women fall short of their ideal number of daughters, though this effect is not as strong.

Keywords: Fertility preference, contraceptive choice, 2018 TDHS
JEL Codes: I10, J13

[146] **Correspondence:** Department of Economics, Faculty of Economics and Administrative Sciences, Başkent University, Ankara, Türkiye. Phone: +90 312 2466648 , e-mail: dpekkurnaz@baskent.edu.tr

Gender Wage Gaps in Turkey: The Impact of Occupational Variation and Sectoral Informality[147]

Leyla Ayşegül Kandemir
Boğaziçi University, Turkey
leyla.kandemir90@gmail.com

Abstract
This paper investigates the gender wage gaps in Turkey, with a particular attention to occupational differences and sectoral informality, controlling for education. While gender wage inequalities persist, the nature of gaps vary between countries. Using data from Turkey, I apply the Oaxaca–Blinder decomposition method and fixed effects regressions to estimate the extent of wage differentials across different occupational categories and informality levels associated with those categories. The results indicate that wage gaps are more pronounced in lower-skilled occupations, such as service, sales, and elementary jobs, where women face higher penalties compared to men. Also, the discrimination factors are more pronounced in these categories. Additionally, informality is also significant in wage disparities, and has a greater negative impact for women while having a slightly positive impact for men. Understanding the gender wage gap in Turkey, particularly in the context of occupational differences and informality, is crucial for developing effective policies aimed at reducing labor market inequalities, particularly in low-skilled and informal labor markets where women predominate.

Keywords: Gender wage gap, Occupational heterogeneity, Oaxaca-Blinder decomposition, Informality.
JEL Codes: J16, J31, B54, J46

[147] This paper is written as part of the course requirements of EC 48K.01: Advanced Research Methods in Applied Economics

Regional Analysis of Overeducation in Türkiye

Bilge Eriş Dereli[148]
Marmara University, Turkey
bilge.eris@marmara.edu.tr

Narod Erkol[149]
MEF University, Turkey
erkoln@mef.edu.tr

Abstract
Since the early 2000s, Türkiye has witnessed a substantial rise in educational attainment; however, the demand for highly educated labor has not kept pace, leading to widespread overeducation. This mismatch results in the underutilization of human capital, reduced economic efficiency, and increased labor market dissatisfaction. Despite significant regional disparities in economic indicators, educational attainment, and labor market dynamics, regional studies on overeducation in Türkiye remain limited. This study examines overeducation in Türkiye at the NUTS2 level, addressing two key research questions: (i) whether significant regional disparities exist in overeducation rates and (ii) what regional factors contribute to these differences. Using cross-sectional Household Labor Surveys from 2014 to 2023, separate fractional logit models are estimated for females and males. The findings indicate persistent regional disparities in overeducation. Urban areas experience labor market mismatches, while underdeveloped regions face emerging challenges. Female overeducation is more volatile due to oversupply and limited opportunities, whereas male overeducation remains relatively stable but persistent. These insights highlight the need for region-specific policies to address educational mismatches and enhance labor market efficiency.

Keywords: Overeducation, regional disparities, fractional logit
JEL Codes: C25, J24, R23

[148] **Correspondence:** Department of Economics, Marmara University, 34722 Istanbul, Turkey. Phone: +90 216 7773000 ex: 3136, Fax: +90 216 7773136 e-mail: bilge.eris@marmara.edu.tr
[149] **Correspondence: :** Department of Economics, MEF University, 34396, Istanbul, Turkey. Phone: +90 212 3953600 ex: 3692, Fax: +90 212 3953692 e-mail: erkoln@mef.edu.tr

Spatial industrialization patterns and unemployment: Evidence from micro data

Burhan Can Karahasan[150, 151]
MEF University, Turkey
karahasanb@mef.edu.tr

Abstract
Prior evidence show that unemployment is a result of different factors ranging from age, gender, education and job experience. A relatively less examined area is the impact of places that individuals live in. In this study I use the Labor Force Statistics (2005-2022) and focus on the industrialization patterns of the Turkish regions (NUTS-2). I argue that even regional growth tends to act as a stimulus to create jobs likelihood of being unemployed declines if the economic activity is relatively less industrial. This translates into the following hypothesis: (H1) Likelihood of being unemployed is lower for individuals who live in regions with dense industrial economic activity. The follow-up hypothesis is: (H2) Likelihood of being unemployed is lower for individuals who live in regions spatially connected to industrial locations. Findings confirm that individuals who live in economically industrial regions have less propensity to be unemployed. Moreover, individuals who live in regions in close proximity to industrial locations also have less possibility to be unemployed. Final analyses of the paper relate to the spatial heterogeneity. After grouping regions based on geographical and economic characteristics, we find strong evidence favoring the impact of industrialization.

Keywords: industrialization, unemployment, Turkey
JEL Codes: O43, R11, R12, R50

[150] **Correspondence:** Burhan Can Karahasan, Department of Economics, MEF University, e-mail: karahasanb@mef.edu.tr
[151] This research is supported by the Scientific and Research Council of Türkiye (TÜBİTAK). Project code: 223K955.

The Gender Distribution of "Good Jobs" in Turkey

Evren Gülser[152]
Işık University, Turkey
evren.gulser@isikun.edu.tr

Hasan Tekgüç
Kadir Has University , Turkey
hasan.tekguc@khas.edu.tr

Abstract
Turkey's population is heavily concentrated in urban areas, as the spatial distribution of economic activity becomes more concentrated over time in Istanbul (Aşık et al., 2023). One possible explanation is firm complementarity (Demir et al., 2024), while another may be the complementarity among high-skilled workers. Defining good jobs as full-time private sector positions paying at least twice the minimum wage, we document the regional distribution of good jobs and gender disparities over the past two decades to test the worker complementarity hypothesis. We show that Turkey's labor market exhibits gender biases that make the labor market for females outside Istanbul increasingly thin, where the public sector is the only reliable employer. Our first explanatory channel is linked to assortative mating among high-skilled workers. The marriage market keeps high-skilled worker couples in metropolitan areas, as a higher offer for male workers outside Istanbul rarely offsets the thin labor market for females, ultimately risking a decline in household income. Our second channel is linked to low replacement rates for high-skilled positions driven by labor market insecurity. This underscores the importance of network effects for high-skilled workers, as relocating from metropolitan areas weakens their professional ties.

Keywords: Agglomeration economics, local labor markets, superstar cities.
JEL Codes: R12, R23, J24, J61

[152] **Correspondence:** Department of Economics, Faculty of Economics, Administrative and Social Sciences, Isik University, 34980, Sile, Istanbul, Turkey., e-mail: evren.gulser@isikun.edu.tr

Financial Conditions, Uncertainty and Expectations Errors

Petre Caraiani
Bucharest University of Economic Studies, Romania
petre.caraiani@gmail.com

Nazlı Karamollaoğlu[153]
MEF University, Turkey
karamollaoglun@mef.edu.tr

Cihan Yalcin
Central Bank of the Republic of Türkiye, Turkey
cihan.yalcin@tcmb.gov.tr

Abstract
Using a novel and comprehensive database of Turkish firms that combines the Business Tendency Survey (BTS) with the Company Accounts, we analyze the determinants of expectation errors of Turkish manufacturing firms. We examine firm expectation errors for various variables, including those related to sales, exports, consumer and producer prices inflation rates. We investigate the impact of various firm characteristics and macroeconomic factors reflecting uncertainty (exchange rate volatility and VIX index) and monetary policy stance on firms' absolute expectation errors. Using fixed effects panel technique, we estimate that macro variables that control for uncertainty or volatility explain expectation errors better than firm-level variables. The rise in the exchange rate volatility and VIX Index is estimated to be associated with the worsening of the accuracy of expectations. The accuracy of expectations of sales improves with firm size while the accuracy of expectations errors for inflation rates declines with the share of short-term liabilities and liquidly liquidity ratio.

Keywords: Financial conditions, expectation errors, macroeconomic uncertainty, firm expectations, exchange rate volatility.
JEL Codes: D84, E31, L25

[153] **Correspondence:** Department of Economics, FEASS, MEF University, 34396, İstanbul, Turkey. Phone: +90 212 3953600,, Fax: +90 212 3953692, e-mail: karamollaoglun@mef.edu.tr

Inflation Expectations and Household Spending in High Inflation: Evidence from a Randomized Control Trial

Emrehan Aktuğ[154]
Sabancı University, Turkey
emrehan.aktug@sabanciuniv.edu.tr

Orhan Erem Ateşağaoğlu[155]
Sabancı University, Turkey
erem.atesagaoglu@sabanciuniv.edu.tr

Abstract
We run a survey of Turkish households in which randomized treatments provide different types of information about the first and second moments of inflation, in a high inflation environment. Our experiments show that the factors and mechanisms that affect inflation expectations can be quite different in a high inflation setting due to (i) increased attentiveness and (ii) trust in official information. First, while commonly cited factors in the literature—such as education, income, gender, or age—do not significantly explain the cross-sectional variation in aggregate inflation expectations (reflecting increased attentiveness to price fluctuations diminishing disparities among demographic groups), the city of residence emerges as a significant determinant (reflecting spatial heterogeneity in the cost of living). Second, our information treatments, based on publicly available data, successfully generate significant exogenous variation in inflation expectations, even in a setting of very high inflation. Third, we analyze the causal impact of these changes in inflation expectations on households' consumption and saving plans. We find that higher inflation expectations reduce expected spending, reflecting households' stagflationary outlook: a 10 percentage point increase in inflation expectations corresponds to a roughly 3.5 percentage point decline in total and nondurable expected spending, along with a 3 percentage point decrease in the likelihood of durable goods purchases. This provides empirical evidence that the expected income channel dominates the intertemporal substitution channel in a sustained high inflation environment with increased attentiveness.

Keywords: Expectations, Consumer Economics, Macroeconomics, RCT, High Inflation
JEL Codes: E12; E24; E31; E52

[154]**Correspondence:** Faculty of Arts & Social Sciences, Sabancı University, 34956, Istanbul, Turkey. Phone: +90 534 6675930, e-mail: emrehan.aktug@sabanciuniv.edu.tr
[155]**Correspondence:** Faculty of Management, Sabancı University, 34956, Istanbul, Turkey. E-mail: erem.atesagaoglu@sabanciuniv.edu.tr

Connection Between R&D and Pharmaceutical Trade: A Macro and Micro Data Analysis

Alper Akpınar[156,157,158]
Ege University, Turkey
alper.akpinar@ibg.edu.tr

Mert Abay[2]
Dokuz Eylul University, Turkey
mert.abay@ibg.edu.tr

Bülent Kılıç
Dokuz Eylul University, Turkey
bulent.kilic@deu.edu.tr

Sedef Akgüngör
Dokuz Eylul University, Turkey
sedef.akgungor@deu.edu.tr

Abstract
The study examines the impact of pharmaceutical R&D expenditures on pharmaceutical foreign trade by utilizing macro and microdata. The macro data is sourced from open-access databases provided by OECD and TURKSTAT, while the microdata analysis was conducted at the TURKSTAT data research center. The macro-level data analysis involves a cointegration test followed by estimating long-term coefficients. The results indicate that pharmaceutical R&D expenditures positively affect pharmaceutical exports in the long run, while they negatively affect pharmaceutical imports. In addition, pharmaceutical R&D expenditures positively affect total exports but not total imports. The micro-level data analysis involves POLS, fixed and random effect panel models. The findings reveal that pharmaceutical firm's R&D expenditure is positively correlated with exports and negatively correlated with imports. The macro and micro data findings align with our expectations, reinforcing each other intensely.

Keywords: Pharmaceutical R&D Expenditures; Pharmaceutical Trade; Health Economics; Time-Series Analysis; Panel Data Analysis.

JEL Classification: I10; C32; C33; F10.

[156] **Correspondence:** Department of Economics, Graduate School of Social Sciences, Ege University, Izmir, Turkiye. Phone: 05413857653, E-Mail: contact@alperakpinar.com.
[157] Project Researcher, Izmir Biomedicine and Genome Center.
[158] This study was supported by TUBITAK (the Scientific and Technological Research Council of Turkey). TUBITAK-ARDEB 1004 Research Project No: 20AG006.

İlaç Ar-Ge Harcamalarının Dış Ticaret Üzerindeki Etkisi: Makro ve Mikro Verilerle Bir Analiz

Özet

Çalışmada son yıllarda önem kazanan ilaç Ar-Ge harcamalarının ilaç dış ticaretine etkisi makro ve mikro veriler kullanılarak incelenmektedir. Makro veriler OECD ve TÜİK tarafından sağlanan açık erişimli veri tabanlarından elde edilmiştir. Mikro veriler ile yapılan analizler ise TÜİK veri araştırma merkezinde gerçekleştirilmiştir. Makro veri analizinde eşbütünleşme testinin ardından uzun vadeli katsayıların tahmini yapılmıştır. Sonuçlar, ilaç Ar-Ge harcamalarının uzun dönemde ilaç ihracatını pozitif yönde etkilerken, ilaç ithalatını negatif yönde etkilediğini göstermektedir. Bunun yanı sıra, ilaç Ar-Ge harcamaları toplam ihracatı pozitif etkilerken, toplam ithalatı etkilememektedir. Mikro verilerin analizi ise havuzlanmış en küçük kareler (POLS), sabit etkiler modeli ve rassal etkiler modeli kullanılarak gerçekleştirilmiştir. Bulgular, ilaç firmalarının Ar-Ge harcamaları ile ihracat arasında pozitif yönlü, ithalat arasında ise negatif yönlü bir ilişki olduğunu göstermektedir. Gerek makro, gerekse de mikro analizlerden elde edilen sonuçlar beklentilerle uyumlu ve birbirini destekler niteliktedir.

Anahtar kelimeler: İlaç Ar-Ge Harcamaları, İlaç Dış Ticareti, Zaman Serisi Analizi, Panel Veri Analizi.
JEL Kodları: I10; C32; C33; F10.

Intra-Industry Trade of Turkey under the Shadow of Global Shocks: An Analysis of the 2008–2023 Period

Şerif Yüksel[159]
Istanbul Kültür University, Turkey
serif.yuksel@iku.edu.tr

İsmail Ertek
Istanbul Kültür University, Turkey
i.ertek@iku.edu.tr

Abstract
This study examines the level and determinants of Turkey's intra-industry trade (IIT) with its main trading partners during the 2008–2022 period. This timeframe includes exogenous shocks such as the Covid-19 pandemic and exchange rate crises, along with structural shifts in Turkey's trade policy. These developments are assumed to have influenced the country's trade structure and affected IIT levels. The empirical framework is based on Ekanayake's (2010) study on Mexico. Using the Grubel-Lloyd index, both unadjusted and adjusted IIT ratios were calculated and logit-transformed, then estimated through a fixed-effects panel data model. Explanatory variables include per capita income, GDP, income and size differentials, geographic distance, trade intensity, trade openness, trade imbalance, common language, and regional trade membership. The effects of Covid-19 and exchange rate shocks are controlled through dummy variables. The dataset is compiled from TURKSTAT and UN Comtrade trade data, World Bank development indicators, and the CEPII distance database. Preliminary findings suggest that per capita income, economic size, trade openness, and trade intensity positively influence IIT, while income and size differentials, distance, and trade imbalance reduce it. The study offers policy recommendations focusing on product diversification, economic convergence, and stronger regional trade integration.

Keywords: Intra-Industry Trade, Turkey, Panel Data, Foreign Trade
JEL Codes: F14, C23, O24

[159] **Correspondence:** Department of International Trade and Finance, Istanbul Kültür University, Istanbul, Turkey. Phone: +90 212 4984390, e-mail: serif.yuksel@iku.edu.tr

Küresel Şoklar Gölgesinde Türkiye'nin Endüstri-İçi Ticareti: 2008–2023 Döneminin Analizi

Özet

Bu çalışma, Türkiye'nin 2018–2023 döneminde başlıca ticaret ortaklarıyla gerçekleştirdiği endüstri-içi ticaretin (EİT) düzeyini ve belirleyicilerini analiz etmektedir. Seçilen dönem, Covid-19 pandemisi ve döviz kuru şokları gibi dışsal kırılmaların yanında dış ticaret politikasında yaşanan yapısal dönüşümleri de içermektedir. Bu gelişmelerin Türkiye'nin dış ticaret yapısını etkileyerek EİT oranlarında değişim yaratabileceği varsayılmaktadır. Çalışmanın ampirik çerçevesi, Ekanayake (2010)'nin Meksika çalışmasına dayanmaktadır. Grubel-Lloyd endeksi kullanılarak hem düzeltilmemiş hem de düzeltilmiş EİT oranları hesaplanmış; bu oranlar logit dönüşümüne tabi tutularak sabit etkili panel veri modeliyle tahmin edilmiştir. Açıklayıcı değişkenler arasında kişi başı gelir, GSYİH, gelir ve büyüklük farkları, coğrafi mesafe, ticaret yoğunluğu, ticaret açıklığı, ticaret dengesizliği, ortak dil ve bölgesel ticaret üyelikleri yer almaktadır. Covid-19 ve kur şoklarının etkileri kukla değişkenlerle kontrol edilmiştir. Veri seti, TÜİK ve UN Comtrade dış ticaret verileri, Dünya Bankası kalkınma göstergeleri ve CEPII mesafe veri tabanından derlenmiştir. Ön bulgular, kişi başı gelir, ülke büyüklüğü, ticaret açıklığı ve ticaret yoğunluğu gibi değişkenlerin EİT üzerinde pozitif ve anlamlı etkiler yarattığını; buna karşılık gelir ve büyüklük farkları, coğrafi mesafe ve ticaret dengesizliğinin EİT'yi azalttığını göstermektedir. Covid-19 bazı ülkelerde EİT'yi olumsuz etkilerken, kur şokları sanayi ürünlerinde artırıcı yönde sonuçlar doğurmuştur. Çalışma, ürün çeşitliliği, ekonomik yakınsama ve bölgesel entegrasyona odaklı politika önerileri sunmayı hedeflemektedir.

Anahtar Kelimeler: Endüstri-İçi Ticaret, Türkiye, Panel Veri, Dış Ticaret
JEL Kodları: F14, C23, O24

Exploratory Analysis of Global Electric Vehicle (EV) Market Clusters and Forecasting EV Adoption in Turkey

Serkan Cebelli
Parts Distribution Center Manager, Doğuş Otomotiv
Phd Candidate at İstanbul Okan University, Business Administration
scebelli@dogusotomotiv.com.tr

İrem Yalkı
Asst. Prof., İstanbul Okan University, Faculty of Business and Administrative Sciences, Department of International Trade
irem.yalki@okan.edu.tr

Abstract:
In recent years, increasing environmental concerns and the goal of reducing carbon emissions have positioned electric vehicles (EVs) as key drivers of sustainable transformation in the automotive sector. Turkey has also taken significant steps in this transformation process by developing strategic policies aimed at accelerating the growth of the EV market. However, determining the rate of EV adoption and forecasting future sales plays a critical role in achieving Turkey's sustainable development goals.
This study clusters global electric vehicle (EV) markets using multidimensional data through cluster analysis and forecasts the adoption dynamics of EV sales in Turkey until 2035 using the Bass Diffusion Model. In the first phase of the research, K-means clustering algorithm was applied to analyze global EV market data, including variables such as EV sales ratios, the number of fast-charging stations, and per capita income. As a result of this analysis, different clusters such as early adopters, strong but late adopters, and laggards were identified, and Turkey's position within these cluster structures was evaluated.
In the second phase of the study, the Bass Diffusion Model was applied to estimate the future adoption of EV sales in Turkey. Additionally, the year in which the highest adoption rate will be observed was identified, and Turkey's adoption curve was compared with that of early-adopter countries such as Norway. The findings provide supportive insights for policy development in this area.

Keywords: Electric Vehicles (EV), Bass Diffusion Model, Cluster Analysis, Turkey EV Market
JEL Codes: L62, Q55, O33, C53

Türkiye'de Elektrikli Araç Satışlarının Gelecek Projeksiyonu: Kümeleme ve Bass Yayılım Modeli ile Bir Değerlendirme

Özet

Son yıllarda artan çevresel kaygılar ve karbon emisyonlarının azaltılması hedefleri doğrultusunda, elektrikli araçlar (EV) otomotiv sektörünün sürdürülebilir dönüşümünde kilit bir rol oynamaktadır. Türkiye de bu dönüşüm sürecinde önemli adımlar atmakta olup, EV pazarının büyümesini hızlandırmaya yönelik stratejik politikalar geliştirmektedir. Ancak, EV yayılım hızının belirlenmesi ve gelecekteki satışların öngörülmesi, Türkiye'nin sürdürülebilir kalkınma hedeflerine ulaşmasında kritik bir rol oynamaktadır.

Bu çalışma, küresel elektrikli araç (EV) pazarlarını çok boyutlu veriler kullanarak kümeleme analizi ile gruplandırmakta ve Türkiye'deki EV satışlarının 2035 yılına kadar olan süreçte benimsenme dinamiklerini Bass Yayılım Modeli ile öngörmektedir. Araştırmanın ilk aşamasında, dünya genelindeki ülkelerin EV satış oranları, hızlı şarj istasyonlarının sayısı ve kişi başına düşen milli gelir gibi değişkenler kullanılarak K-means kümeleme algoritmasıyla analiz edilmiştir. Bu analiz sonucunda, erken benimseyenler, güçlü ama geç benimseyenler ve geriden gelen ülkeler gibi farklı kümeler tanımlanmış ve Türkiye'nin konumu bu küme yapıları içinde değerlendirilmiştir.

Çalışmanın ikinci aşamasında, Türkiye'de EV satışlarının gelecekteki yayılımını tahmin etmek amacıyla Bass Yayılım Modeli uygulanmıştır. Ayrıca, en yüksek benimseme hızının yaşanacağı yıl belirlenmiş ve Türkiye'nin benimseme eğrisinin Norveç gibi erken benimseyen ülkeler ile kıyaslanmasına olanak sağlanmıştır. Bu konuda politika geliştirilmesine yönelik olarak destekleyici bilgiler ortaya çıkmaktadır.

Anahtar Kelimeler: Elektrikli Araçlar (EV), Bass Yayılım Modeli, Kümeleme Analizi, Türkiye EV Pazarı
JEL Kodları: L62, Q55, O33, C53